Stewart County
City of Lumpkin
City of Richland

PRE-DISASTER MITIGATION PLAN

May 2014

PREPARED WITH STAFF ASSISTANCE FROM:
RIVER VALLEY REGIONAL COMMISSION

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PRE-DISASTER MITIGATION PLAN

1- INTRODUCTION

1.1 Purpose of the Pre-Disaster Mitigation Plan, Authority, and Statement of Problem

The Robert T. Stafford Disaster Relief and Emergency Assistance Act authorizes the release of federal financial assistance to communities that have experienced a disaster, and have been declared a disaster area by the president of the United States. With the amended Disaster Mitigation Act of 2000, starting November 1, 2004, it is not enough for local governments to receive a presidential disaster declaration, but they must have prepared and adopted a federally approved pre-disaster mitigation plan in order to be eligible for federal financial disaster assistance. Thus, counties across the nation are required to create a Pre-Disaster Mitigation Plan to address the community’s vulnerability to hazards prior to a disaster event.

This amendment is trying to reduce the financial burden placed on the nation’s taxpayers, which has increased through the past years, when communities have turned to the government for help after they have experienced a disastrous event. The communities have to identify where and why they are susceptible to natural and technological hazards, and show which measures are being taken to mitigate, reduce or eliminate the exposure to these hazards. Stewart County has experienced severe weather conditions in the past, including wildfires, severe thunderstorms, tropical storms, tornados, as well as hazardous floods.

Potentially deadly weather impacts every American. About 90 percent of all presidential disaster declarations are weather related, as all five were presidential disaster declarations for Stewart County. Severe weather results in approximately 500 deaths per year in the United States and approximately $14 billion in damage. Stewart County and its municipalities are no way immune to technological hazards like materials releases, transportation accidents, and dam failure. Preparedness is the key to saving lives and protecting property.

Stewart County and the Cities of Lumpkin and Richland have included mitigation efforts in their planning processes. In their 2006 Comprehensive Plan, Stewart County outlined as one of its objectives to “Protect residents from significant hazards to life, health and property.” In 2012 the Local Emergency Operations Plan (LEOP) was updated “to ensure prior mitigation/preparedness, appropriate response and timely recovery from natural or man-made hazards that may affect this county.” For the Executive Summary of the LEOP, please refer also to Appendix C, pages C1-C4.

This Pre-Disaster Mitigation Plan represents Stewart County’s efforts to profile in detail the natural and technological hazards threatening the residents and structures in the county. With an estimation of the frequency of hazards, threats and mitigation efforts can be
prioritized, and risks from natural and technological hazards reduced. Key players, who are working on reducing the effects of potential hazards, can find information and guidance in these documents. While this plan has been trying to address most known potential hazards, it does not claim to cover all possible risks. The plan has been the first large-scale effort to fully understand the potential impact of disasters affecting the community, including analysis and evaluation of hazard events, exposure of critical facilities to hazards, potential losses, and an assessment of current plans and mitigation efforts. The result is a prioritized list of goals and strategies that can be implemented to ensure the safety of all Stewart County residents.

It is a requirement of the regulations above, local Mitigation Plans must be updated and resubmitted to FEMA for approval every five (5) years in order to continue eligibility for FEMA hazard mitigation assistance programs.

The mitigation planning regulation at §201.6(d) (3) states:

A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five (5) years in order to continue to be eligible for mitigation project grant funding.

Plan updates must demonstrate that progress has been made in the past 5 years for Local Mitigation Plans to fulfill commitments outlined in the previously approved plan. This involves a comprehensive review and update of each section of the Local Mitigation Plan and a discussion of the results of evaluation and monitoring activities detailed in the Plan Maintenance section of the previously approved plan. Plan updates may validate the information in the previously approved plan, or may involve a major plan rewrite. A plan update is NOT an annex to the previously approved plan; it stands on its own as a complete and current plan.

In this plan update, the communities have to identify where and why they are susceptible to natural and technological hazards, and show which measures are being taken to mitigate, reduce or eliminate the exposure to these hazards. This will reduce the financial burden placed on the nation’s taxpayers, which has increased through the past years, when communities have turned to the government for help after they have experienced a disastrous event.

1.2 Methodology, Planning Process, and Participants

The Stewart County Pre-Disaster Mitigation Committee has been appointed by the Stewart County Board of Commissioners to develop this Pre-Disaster Mitigation Plan in conjunction with the Stewart County Emergency Management Agency. Additionally, representatives from various community agencies were invited and participated in the planning process, such as the Stewart County EMS and Fire Department, the West Central Health District Office of EMS and Emergency Preparedness, the Stewart County Family Connection, Stewart County Board of Education, the Stewart Webster Rural Health Clinic and Stewart
County Coroner and numerous local government officials. For a copy of the PDM Planning Committee Mail out list, please refer below. The River Valley Regional Commission (RVRC) facilitated the planning process, assisted the committee in their collection of data, research, and analysis, attended the committee meetings, facilitated the public hearings, helped with the compilation of the map data, and developed the written document. Representatives of the public and private sector were active in the planning process.

The full committee met on May 1, 2012 and again monthly from May 2012 until August 2013, and due to its workable size was not divided into subcommittees. The Pre-Disaster Mitigation Executive Committee consisted of the chief appointed officials of the cities and the county, city and county staff, and the Director of the Emergency Management Agency. This committee has been responsible for the mission and vision, for reviewing the input from the key players, and will be responsible for the implementation of the plan. This committee has also profiled hazards, identified critical facilities and their exposure to hazards, and developed mitigation strategies. Participants and their titles are listed below.

Rossie Ross
Stewart County;
EMA Director

Lynn Woodruff
Stewart County;
Family Connections

Phillip Hite
City of Lumpkin;
City Administrator

Hank Wilson
GA Department of Public Health;
Health Care Liaison

Robyn Fant
Stewart County;
Board of Education

Joe Lee Williams
Stewart County;
Commission Chairman

Diane Babb
Stewart County;
County Clerk

Tabitha Osting
Stewart County,
Clerk Office

Floyd Fort
Stewart County Schools

Kristine Booth
Stewart-Webster Rural Health Clinic

Rebecca Shepherd
Stewart-Webster Rural Health Clinic
The City of Richland Main Street Program Manager helped in the planning process by providing information on critical facilities within the area and by proofing the edits of the plan.

Neighboring counties and local officials were invited via U.S. mail to early planning meetings for an opportunity to provide input on plan development. The counties invited include Chattahoochee, Webster, Marion, Quitman, and Randolph. Neighboring counties and citizens were also asked to provide input on plan development through Public Hearing announcements published in the Stewart-Webster Journal. The Public Hearing announcements can be found in Appendix E.

Sign-in sheets and labor documentation sheets were kept in order to verify that the community met the 25% local match from planning dollars awarded by GEMA. Copies of the sign-in sheets, meeting agendas and minutes can be found in Appendix E. Due to the personal salary information, labor documentation sheets are not included in this document, but are being maintained on file by the Stewart County EMA Director for no less than three years from the date of approval, for audit purposes. Four existing planning documents were used:

Stewart County Comprehensive Plan 2006
Stewart County Local Emergency Operations Plan 2012
Community Wildfire Protection Plan for Stewart County 2011
Georgia Hazard Mitigation Strategy Update 2014

Some of the items in these documents above which were considered when writing this plan include the “Land Use or Zoning Categories to be Allowed” in the 2006 Comprehensive Plan, noting that development should be discouraged in flood prone areas, and instead passive recreation and green space should be encouraged in these areas. Also, in general, as character areas are defined throughout the county, one of the overarching policies should be to encourage review of development ordinances to “Protect residents from significant hazards to life, health and property.”

In the Emergency Operations Plan and the Georgia Hazard Mitigation Strategy, the personnel and responsibilities related to emergency operations throughout the county for all types of hazards are assigned.

The County’s Community Wildfire Protection Plan and State Hazard Mitigation Strategy were consulted when developing the goals and objectives for each potential hazard.
Stewart County does not have a Flood Insurance Study or a Flood Mitigation Assistance Plan. As a result, information from these documents was not included in the Hazard Mitigation Planning process.

Other sources used were the National Climatic Data Center (NCDC), the Georgia Department of Natural Resources (GA DNR), the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Agency (FEMA), the Office of Homeland Security-Georgia Emergency Management Agency (GEMA), the Georgia Department of Transportation (GDOT), U.S. Census data, Georgia Department of Community Affairs (DCA), Georgia Forestry Commission, (GFC), United States Geological Services (USGS), and others. This document was created by funneling the research, data, ideas, and thoughts of the key players in Stewart County and of the Stewart County Pre-Disaster Mitigation Planning Committee, and putting them together into one comprehensive document.

Public Hearings were part of the plan creation, held in an effort to attain public participation, and input to the local plan. The first public hearing took place on October 24, 2013 at the Stewart County courthouse. The second public hearing was held on July 15, 2014 at Richland City Hall. At the public hearings, the public was able to give their input to the local plan, review copies of the Pre-Disaster Mitigation Plan draft, and comment on the identified hazards and mitigation strategies. Copies of the Public Hearing Notices and minutes can be found in Appendix E.

Drafts were presented to the full committee for its review and comment on July 31, 2014. Members of the Stewart County Board of Commissioners and the Mayors of Richland and Lumpkin were also given a copy of the corrected draft. Authorization was given to submit this plan to GEMA for their review and approval. Once approved the plan will go before the county and its municipalities for adoption and will then be submitted to FEMA.

1.3 Organization of this Plan

In Chapter 2, eight natural hazards are analyzed in detail, including a description of the hazard, the damage potential, the frequency of occurrence in the past, and the probability for future events. The description is followed by an inventory of assets exposed to the hazard, and an estimate of potential losses that could be expected. Land use and development trends are also being identified in their relationship to the hazard, and multi-jurisdictional differences identified. Chapter 3 addresses two technological hazards and two man-made hazards in the same manner as the natural hazards in Chapter 2. The following two Chapters, 4 and 5, present the local mitigation goals and objectives for both natural and technological hazards respectively. These chapters list mitigation options, existing policies, and community values, and identify mitigation strategies, including tasks and action steps, and recommendations to mitigate adverse impacts of hazard events. The execution of the plan is outlined in Chapter 6, addressing the implementation, evaluation, update and maintenance of the plan. The document concludes with a summary in Chapter 7, followed by appendices as supporting documentation.
## 1.4 Hazards, Risk, and Vulnerability Summary, Local Mitigation Goals and Objectives

In this plan, eight natural hazards, two technological hazards, and two man-made hazards are identified and evaluated in their potential impact on Stewart County. The purpose of this hazard, risk and vulnerability assessment is to understand how vulnerable Stewart County is to each hazard, and how the exposure to the hazard can be reduced. By identifying the nature of each hazard, past events, the frequency of occurrence, and the estimated probability of a future event to take place, a profile is developed for each hazard. The most threatening natural hazards in Stewart County, as identified by the committee, are thunderstorms, tropical storms/hurricanes, tornados, floods, droughts, and excessive heat. Although they are less likely than wildfires, funnel cloud and water spout have been analyzed. In addition, as Stewart County is largely agricultural, the presence of the Southern Pine Beetle and the IPS Beetle present hazardous threats throughout the county. Two technological hazards have been identified by the committee, the most threatening being hazardous materials incidents, released in both fixed and in transportation accidents. Stewart County is also at risk of experiencing dam failure among any of the twenty-five dams located throughout the county. Furthermore, two man-made hazards have been identified by the committee; these include civil disturbance and terrorism. Civil disturbance has been identified by the planning committee due to the increasing criminal and illegal activities which the County is currently dealing with. The committee identified terrorism as a possible threat due to the County’s close proximity to the Fort Benning Military Installation. The committee also considered landslides, funnel cloud and waterspouts, earthquakes, and wildfires. However the committee found these to be of low to non-existent threat; therefore these hazards were not included in this plan.

The next step is to identify critical facilities, ranging from buildings to infrastructure, and assess if they are in hazard prone or susceptible areas. Should these facilities ever be damaged, potential losses could be expected, and an estimate is made at this time. Critical facilities are essential to the community because their functions and services are important to the health and welfare of the population. Included are facilities for public safety, for emergency response, and facilities with disaster recovery functions.

In order to assess and reduce the risk of exposing facilities to hazards, land use and development trends in Stewart County are reviewed. Mitigation options become apparent, and can be considered in future land use decisions. In case that the situations in the City of Richland, City of Lumpkin and Stewart County differ, these multi-jurisdictional differences have been addressed here as well.
Stewart County’s overall mitigation goals are as follows:

**Mitigation Goal #1  Protect the public health and safety**
Objective 1: Increasing public awareness of the wide range of natural hazards, their effects, and hazard mitigation.
Objective 2: Provide educational programs and activities for the community to promote severe weather awareness.
Objective 3: Provide educational and meaningful programs and activities for the community to promote severe weather training.

**Mitigation Goal #2  Institutionalize mitigation**
Objective 1: Improve the comprehensive mitigation strategy.
Objective 2: Prevent losses of vital public records.
Objective 3: Increase coordination between local public departments and between the public and private sectors in pre-disaster planning.

**Mitigation Goal #3  Provide immediate warning to the public in the event of a severe weather event or onset of a natural hazard**
Objective 1: Inform public in advance through public warnings.

**Mitigation Goal #4  Effectively respond to and recover from severe weather events**
Objective 1: Coordinate training for members of Stewart Counties EMA office on natural Hazards.
Objective 2: Assist in the development and implementation of guidelines and procedures to respond to and recover from severe weather events or the onset of a natural hazard.

**Mitigation Goal #5  Respond promptly, appropriately and efficiently in the event of a natural or man-made hazard when shelters are required**
Objective 1: Increase the capability of the employees of the Department of Family and Children Services (DFCS), American Red Cross, Public Health and EMS trained in basic shelter Operations.
Objective 2: Increase response capabilities by purchasing shelter equipment.

**Mitigation Goal #6  Maintain up-to-date data base and assessment of vulnerability of critical facilities endangered by hazards**
Objective 1: Use the on-line map tool from GEMA to map and identify the still any new critical facilities.
Objective 2: Keep up-to-date records of critical facilities.

1.5  **Multi-Jurisdictional Special Considerations**
This Pre-Disaster Mitigation Plan has been developed for Stewart County, The City of Richland, and the City of Lumpkin. With few exceptions, all three jurisdictions are exposed to the same hazards. Where applicable, specific mitigation actions needed to reduce the adverse impacts of specific hazards have been identified for each jurisdiction. The mitigation goals are similar for all entities.

Through analysis of the population and possible special needs in the three jurisdictions, it is apparent that the number of senior citizens 65 years and older is relatively higher than the State average of 10.7%, with 14.2% in Stewart County, 20.0% in the City of Richland, and 7.2% in the City of Lumpkin. The population of county and city is becoming increasingly older with the age category of 65 years and above experiencing the greatest increase (US Census 2010).

1.6 Adoption, Implementation, Monitoring, and Evaluation of the Plan

Since the completions of the document, GEMA reviewed the plan to ascertain that it complies with federal regulations. A second public hearing was held on July 15, 2014. After the official GEMA approval on July 1, 2014, the Stewart County Pre-Disaster Mitigation Plan was formally adopted by the Richland and Lumpkin City Councils and the Stewart County Board of Commissioners on August 18, 2014, August 11, 2014, and August 12, 2014 respectively, and subsequently submitted to GEMA and FEMA. Please refer to the adoption resolution on page 11.

A system for the implementation, evaluations, updating and maintenance of the plan is set out in Chapter 6 of this plan. Once the plan has been implemented, it will have to be evaluated frequently by the EMA Director and an assigned committee, and updated if necessary. This will ensure that Stewart County, The City of Richland, and the City of Lumpkin have a compliant mitigation plan in place at all times.

1.7 Copy of Enacting Resolutions for Plan Adoption

RESOLUTION

WHEREAS, In accordance with federal regulations promulgated pursuant to the Disaster Mitigation Act of 2000, local governments must have prepared and adopted a pre-disaster mitigation plan, in order to be eligible for federal disaster assistance in the event of a presidential disaster declaration made after November 1, 2003; and

WHEREAS, The Stewart County Board of Commissioners requested, and received in 2011 a Pre-Disaster Mitigation Grant Program Planning Grant award from the Office of Homeland Security-Georgia Emergency Management Agency, designated project number 1858-0055, to fund preparation of a pre-disaster mitigation plan in accordance with federal regulations promulgated pursuant to the Disaster Mitigation Act of 2000; and
WHEREAS, The Stewart County Pre-Disaster Mitigation Plan has been prepared as a multi-jurisdictional document to satisfy pre-disaster mitigation planning requirements for the Stewart County Board of Commissioners, the City of Lumpkin and the City of Richland; and

WHEREAS, The Office of Homeland Security-Georgia Emergency Management Agency has officially notified the Stewart County Board of Commissioners that the Stewart County Pre-Disaster Mitigation Plan satisfies applicable federal pre-disaster mitigation planning requirements.

NOW, THEREFORE BE IT RESOLVED by the Stewart County Board of Commissioners, the Mayor and City Council of the City of Lumpkin, and the Mayor and City Council of the City of Richland, each meeting in regular session, to hereby approve and adopt the Stewart County Pre-Disaster Mitigation Plan 2014.

RESOLVED, in regular session this _____ day of ____________ 2014, by the STEWART COUNTY BOARD OF COMMISSIONERS

By: ___________________________  By: ___________________________
Hon. Joe Lee Williams, Chairman  Diane Babb, County Clerk

RESOLVED, in regular session this _____ day of ____________ 2014, by the LUMPKIN CITY COUNCIL

By: ___________________________  By: ___________________________
Hon. Charles Gibson, Jr., Mayor  Mariana Williams, City Clerk

RESOLVED, in regular session this _____ day of ____________ 2014, by the RICHLAND TOWN COUNCIL

By: ___________________________  By: ___________________________
Hon. Adolph McClendon, Mayor  Wanda Wilson, City Clerk

1.8 Past and Current Hazard Mitigation Projects

Stewart County, the City of Richland, and the City of Lumpkin have performed some mitigation as well as many restoration measures in the past. These measures include installing water drainage pipes and ditches to reduce flooding in the county. These measures serve to prevent future flooding from thunderstorms, tropical storm, and hurricane events, and to reduce traffic accidents.
1.9. Community Data

Stewart County was formed on December 23, 1830; it was named for General Daniel Stewart an officer in the Revolutionary War and War of 1812, and grandfather of President Theodore Roosevelt. The county consists of two cities, Lumpkin and Richland. County total area is 458.7 square miles.

The City of Lumpkin, the county seat, was incorporated March 30, 1829. The city was named in honor of Wilson Lumpkin, a two-term governor of Georgia, U.S. Congressman and Senator. He was a leading advocate of state rights and "Indian Removal." The Woodland, Mississippian, and Creek Indians were all once inhabitants of Stewart County. In addition, two of the six largest Indian mounds in Georgia are located in the County.

Lumpkin is located in the center of the county. U.S. Highway 280, Georgia State Routes 1, 27, and 39 intersect the county. The City of Richland sits on the eastern-most side of the county, on the border with Webster county. The incorporated area is roughly 1500 by 2000 ft.², dragging along Route 27. The courthouse in Stewart County was constructed in 1896 and burned in 1922. The courthouse was rebuilt in 1923 and is listed on the National Register of Historic Places.

Providence Canyon Conservation Park, located near Lumpkin is a collection of canyons and gullies. The largest of these is "Grandfather Canyon," which is a half mile long, 300 feet wide and 150 feet deep. The 1,061-acre park also has the largest natural collection of the rare "Plumleaf Azalea" in the world.

Lumpkin is the home of the Bedingfield Inn, which is a two-story inn built in 1835 by Bryan Bedingfield, and today is one of the great house museums in the South. The conservation and revitalization of the inn was one of the first rural preservation successes in Georgia. Stewart County is a rural county with an agricultural base and is listed a Tier I county in the Governor’s One Georgia Program. The county is approximately 40 miles from the City of Columbus and roughly 13 miles east of the Alabama State Line. Stewart County experiences long, hot, humid summers with relatively mild, short winters. Its annual rainfall is 55 inches with July being its wettest month and October it’s driest. The highest average temperature is 91 degrees in July and the lowest is 45 degrees in January.

According to the 2010 census, the total population for Stewart County was 6,058, of which 28.0% of the residents were white and 47.3% were black. Hispanics, who can be identified as either white or black in the Census data, made up 24.0% of the county’s population. Statewide, 59.7% of residents were white, 30.5% were black, and 8.8% were Hispanic. In Stewart County, 11.2% of county’s residents were age 18 years or younger and 14.2% were age 65 or older. In 2010, Stewart County had 0.87 physicians and 5.3 Hospital beds per 1,000 population. The state of Georgia’s ratios are 2.0 physicians and an average of 2.48 beds per 1,000 population (The Georgia County Guide, 2012).
The 2011 Georgia Bureau of Investigation Crime Statistics for Stewart County totals 29 crimes for the entire County. Violent crimes totaled 3 and property/non-violent crimes were 26.

In 2010, 2,817 members of the adult population in the county was registered to vote. Of those registered voters, 54.0% voted in the 2010 general election. Statewide, in 2010, 51.3% of Georgians were registered to vote. Of those registered, 51.2% voted in the general election that year (The Georgia County Guide, 2012).

In the year 2010, the average weekly wage for all the employment sectors in the county was $606. This amount was less than the statewide average of $844. In Stewart County, 33.0% of the population is employed. In 2010, the largest number of jobs were in health care and social assistance. Private sector and services are the largest employment sector providing 64.3% of the jobs. The other predominant employment sectors are government and goods-producing (The Georgia County Guide, 2012).

The largest source of income in both 2000 and 2010 was wages or salary. Retirement income was the second largest source of income in 2010. In 2000, Social Security was the second largest source of income. The top ten employers in Stewart County in 2011 were A & D Logging, B & S Air Inc., B & S Wood Service Inc., Farmers State Bank, Four County Health and Rehab, Southwest Georgia Health Care Inc., Stewart County Board of Education, Stewart Detention Center, Stewart Webster Hospital Inc., and W. C. Bradley Farms Inc. (Georgia Department of Labor, 2011).

As of the latest data found, July of 2012, Stewart County’s unemployment rate was higher than the states’ rate, averaging 10.9%. (www.bls.gov/lau/). The state of Georgia averaged an unemployment rate of 9.3% and nationwide the unemployment rate for the same period averaged at 8.3%.

The average county per capita personal income from 2006 through 2010 was $15,612, for Lumpkin it is $17,860 and for Richland it is $12,840, as compared with $23,383 (2010) for Georgia, and $26,059 (2010) for the United States. Stewart County’s average median household income from 2006 through 2010 was $30,954. This amount was less than the state’s median household income for 2010 of $44,108. Nationally, the median household income for that same year was $49,445 (U.S. Census, 2010).

Between 2006 and 2010, 24.2% of the county’s population lived below the poverty level, compared with Georgia’s rate of 15.7% and the national rate of 13.8%. In addition, in 2010, 25.8% of the poverty living population were children under the age of 18 who lived in Stewart County. Statewide, 36.1% of the poverty living population were children under the age of 18 (U.S. Census, 2010).

According to the U.S. Census in 2009, 18.4% of Stewart County’s households with children under 18 years of age were headed by females, compared to 13.1% statewide. Total households with children under 18 years of age comprised 45.4% of all households in the county and 47.8% of those in the state (The Georgia County Guide, 2012).
Between 2009 and 2010, the Stewart County school system reported an average high school dropout rate of 10.6%, for students in grades 9 to 12. Statewide, this rate was 3.5% for the same time period (The Georgia County Guide, 2012).

2- Local Natural Hazard, Risk and Vulnerability Summary

2.1 Thunderstorms/ High Winds

2.1.A. Identify Thunderstorms

A thunderstorm, or an electrical storm, is a form of weather characterized by the presence of lightning and its attendant thunder. It is usually accompanied by abundant rainfall, hail, or rarely, snowfall in the winter months. In temperate regions, such as the southern United States, thunderstorms are most frequent in spring and summer, though can occur in cold fronts at any time of year. During the summer, violent thunderstorms are a common occurrence. These storms can produce very large hail and powerful tornadoes.

Thunderstorms can develop isolated, in clusters or in lines. Isolated Thunderstorms tend to form where there is abundant moisture at low and middle levels of the atmosphere, and when there is a force that can lift warm air, such as a warm or cold front, a sea breeze or a mountain. The warm air is forced to rise rapidly. Thunderstorms can develop isolated, in clusters or in lines. A single thunderstorm can affect a certain location for an extended time, and cause some of the most severe weather; or several thunderstorms can affect that location over a few hours. Thunderstorm winds generally move in a straight line, and not in a rotating air column like tornados. The winds are normally short-lived, and can come in gusts over 50 miles per hour.

All thunderstorms contain lightning, which is another hazard in itself. The precipitation they bring most often is in the form of heavy rains that can cause flash flooding, but can also be in the form of hail. Tornados can be caused by thunderstorms as well.

2.1.B. Thunderstorm Even Profile, Frequency of Occurrence, Probability

A severe thunderstorm is a thunderstorm with winds 90 km/h (55 mph) or greater, 2 cm (3/4 inch) or larger hail, funnel clouds or tornadoes. These storms may contain frequent clouds to ground lightning and heavy downpours which can lead to localized flooding. An otherwise weak thunderstorm which produces a wind gust of the required strength would be defined as 'severe' whereas a very violent thunderstorm with continuous lightning and very heavy rain (but without the required wind gusts, hail or tornado/funnel clouds) would not be defined as severe. Many of the violent local thunderstorms which may occur frequently during the summer months in Stewart County would not be defined as severe.

Thunderstorms are a very common natural hazard, and their high winds can hit a county any time. All parts of the county have in the past experienced these high winds. A list of 48 major and noteworthy thunderstorm events can be found in the following table by the
NCDC (National Climatic Data Center) Table 1 below. Thunderstorms occur on almost regular basis in Stewart County, but the events do not cause any larger damage, and therefore are not reported to the NCDC.

According to the listing, the incorporated parts of Stewart County did not sustain any property or crop damage, nor did they have any deaths or personal injuries. Some of the unincorporated areas, however, did incur some property damage, totaling $104,000 worth of damage, but no loss of life or injuries. These listed property damages probably include trees blown onto homes, roofs damaged etc. Other smaller charges may not be included in this number; like signs blown off businesses.

**Table 1: Stewart County Thunderstorm events 1950-2012**

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Stewart</td>
<td>1/15/1971</td>
<td>10:50 AM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td>0K</td>
</tr>
<tr>
<td>2 Stewart</td>
<td>12/3/1983</td>
<td>9:40 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td>0K</td>
</tr>
<tr>
<td>3 Stewart</td>
<td>4/22/1984</td>
<td>2:55 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td>0K</td>
</tr>
<tr>
<td>4 Stewart</td>
<td>4/5/1985</td>
<td>8:08 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td>0K</td>
</tr>
<tr>
<td>5 Stewart</td>
<td>6/15/1989</td>
<td>11:00 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td>0K</td>
</tr>
<tr>
<td>6 Stewart</td>
<td>11/15/1989</td>
<td>9:00 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td>0K</td>
</tr>
<tr>
<td>7 Stewart</td>
<td>2/9/1990</td>
<td>5:00 AM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td>0K</td>
</tr>
<tr>
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<td>5:15 AM</td>
<td>Tstm Wind</td>
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<td>0</td>
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<tr>
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<td>11:10 AM</td>
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<td>0</td>
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<td>0</td>
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<td>0K</td>
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<tr>
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<td>Date</td>
<td>Time</td>
<td>Condition</td>
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<td>Damage 2</td>
<td>Damage 3</td>
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<td>Tstm Winds</td>
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<td>0 K</td>
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</tr>
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<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0 0 1 0 K</td>
<td>0 K</td>
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<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0 0 0 0 K</td>
<td>0 K</td>
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<td>Tstm Wind</td>
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<td>0 0 3 0 K</td>
<td>0 K</td>
<td></td>
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</tr>
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<td>6/25/2000</td>
<td>5:55 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0 0 2 0 K</td>
<td>0 K</td>
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<td></td>
</tr>
<tr>
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<td>12/16/2000</td>
<td>2:00 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0 0 3 0 K</td>
<td>0 K</td>
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<td>0 0 1 0 K</td>
<td>0 K</td>
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<td>0 kts.</td>
<td>0 0 1 0 K</td>
<td>0 K</td>
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<td></td>
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<tr>
<td>Troutman</td>
<td>1/19/2002</td>
<td>3:52 PM</td>
<td>Tstm Wind/hail</td>
<td>0 kts.</td>
<td>0 0 0 0 K</td>
<td>0 K</td>
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<td></td>
</tr>
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<td>1/19/2002</td>
<td>4:30 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0 0 3 0 K</td>
<td>0 K</td>
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<td>3:55 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
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<td>0 K</td>
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<tr>
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<td>8/17/2007</td>
<td>6:30 PM</td>
<td>Tstm Wind</td>
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</tr>
<tr>
<td>Lumpkin</td>
<td>3/28/2009</td>
<td>8:30 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0 0 2 0 K</td>
<td>0 K</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>4/13/2009</td>
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<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0 0 2 0 K</td>
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<td>3/26/2011</td>
<td>6:58 PM</td>
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<td>0 0 2 0 K</td>
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<td>11:22 PM</td>
<td>Tstm Wind</td>
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<td>0 0 5 0 K</td>
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<td>50 kts.</td>
<td>0 0 1.5 0 K</td>
<td>0 K</td>
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</tbody>
</table>

**Totals:** 0 0 104 0 K

*Source: National Climatic Data Center*

According to filed reports, on the 5th of November 1993, a thunderstorm hit 6 miles northwest of Lumpkin, causing $500 worth of damage from a power line being down and a Texaco gas station sign being down. On the 15th of April 1999, a thunderstorm hit Omaha and caused $1000 worth of damage from trees falling and half dollar to golf ball sized hail.
causing damage to car and home windows. On the 16th of December 2000, a thunderstorm went through Richland, causing $3000 worth of damage. Initial reports on this particular storm included the possibility of a tornado in the area, although this was never confirmed. On the 14th of June 2000, a thunderstorm struck Lumpkin, causing $3,000 worth of damage, which included down trees and power lines. In addition, a funnel cloud was sighted in the area. On the 19th of January 2002, a thunderstorm hit Omaha, causing $3000 worth of damage, which included down trees, down power lines, and power outages. On the 27th of March, 2005 a thunderstorm and microburst hit Lumpkin causing $50,000 worth of damage, mostly from the tearing off of the roof of the county’s Health Department building and damage caused to an outdoor storage bin at the Emergency Management Director’s facility. 40 or 50 trees within the same general small area were blown down, uprooted, or torn apart by the winds. The rest of the storms and damage caused were mostly due to down trees and debris pick up.

Straight line winds are traditionally associated with thunderstorms. Thunderstorms do not have rotating air columns, like tornadoes. The winds are normally over quite quickly, although they can occur in gusts of over fifty miles per hour.

According to the Hazard Frequency Table in Appendix A, Page A2. The historic occurrence for the unincorporated part of Stewart County is 1.86, which means that thunderstorms will hit that area every 1.86 years. This gives the area a 53.66% chance of being affected any given year. The historical occurrence for the City of Lumpkin is 2.93, which means thunderstorms are likely to hit Lumpkin every 2.93 years. This gives it a 34.15% chance that it will be affected any given year. The historic occurrence for the City of Richland is 20.50, meaning that the area has been hit every 20.5 years. This gives it a 4.88% chance of getting hit any given year.

Other side effects of thunderstorms can be lightning and/or hail. Lightning is a visible discharge of atmospheric electricity, often perceived as a lightning bolt. It occurs when a region of a cloud in a thunderstorm accumulates as excess electrical charge that is sufficiently large to break down the resistance of air. In a typical thunderstorm, about two-thirds of all lightning discharges take place within the cloud of from cloud to cloud. When lightning strikes the earth’s surface, the damage is caused through the large current flowing in the return stroke, or through the heat generated by this current. Temperatures in a bolt can reach up to 50,000°F in just a split second, and the electrical charge can be as much as 100 million volts. Lightning is accompanied by thunder, which is caused by the rapid heating and cooling of air near the bolt of lightning. No major lightning strikes occurring for Stewart County are listed in the NDCD database. This makes the probability of future occurrences unknown for lightning.

It should be noted that the GEMA Mapping Tool by ITOS has no spatial designation for lightning, therefore no maps are shown. However, according to the Vaisala National Lightning Detection Network, Stewart County averages approximately 18-21 lightning strikes per square mile per year.
The precipitation originating from shower clouds and thunderstorms can not only be in raindrops, but also in the form of pellets of soft hail or hail stones. Hail stones are small balls or lumps usually consisting of concentric layers of clear ice and compact snow, with a diameter of 0.2 to 4 inches. Because the formation of hail usually requires cumulonimbus or other convective clouds with strong updrafts, it often accompanies thunderstorms. Generally, these events are of great intensity and shorter duration than that from layer clouds. Hail can cause enormous destruction to agriculture, especially fruit orchards and grain fields, but also to structures, their windows, as well as the windows and roofs of vehicles. According to the NCDC, Stewart County has experienced 22 major hail events since 1950. Table 2 shows the hail occurrences.

<table>
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<tr>
<th>Location or County</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Mag</th>
<th>Dth</th>
<th>Inj</th>
<th>PrD</th>
<th>CrD</th>
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<td>STEWART</td>
<td>08/31/1987</td>
<td>1330</td>
<td>Hail</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
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<tr>
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<td>06:55 AM</td>
<td>Hail</td>
<td>1.00 in.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
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<tr>
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<td>0</td>
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<td>0</td>
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<td>0K</td>
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<tr>
<td>Louvale</td>
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<td>05:15 PM</td>
<td>Hail</td>
<td>0.75 in.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
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<tr>
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<tr>
<td>Troutman</td>
<td>01/19/2002</td>
<td>03:52 PM</td>
<td>Tstm Wind/hail</td>
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</tr>
<tr>
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<td>Location</td>
<td>Date</td>
<td>Time</td>
<td>Event</td>
<td>Size (in.)</td>
<td>Damage</td>
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<tr>
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<td>05:30 PM</td>
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<td>0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Omaha</td>
<td>03/27/2011</td>
<td>12:46 PM</td>
<td>Hail</td>
<td>1.00 in.</td>
<td>0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| TOTALS: | 0 | 0 | 12K | 2K |

Source: National Climatic Data Center

On the 13th of March 1997, Hail caused $5000 worth of damage in Lumpkin, pertaining to one inch of quarter sized hail falling. On the 1st of November, 1997 0.75 inches of dime sized hail fell on the county line between Chattahoochee and Stewart counties, causing $2000 worth of damage. On the 3rd of April 1998, one inch worth of quarter sized hail fell in Omaha, causing not only $3000 worth of property damage but also causing $2000 worth of crop damage. During the 15th of April, 1999, 1.75 inches of half dollar to golf ball sized hail fell in Omaha, causing $2000 worth of damage to windows in vehicles and homes, as well as knocking down several trees in the area.

According to the National Climatic Data Center, the typical hail size seen in Stewart County is marble size, ranging from ¾ inches to 1 ¾ inches in diameter. While hail size of a penny (3/4 inch) or larger is considered severe, even small hail can be damaging. Stewart County is an agricultural area and damage to crops is a real concern. Even very small hail can destroy crops depending on the crop maturity, wind speed or speed of the hail stones, and persistence.

According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence for the entire area is interval for hail is 1.14 years meaning that thunderstorms will hit every 1.14 years and the historic frequency states that every year there is a 88% chance that hail will hit Stewart County, the unincorporated area and the cities of Richland and Lumpkin. The historic occurrence for the unincorporated part of Stewart County is 8.33, which means that hail will hit that area every 8.33 years, which gives the area a 12% chance of being affected any given year. The historical occurrence for the City of Lumpkin is 5.00, which means hail is likely to hit Lumpkin every 5 years, which gives it a 20% chance that it will be affected any given year. The historic occurrence for the City of Richland is 12.50 meaning that the area has been hit every 12.5 years and there is a 8% chance of getting hit any given year.

2.1.C Inventory of Assets Exposed to Thunderstorms

The most damage is done by the strong winds accompanying the storms, but also due to hail, lightning, or flooding from the heavy rains. The winds associated with thunderstorms affect areas with softwood trees mostly, but also above ground utilities and exposed infrastructure. The Information Technology Outreach Service (ITOS) at the University of Georgia at
Athens created an on-line map tool for GEMA with the purpose of providing special data for Pre-Disaster Mitigation Plans. These maps were used extensively in the process of the development of this Pre-Disaster Plan. Please refer to the GEMA Wind Hazard Score maps by ITOS (see maps 1 to 3 below) depicting all of Stewart County, City of Richland, and City of Lumpkin as scoring 2 on a scale from 1 to 5, which stand for wind speeds of only 90 to 99 mph.

Anything with exposed features can suffer damage, like buildings, traffic signals, radio communication systems, etc. Thunderstorms can hit and cause damage anywhere in the county due to their random nature. This places all residents and all development at risk of damage.

In the City of Richland, there are 1,306 non-critical structures, of which 1,000 are classified residential, 250 commercial, 20 agricultural and 15 religious or non-profit. In the City of Lumpkin are 901 non-critical structures, of which 744 are classified residential, 118 commercial, 0 agricultural and 18 religious or non-profit. In the county, there are 2,464 non-critical structures, of which 1,300 are classified as residential, 56 commercial, 1,023 agricultural, and 54 as religious or non-profit. These non-critical structures potentially are all exposed to the high winds of a hurricane or tropical storm, just like the identified critical facilities. For a complete listing of all structures in the cities and county, please refer to GEMA worksheet #3a in Appendix D on pages D11-D19.

All critical facilities are located in the area with a wind hazard score of 90 to 99. Among the critical facilities would be all government and emergency buildings, shelters, schools, fire stations, and the water system.

Lightning, accompanying the thunderstorms, can strike anywhere at any time, but tends to strike the highest object in the vicinity. Especially in the summer months, it is a frequent occurrence. All critical facilities are vulnerable. Because lightning tends to strike the highest object in the vicinity a good protection measure is to install copper lightning rods on structures. Persons, who can be severely affected and even killed by lightning, can protect themselves best against lightning by being alert to the presence of the hazard, staying inside a house or car, and not using electrical appliances during a thunderstorm.

Hail causes damage to the roofs and windows of cars and buildings, and to vegetation. Farmers are affected by hail because crops can be damaged severely. In 2007, it was estimated that a total of 97 farms were in Stewart County, which is an increase of 17.5% from the total number of farms in 1997, which was 77 (see Georgia County Guide at http://www.georgiastats.uga.edu/).

The average farm size in 2007 was 490 acres, much smaller than in 1997 when the average size was 730 acres. The commercial forest land comprises 84% of all land in Stewart County, mostly comprised of agriculture, forestry, fishing, and hunting as indicated on the existing land use classification map. Cotton is the largest harvested crop, producing a value of $1.7 million, followed by peanuts with a value of $1.1 million. In 2010, Stewart County ranked 151 out of 159 counties in size, with an increase of 15.3% from 2000 to 2010.
2.1.D. Estimate of Potential Losses to Thunderstorms

The relatively high wind speeds of thunderstorms can damage trees, especially softwood trees, and above ground utilities. Results can include power outages, transportation and economic disturbances, major property damage, and risk of deaths and injuries. In the past, 48 thunderstorm events listed by the NCDC caused damage totaling $104,000.

Lightning strikes can cause varying degrees of damage to buildings. Most common is the destruction of electrical equipment, but also a fire can be started in the structure, further damaging the contents and potentially the entire structure. The Fire Insurance Rating (ISO) is 7.0 within 5 miles of the city limits of Lumpkin and Richland, and 10 in all other parts of the county. This rating gauges the capacity of the local fire department to respond if flames engulf a property. The assigned Public Protection Classification ranges from 1 to 10; Class 1 representing the best public protection; a Class 9 or 10 rating means that the community’s ability to suppress fires is severely challenged.

All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of each critical facility, please refer to the GEMA worksheet #3b on Wind Hazard Scores in Appendix D, pages D23 through D29.

The non-critical structures in the City of Richland have a value of $30,904,805, in the City of Lumpkin $24,086,764, and in the unincorporated Stewart County a value of $112,133,784. The Stewart County wide value for non-critical structures total $167,125,353. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D12-D15.

2.1.E. Land Use and Development Trends Related to Thunderstorms

Due to the random nature of thunderstorm winds, lightning, and hail, the entire community is at risk and land use and development trends do not apply.

Stewart County and the City of Richland and Lumpkin currently adhere to the Southern Building Code. The accepted standards of resistance to wind speeds up to 90 miles per hour is required.

Of the 45 critical facilities identified in the GEMA Critical Inventory Map by ITOS, 21 are located in the county, 13 are situated within the city limits of Richland, and 11 are located within the city limits of Lumpkin. All critical facilities are located within the same wind hazard score area.

The county has an Erosion Control Ordinance. Trees that fall as a result of thunderstorms have and could continue to cause damage to public and private property. Examples of property damage include damage to private homes and automobiles, damage to public facilities and infrastructure such as sewer and water lines, power lines and roads. Each jurisdiction is responsible for its own clean up when thunderstorms bring trees down onto city or county roads. Property owners in the county and both cities are responsible for their
own clean up and pick up of falling trees. The Power Company is responsible for the removal of down trees from power lines.

2.1.F. Multi-Jurisdictional Thunderstorm Differences

As mentioned above, there is no difference in risk of a thunderstorm wind in Stewart County, City of Richland, and City of Lumpkin. The same mitigation measures apply in all jurisdictions.

The Wind Hazard Scores depicted in the GEMA maps by ITOS are based on the 2000 International Building Code.

All of Stewart County (see map below), the City of Richland and the City of Lumpkin (see close up Maps 2 and 3 below) scored a 2 on a scale from 1 to 5, which stands for wind speeds of 90 to 99 mph (or Zone IV).

Map 1: Wind Hazard Scores in Stewart County

Source: GEMA by ITOS 2013
Map 2: Wind Hazard Scores in the City of Lumpkin

Source: GEMA by ITOS 2013

All of the City of Lumpkin scored a 2 on a scale from 1 to 5, which stands for wind speeds of 90 to 99 mph (ZONE IV).
All of the City of Richland scored 2 on a scale from 1 to 5, which stands for wind speeds of 90 to 99 mph (Zone IV).

### 2.1. G. General Overall HRV Summary of Thunderstorms

For Stewart County, City of Lumpkin, and the City of Richland, thunderstorms pose the most common natural hazard, and can affect any part of the cities or the county at any time. To be able to limit damage from high winds and lightning strikes, mitigation must be prepared in advance.

Since it is difficult to mitigate with structural measures against lightning and hail damage, it is important to educate the population of the dangers of natural hazards. Precaution measures to avoid being struck outdoors by lightning include avoiding natural lightning rods such as tall, isolated trees in an open area or on the top of a hill, and to avoid touching metal objects such as wire fences, gold clubs, and metal rods. According to the Hazard Frequency Table in Appendix A, Page A2, the historic recurrence for the entire county for severe
thunderstorms is .85, meaning that there is greater than 100% chance that a thunderstorm will occur every year. There is also an 88% chance that hail will hit Stewart County in any given year. The likelihood of thunderstorms and hail in the cities, based on historical data, are as follows. A 34% chance of a thunderstorm in Lumpkin in any given year with a 20% chance of hail; and a 5% chance of a thunderstorm in Richland, with an 8% chance of hail within the city limits.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances, development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

2.2. Hurricanes and Tropical Storms

Both types of tropical cyclones, tropical storms and hurricanes, begin as tropical depressions over warm oceanic water. The life span of a tropical cyclone can be anywhere from a few hours to almost three weeks; most lasting approximately 5 to 10 days. Tropical depressions are generally characterized by wind speeds of 39 MPH (34 KTS) or under. Wind speeds of 39 to 73 MPH (34-63 KTS) are associated with tropical storms, and everything above 74 MPH wind speed is characterized as a hurricane. Hurricanes occur especially in the western Atlantic under warm, humid conditions and are accompanied by excessive rain, thunder, and lightning. Although hurricanes are tropical storms, they can move into temperate latitudes and they tend to slow down as they make landfall. Tropical Storms are normally associated with a storm surge, which is an abnormal rise in water levels caused by the storm in coastal areas.

2.2.A. Hurricane and Tropical Storm Event Profile, Frequency of Occurrence, Probability

Hurricane season is from June 01- November 30. From 1900 to 2012, the central circulation of 29 tropical systems has made landfall or significantly affected portions of coastal South Carolina and Georgia. From 1900 to 2012, 16 hurricanes and 13 tropical storms hit the South Carolina/Georgia County Warning Area (CWA). Please refer to Table 4 for a detailed listing.
Table 3: Saffir Simpson Scale for Hurricanes

<table>
<thead>
<tr>
<th>Category</th>
<th>Wind Speed, Storm Surge</th>
<th>Expected Damage(Examples of past Hurricanes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>74-95 mph, 4-5 ft.</td>
<td>Primary damage to unanchored mobile homes, shrubbery, trees. Some coastal road flooding, minor pier damage. Little damage to building structures</td>
</tr>
<tr>
<td>2</td>
<td>96-110 mph, 6-8 ft.</td>
<td>Considerable damage to mobile homes, piers, and vegetation. Coastal and low-lying escape routes, flood 2 to 4 hours before arrival of hurricane center. Buildings sustain roofing material, door, window damage. Small craft in unprotected moorings break moorings</td>
</tr>
<tr>
<td>3</td>
<td>111-130 mph, 9-12 ft.</td>
<td>Mobile homes destroyed. Some structural damage to small homes and utility buildings. Large trees are toppled. Flooding near coast destroys smaller structures; larger structures damaged by floating debris</td>
</tr>
<tr>
<td>4</td>
<td>131-155 mph, 13-18 ft.</td>
<td>Extensive curtain wall failures with some complete roof structure failure on small residences. Major erosion of beaches. Major damage to lower floors of structures near the shore. Terrain continuously lower than 10 ft. ASL may flood and require mass evacuation</td>
</tr>
<tr>
<td>5</td>
<td>&gt; 155 mph, &gt; 18 ft.</td>
<td>Complete road failure on many homes and industrial buildings. Some complete building failures. Major damage to lower floors of all structures located less than 15 ft. ASL and within 500 yards of shoreline. Massive evacuation of low ground residential area</td>
</tr>
</tbody>
</table>

*Storm Surge in feet above normal sea level

Table 4: Tropical Systems in the South Carolina/Georgia CWA 1900-2012

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropical Storm</td>
<td>13</td>
</tr>
<tr>
<td>Hurricane Category 1</td>
<td>8</td>
</tr>
<tr>
<td>Hurricane Category 2</td>
<td>5</td>
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<tr>
<td>Hurricane Category 3</td>
<td>1</td>
</tr>
<tr>
<td>Hurricane Category 4</td>
<td>2</td>
</tr>
<tr>
<td>Hurricane Category 5</td>
<td>0</td>
</tr>
</tbody>
</table>

(Intensties Based upon landfall)

Source: NOAA 2012
From 1959 to 1989, there were no major hurricanes (i.e. Category 3 or more) to affect the Carolinas or Georgia. With the exception of Hurricane Hugo, an active decade for tropical activity in the Atlantic basin had not occurred since the 1950s. The 1970s and 1980s were inactive. Following Hugo, it was not until 1995 when tropical activity greatly increased. 19 storms formed. Most developed in the central and eastern Atlantic Ocean, staying hundreds of miles east of the U.S. mainland. 1996, also an above average year, featured several storms impacting the Carolinas and Georgia. 1997 was a year with no activity as El Nino conditions increased by mid-summer. See Table 5 for a listing of Hurricane and Tropical Storm events in Stewart County.

### Table 5: Stewart County Hurricane and Tropical Storm Events 1996-2013

<table>
<thead>
<tr>
<th>Location</th>
<th>County/Zone</th>
<th>St.</th>
<th>Date</th>
<th>Time</th>
<th>T.Z.</th>
<th>Type</th>
<th>Mag</th>
<th>Oth</th>
<th>Inj</th>
<th>PrD</th>
<th>CrD</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>7/10/2005</td>
<td>10:00</td>
<td>EST</td>
<td>Hurricane (Typhoon)</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>8/29/2005</td>
<td>11:00</td>
<td>EST</td>
<td>Hurricane (Typhoon)</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>9/14/2002</td>
<td>11:00</td>
<td>EST</td>
<td>Tropical Storm</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>7/1/2003</td>
<td>0:00</td>
<td>EST</td>
<td>Tropical Storm</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>9/6/2004</td>
<td>12:00</td>
<td>EST</td>
<td>Tropical Storm</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>9/16/2004</td>
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<td>EST</td>
<td>Tropical Storm</td>
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</tr>
<tr>
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<td>STEWART (ZONE)</td>
<td>GA</td>
<td>9/26/2004</td>
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<td>EST</td>
<td>Tropical Storm</td>
<td>0</td>
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</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>6/12/2005</td>
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<td>EST</td>
<td>Tropical Storm</td>
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<td>0.00K</td>
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</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>7/6/2005</td>
<td>15:00</td>
<td>EST</td>
<td>Tropical Storm</td>
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<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>10/5/2005</td>
<td>4:00</td>
<td>EST</td>
<td>Tropical Storm</td>
<td>0</td>
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<td>0.00K</td>
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<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>8/21/2008</td>
<td>12:00</td>
<td>EST-5</td>
<td>Tropical Storm</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>11/10/2009</td>
<td>5:00</td>
<td>EST-5</td>
<td>Tropical Storm</td>
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<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td>STEWART (ZONE)</td>
<td>STEWART (ZONE)</td>
<td>GA</td>
<td>9/4/2011</td>
<td>11:00</td>
<td>EST-5</td>
<td>Tropical Storm</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
<td></td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In 1990, Stewart County was one of the counties affected by severe storms, flooding, and tornadoes. After Tropical Storm Alberto brought torrential rain, high winds, and major flooding to Georgia in July of 1994. In 1995, Hurricane Opal made landfall near Pensacola Beach, Florida as a marginal Category 3 hurricane, causing extensive storm surge damage to the immediate coastal areas of the Florida panhandle. It was the first hurricane to strike the Florida panhandle since Eloise in 1975. The accompanying winds and rainfall caused mainly tree and power line damage in Stewart County. In September of 1998, Tropical Storm Earl produced widespread moderate to heavy rains and strong winds as it trekked northeast from Southwest to East-central Georgia. Rainfall totals associated with Earl ranged from three to six inches, and peak wind gust of 40 to 50 mph were common.

September 2004 brought several tropical storm systems to Georgia. Beginning of September, Tropical Storm Frances moved into southwest Georgia. Maximum sustained winds reached 38 knots at Albany, GA with a peak wind gust of 59 knots. Rainfall totals ranged from two inches at Newton, GA to nearly seven inches at Tifton, GA. Many schools and local businesses were closed on September 7, 2004. There were numerous reports of washed out roads, downed trees and power lines. Several counties in southwest Georgia suffered crop yield losses, on the order of 25 to 50 percent. Damage estimates were realized at the time of the autumn harvest. A state of emergency was declared for much of southwest Georgia.
In the middle of September 2004, Tropical Storm Ivan moved into southwest Georgia. The maximum sustained wind recorded was 29 knots at Albany, Ga. The peak wind gust recorded was 37 knots at Valdosta, GA. Rainfall totals varied from 0.75 inches at Tifton and Valdosta, GA to 6.50 inches at Blakely, GA. An estimated 20,000 customers were without power. There were numerous reports of downed trees and power lines. The hardest hit areas were Early and Miller counties, with many homes and businesses damaged. Many schools and businesses were closed on September 16 and 17 of 2004. A state of emergency was declared for the affected counties. In July of 2005, a nearly stationary feeder band from the eastern Florida panhandle into southwest Georgia produced four to eight inches in connection with Hurricane Dennis, with isolated amounts up to a foot. Several counties in the area observed wind damage to trees and power lines. Peak wind gust recorded were 42 mph, at Albany, GA. Heavy rainfall commenced July 10, and persisted into the early morning hours of July 11.

In 2008, Tropical Storm Fay moved across the Florida panhandle into extreme southeast Louisiana, dumping catastrophic amounts of rain across the area. In November 2009, Hurricane Ida moved inland near Mobile, Alabama early on the 10th and then tracked east-northeast across southern Alabama, southern Georgia, and the Florida Panhandle before emerging off the east coast as a strong low pressure system.

SLOSH, which stands for the Sea, Lake and Overland Surges from Hurricanes (SLOSH), is a computerized model to estimate storm surge heights and winds resulting from historical, hypothetical, or predicted hurricanes by taking into account pressure, size, forward speed, track, and wind speed from a storm. This layer represents the SLOSH results from a hypothetical event, showing SLOSH inundation areas for each category in the Saffir-Simpson Hurricane Scale. The areas inundated by a category 4 or category 5 storm surge have been combined to reflect their decreased probability of occurrence. The horizontal positional accuracy is unknown for this layer. The following maps (Figures 4-6) depicts the SLOSH rating for Stewart County, Richland, and Lumpkin, which can be seen as being non-existent. Being an inland community, Stewart County will be most concerned with the flooding aspects of coastal storms, more so than the wind damage. However, tornados as spin-offs of tropical storms are a potential danger.

According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence interval for a tropical storm is 0.98, which means one storm happens almost every year, and the historic frequency states that there is approximately 100% chance a storm with strong winds and heavy rain will hit Stewart County in a given year.

The historical record is not precise enough to have the breakdown for this hazard by jurisdiction. Also, this type of occurrence does not just affect one region or jurisdiction due to its sheer size, if the unincorporated areas of Stewart County are affected, so will the cities of Lumpkin and Richland. Therefore, the probability is the same for all jurisdictions.

Stewart County’s proximity to the Gulf Coast raises its chance of being directly affected by a tropical storm or hurricane during the June through November season. While the probability of an intense hurricane of category 3 to 5 directly affecting Stewart County
during the hurricane season is not high, aspects such as flooding and tornado spin offs from outer rain bands is major.

2.2.C. Inventory of Assets Exposed to Hurricanes and Tropical Storms

Due to their unpredictable nature, tropical storm systems can cause damage in the entire county and its municipalities. The high winds associated with hurricanes affects areas with significant tree stands and all above ground utilities and exposed infrastructure. This places all residents and all development at risk of damage.

In the City of Richland, there are 1306 non-critical structures, of which 1,000 are classified residential, 250 commercial, 20 agricultural and 15 religious or non-profit. In the City of Lumpkin are 901 non-critical structures, of which 744 are classified residential, 118 commercial, 0 agricultural and 18 religious or non-profit. In the county, there are 2,464 non-critical structures, of which 1,300 are classified as residential, 56 commercial, 1,023 agricultural, and 54 as religious or non-profit. These non-critical structures potentially are all exposed to the high winds of a hurricane or tropical storm, just like the identified critical facilities. For a complete listing of all structures in the cities and county, please refer to GEMA worksheet #3a in Appendix D on pages D12-D15.

In the GEMA Critical Facility Inventory Map by ITOS, 45 critical facilities are mapped for Stewart County. Critical Facilities affected include the County Courthouse, the City Hall, all fire stations, schools, the emergency shelter as well as the water system.

Flooding through the excessive rainfall could affect the floodplains, roads, and bridges. Please refer also to the GEMA maps by ITOS (see Map 4 to 6 below), depicting no SLOSH inundation areas for Stewart County, Richland and Lumpkin. SLOSH is the Sea, Lake and Overland Surges from Hurricanes.

Since the total population of Stewart County is not increasing, not a lot of future development is expected. According to ePodunk, information gathered from the U.S. Census Bureau, Stewart County ranks 158 out of 159 Fastest Growing Counties, with a loss of total population of 4.8% from 2000 to 2003.

2.2. D. Estimate of Potential Losses to Hurricanes and Tropical Storms

The National Climatic Data Center (NCDC) lists damages totaling $12,540,000 caused by the 2004 tropical storms Frances and Ivan, but this adds up the damage in 17 to 26 Georgia counties. Numbers for Stewart County alone are not known.

All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a replacement value of approximately $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b on Wind Hazard Scores in Appendix D, pages D23-D31.

The non-critical structures in the City of Richland have a value of $30,904,805 and in the City of Lumpkin $24,086,764. The Stewart County wide value for non-critical structures
total $112,133,784. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D12-D14.

Possible damages to the county and its critical facilities can include power outages, transportation and economic disturbances, major property damage, and sometimes even deaths and injuries. On top of that, the accompanying heavy rain can cause flooding and extensive water damage in low-lying areas.

2.2. E. Land Use and Development Trends Related to Hurricanes and Tropical Storms

Due to the random nature of tropical storm systems, the entire community is at risk. The County currently adheres to the Southern Building Code. The accepted standard of resistance to wind speeds up to 90 miles per hour is required.

The county has an Erosion Control Ordinance. The schools have a hazardous event program. Once a month, a fire drill is held for the schools, which is going to be supervised by the fire department, and once a year a tornado drill is executed.

2.2. F. Multi-Jurisdictional Hurricane and Tropical Storm Differences

There is no differentiation in the possible risk of tropical storm winds which can cause damage to public and private property; in addition, flooding due to the excessive rainfall can affect low-lying parts of the county.

The Sea, Lake and Overland Surges from Hurricanes (SLOSH) estimates storm surge heights and winds resulting from historical, hypothetical, or predicted hurricanes. No SLOSH inundation areas are recorded for Stewart County in the GEMA SLOSH map by ITOS.
Map 4: SLOSH Hazard Scores in Stewart County

Source: GEMA by ITOS 2013
Map 5: SLOSH Hazard Scores in the City of Richland

Source: GEMA by ITOS 2013
2.2. G. General Overall HRV Summary of Hurricanes and Tropical Storms

For Stewart County and its municipalities, tropical storms and hurricanes are an ever present threat. Due to the cities and the counties geographical location close to the Gulf and Atlantic coast in southwest Georgia, all jurisdictions are susceptible to the torrential rainfalls of tropical systems. To be able to limit damage from high winds, mitigation must be developed through advance notice.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances.
development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

2.3. **Tornado**

2.3. A. **Identify Tornadoes**

A tornado is a violent destructive whirling wind, accompanied by a funnel-shaped cloud. Tornados occur most often in association with tropical thunderstorms during warm and humid weather and are commonly associated with the spring and summer season. Tornados can generate the strongest winds known on earth, many of which can exceed speeds of 250 miles per hour. Structural destruction is often caused by these high-speed winds and the impact of wind-borne debris.

Tornados normally move from southwest to northeast, and their paths of destruction can be approximately one mile wide and fifty miles long. The tornado season in Georgia normally lasts from March until August, although tornados can strike at any time of the year given the right atmospheric conditions. Tornados can also develop as a spin-off from hurricanes. To categorize the intensity of the winds and the levels of damage, the Fujita-Scale (F-scale) listed below is used internationally. Considering the possible damage caused by tornados and the winds associated with them, tornados are rightfully called the most violent storms.

Table 6: The Enhanced Fujita-Scale for Tornados

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Level Of Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF0</td>
<td>65 - 85 MPH</td>
<td>Chimneys damaged; branches broken off trees; shallow-rooted trees uprooted; sign boards damaged.</td>
</tr>
<tr>
<td>EF1</td>
<td>86-110 MPH</td>
<td>Roof surfaces peeled off; mobile homes pushed off foundations or overturned; moving autos pushed off roads.</td>
</tr>
<tr>
<td>EF2</td>
<td>111-135 MPH</td>
<td>Roofs torn off frame houses; mobile homes demolished; box cars pushed over; large trees snapped or uprooted; light-object projectiles generated.</td>
</tr>
<tr>
<td>EF3</td>
<td>136-165 MPH</td>
<td>Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.</td>
</tr>
<tr>
<td>EF4</td>
<td>166-200 MPH</td>
<td>Well-constructed houses leveled; structures with weak foundations relocated; cars thrown and large projectiles generated.</td>
</tr>
<tr>
<td>EF5</td>
<td>Greater than 200 MPH</td>
<td>Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized projectiles hurtle through the air in excess of 100 yards; trees debarked; other incredible phenomena expected.</td>
</tr>
</tbody>
</table>

*Source: Federal Emergency Management Agency, SSEC*

2.3. B. **Tornado Event Profile, Frequency of Occurrence, Probability**

While the Tornado Alley, the region of maximum tornado frequency, is located in the western portions of the southern Great Plains, Stewart County has experienced at least 20
tornadoes since 1950, with at least six of them being classified Category F2-F5, strong to violent.

Table 7: Stewart County Tornado Events (1950-2012)

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-County</td>
<td>12/5/1954</td>
<td>1440</td>
<td>Tornado</td>
<td>F2</td>
<td>1</td>
<td>20</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>2-County</td>
<td>12/5/1954</td>
<td>1530</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>3-County</td>
<td>12/5/1954</td>
<td>1600</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>4-County</td>
<td>4/9/1961</td>
<td>1040</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5-County</td>
<td>3/18/1981</td>
<td>1345</td>
<td>Tornado</td>
<td>F1</td>
<td>0</td>
<td>0</td>
<td>25 K</td>
<td>0</td>
</tr>
<tr>
<td>6-Omaha</td>
<td>4/3/1998</td>
<td>16:20</td>
<td>Tornado</td>
<td>F0</td>
<td>0</td>
<td>0</td>
<td>10 K</td>
<td>5 K</td>
</tr>
<tr>
<td>7-County</td>
<td>3/1/2007</td>
<td>16:11</td>
<td>Tornado</td>
<td>F1</td>
<td>0</td>
<td>0</td>
<td>20 K</td>
<td>0</td>
</tr>
<tr>
<td>8-County</td>
<td>2/17/2008</td>
<td>16:52</td>
<td>Tornado</td>
<td>F0</td>
<td>0</td>
<td>0</td>
<td>420 K</td>
<td>0</td>
</tr>
<tr>
<td>TOTALS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>20</td>
<td>1,225 K</td>
<td>5 K</td>
</tr>
</tbody>
</table>

Source: National Climatic Data Center
(http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=13%2CGEORGIA)

Since 1950 Stewart County has been hit by two (2) F1 tornadoes and four (4) F2 tornadoes. Tornadoes can occur at any time of day or night, anywhere, during any season of the year. Although Stewart County does not lie in the center of the known tornado activity, there is always a possibility of the occurrence of tornadoes. The potential damage caused by a tornado event is extremely high. In view of the fact that tornadoes behave erratically, and can change their direction quickly, no predictions are possible as to where they might hit. Although no other major tornadoes or funnel clouds have been recorded in Stewart County in the past half century, tornadoes are still considered a real-life threat for the county and its municipalities.

Based on NOAA and Storm Prediction Center Statistics, FEMA has created a map displaying Tornado Activity in the United States per 1,000 square miles. According to this map, Stewart County is located in the zone where 6-10 tornadoes have been recorded per 1,000 square miles, meaning that there is indeed a probability of tornado activity. Please refer to Map 29 in Appendix A, page A10, for this map.

According to a second map of Design Wind Zones in the United States, created by the American Society of Civil Engineers, most of Georgia is located in Wind Zone III, meaning that extreme wind speeds can be expected to be up to 200 mph. Please refer to Map 30 in Appendix A, page A11, for this map. Please refer to the GEMA maps by ITOS (see Maps 7 to 9 below), depicting all of Stewart County, Richland and Lumpkin as scoring 2 on a scale from 1 to 5, which stands for wind speeds of only 90 to 99 mph.

Tornadoes need to be considered a major threat, both in terms of lives and property, to the residents of Stewart County. Of the eight recorded tornadoes in Stewart County, four was categorized as an EF2. The other tornadoes in Stewart County are categorized as EF0 or EF1. An EF0 tornado typically leaves superficial damage to structures and vegetation. Well-built structures remain unscathed, but may suffer minor damage to roofs, chimneys
and windows. An EF1 tornado causes significantly more damage with well-built structures suffering major harm and mobile homes being pushed off their foundations or flipped. Resulting fatalities are also more commonly seen with an EF1 tornado; however, even the weakest tornado can kill.

Map 7: Wind Hazard Scores in Stewart County

Source: GEMA by ITOS 2013
Map 8: Wind Hazard Scores in the City of Lumpkin

All of the City of Lumpkin scored a 2 on a scale from 1 to 5, which stands for wind speeds of 90 to 99 mph (ZONE IV).
All of the City of Richland scored 2 on a scale from 1 to 5, which stands for wind speeds of 90 to 99 mph (Zone IV). When the tornado activity zone is combined with the wind zone information in a table created by FEMA, Stewart County is said to be at high risk, and that a shelter is the preferred method of protection for home owners from high winds in this area. The close-up of the County in the GEMA map by ITOS however shows slightly slower wind speeds, and therefore a somewhat reduced risk.

According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence interval for a tornado is roughly every 7.25 years, and the historic frequency states that there is about a 14% chance that a tornado will hit Stewart County in a given year. The historic data available for this region is not detailed enough to be able to give a breakdown by the jurisdiction. Only one occurrence is listed for one of the jurisdictions but also includes the term and area, so it is not clear as to it having just hit the city or the entire area.
2.3. C. Inventory of Assets Exposed to Tornados

Destruction occurs through the combined action of strong rotary winds and the impact of wind-borne debris. Due to the unpredictable and random nature of tornados, all of the geographical areas and critical facilities in the county and its municipalities are at risk of a tornado hazard. It is not possible to predict or pin-point the geographic area where a tornado may hit therefore it is difficult to determine what structures or facilities are at risk during a tornado event. Among the critical facilities in danger are all government and emergency buildings, shelters, schools, fire stations, and the water supplies within the county and the cities of Lumpkin and Richland.

In the GEMA Critical Facility Inventory Map by ITOS, 45 critical facilities are mapped for Stewart County. Please refer also to the GEMA maps by ITOS (see Maps 10 to 12 below), depicting all of Stewart County, Richland and Lumpkin as scoring 2 on a scale from 1 to 5, which stands for wind speeds of only 90 to 99 mph.

Stewart County, Lumpkin, and Richland are established rural areas and the housing stock is indicative of this fact. Many homes are older and were built of materials that were readily available at a time when economy took precedence over efficiency.

Private homes are at risk of being damaged by high winds, in Stewart County, the majority of homes are older; over half of all housing units (70.8%) were constructed before 1979. These houses may be more vulnerable to natural hazards than newer houses. In Lumpkin and Richland, the situation is even more precarious, 67% and 76.6% of homes respectively were constructed before 1979. Time will continue to stress these homes making them increasingly more vulnerable to sever weather events.

<table>
<thead>
<tr>
<th>Table 8: Stewart County – Age of Housing 2000 and 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built between</td>
</tr>
<tr>
<td>1970-1979</td>
</tr>
<tr>
<td>1960-1969</td>
</tr>
<tr>
<td>1950-1959</td>
</tr>
<tr>
<td>1940-1949</td>
</tr>
<tr>
<td>1939 or earlier</td>
</tr>
<tr>
<td>Total Housing Units</td>
</tr>
</tbody>
</table>

*Source: U.S. Census Bureau, 2000, 2011*
Regardless of age, mobile homes are even more susceptible to wind damage than stick-built homes. Of the 2,612 housing units in Stewart County in 2011, 709 were mobile homes or trailers, which is a percentage of 27.1%. In the City of Lumpkin, 244 housing units or 23.8% were mobile homes or trailers in 2011, and in Richland the percentage of mobile homes or trailers was 29.9% or 226 housing units.

The presence of mobile homes or trailers is increasing significantly in Stewart County and its municipalities. This type of housing unit has and continues to gain popularity primarily because of its affordability. Although, practical and affordable, mobile homes or trailers are highly susceptible to wind and severe weather damage. In addition, the housing units do not provide adequate protection for residents during severe weather events.

Table 9: Lumpkin– Age of Housing 2000 and 2011

<table>
<thead>
<tr>
<th>Built between</th>
<th>2000</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-1979</td>
<td>113</td>
<td>146</td>
</tr>
<tr>
<td>1960-1969</td>
<td>90</td>
<td>152</td>
</tr>
<tr>
<td>1950-1959</td>
<td>103</td>
<td>145</td>
</tr>
<tr>
<td>1940-1949</td>
<td>30</td>
<td>62</td>
</tr>
<tr>
<td>1939 or earlier</td>
<td>101</td>
<td>184</td>
</tr>
<tr>
<td>Total Housing Units</td>
<td>602</td>
<td>1027</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2000, 2011

Table 10: Richland– Age of Housing 2000 and 2011

<table>
<thead>
<tr>
<th>Built between</th>
<th>2000</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-1979</td>
<td>122</td>
<td>145</td>
</tr>
<tr>
<td>1960-1969</td>
<td>134</td>
<td>121</td>
</tr>
<tr>
<td>1950-1959</td>
<td>86</td>
<td>72</td>
</tr>
<tr>
<td>1940-1949</td>
<td>61</td>
<td>62</td>
</tr>
<tr>
<td>1939 or earlier</td>
<td>121</td>
<td>179</td>
</tr>
<tr>
<td>Total Housing Units</td>
<td>711</td>
<td>756</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2000, 2011

Table 11: Stewart County– Types of Housing 1990 and 2000

<table>
<thead>
<tr>
<th>Type</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>1,478</td>
<td>1,434</td>
</tr>
</tbody>
</table>

41
<table>
<thead>
<tr>
<th>Type</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>348</td>
<td>384</td>
</tr>
<tr>
<td>Multi- Family</td>
<td>32</td>
<td>47</td>
</tr>
<tr>
<td>Mobile Home or Trailer</td>
<td>96</td>
<td>171</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Total Housing Units</td>
<td>488</td>
<td>602</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 1990, 2000

Table 12: Lumpkin – Types of Housing 1990 and 2000

<table>
<thead>
<tr>
<th>Type</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>441</td>
<td>452</td>
</tr>
<tr>
<td>Multi- Family</td>
<td>24</td>
<td>91</td>
</tr>
<tr>
<td>Mobile Home or Trailer</td>
<td>170</td>
<td>168</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Total Housing Units</td>
<td>644</td>
<td>711</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 1990, 2000

Table 13: Richland – Types of Housing 1990 and 2000

In the City of Richland, there are 1,306 non-critical structures, of which 1,000 are classified residential, 250 commercial, 20 agricultural and 15 religious or non-profit. In the City of Lumpkin are 901 non-critical structures, of which 744 are classified residential, 118 commercial, 0 agricultural and 18 religious or non-profit. In the county, there are 2,464 non-critical structures, of which 1,300 are classified as residential, 56 commercial, 1,023 agricultural, and 54 as religious or non-profit. These non-critical structures potentially are all exposed to the high winds of a tornado, just like the identified critical facilities. For a complete listing of all structures in the cities and county, please refer to GEMA worksheet #3a in Appendix D on pages D12-D15.

Since the total population of Stewart County is not increasing significantly, minimal future development is expected. According to ePodunk, information gathered from the U.S.
Census Bureau, Stewart County ranks 158 out of 159 Fastest Growing Counties, with a loss of total population of 4.8% from 2000 to 2003.

2.3. D. Estimate of Potential Losses to Tornados

When the F1-tornado hit Stewart County in 1981, property damage was estimated to be approximately $25,000. This has been the third greatest loss to date for Stewart County to any one natural hazard. The total property damage from one F2-tornado that touched down three times in 1954 was estimated to be $250,000. The most recent tornado that hit Stewart County was in March of 2007 however the estimated damage totals have not been made available by NOAA on their NCDC site.

All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b on Wind Hazard Scores in Appendix D, pages D23 through D31.

It can be assumed that structures with the greatest replacement value will sustain the most monetary damage. The Stewart County Detention Facility has the highest replacement value, approximately $22,000,000. In the City of Lumpkin, the highest replacement value is for the Stewart County Elementary, which is $8,860,000.

The non-critical structures in the City of Richland have a value of $30,904,805, in the City of Lumpkin $24,086,764, and in the unincorporated Stewart County a value of $129,463,793. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D12-D15.

2.3. E. Land Use and Development Trends Related to Tornados

No local land use or development trends apply to the hazard of a tornado event, since a tornado can strike anywhere in the county. FEMA recommends tornado shelters for homeowners in high risk areas. Another risk factor is that the greatest increase in housing units has been in the number of manufactured housing units (mobile homes).

In the county, the number of traditional stick-built housing units actually decreased from 1990 to 2000. Of the 2,354 housing units in Stewart County in 2000, 741 were Mobile Homes or Trailers, which is a percentage of 31.4% (please refer to Tables 9-11 below). In the City of Richland, 168 housing units or 23.6% were Mobile Homes or Trailers in 2000, and in The City of Lumpkin the percentage of Mobile Homes or Trailers was 28.4% or 171 housing units.

<table>
<thead>
<tr>
<th>Type</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>1,478</td>
<td>1,434</td>
</tr>
</tbody>
</table>
The deterioration of substandard units and those in need of minor repair is expected to continue unless efforts are made to address the problem. The dilapidated housing units in the county as well as those within the city limits create not only a blighting influence, but also are at a higher risk of being severely damaged during a tornado, hurricane, or severe thunderstorm.

2.3. F. Multi-Jurisdictional Tornado Differences

There are no differences in risk between Stewart County, the City of Lumpkin and the City of Richland as it pertains to the tornado hazard. The risk is the same in all jurisdictions, and the mitigation measures for tornados also apply to all three. The Wind Hazard Scores depicted in the GEMA maps by ITOS are based on the 2000 International Building Code.
All of Stewart County (see Map 13 below) and the City of Lumpkin and the City of Richland (see close-up Maps 14 and 15 below) scored 2 on a scale from 1 to 5, which stands for wind speeds of 90 to 99 mph (or ZONE IV).

2.3. G. General Overall HRV Summary of Tornados

Three F1-tornados have caused great losses of property for Stewart County in the past. Since Stewart County, Lumpkin, and Richland are located in a medium high risk area, and since tornados can be expected in all parts of the county at any time, the county and cities must prepare for this hazard in advance. The best chance to survive a tornado is to plan in advance, and to respond quickly to a tornado watch or warning.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances, development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

2.4. Flood

2.4. A. Identify Floods

Floods are defined as the rising of bodies of water, like rivers and streams, overflowing their natural or artificial banks onto normally dry land. These high-water stages are often related with severe tropical storms or torrential rains from hurricanes. Floods can be slow as the result of extended rain or a storm event, or fast rising as the result of a flash flood. Flash floods can be expected when an area is affected by large amounts of rainfall in a short time; these floods can often result in dam failure. Generally however, they develop over a period of days.

As defined by the National Flood Insurance Program, a flood is:

"A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from:

Overflow of inland or tidal waters, Unusual and rapid accumulation or runoff of surface waters from any source, or A mudflow.

[The] collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood."
In order to determine if an area is susceptible to flooding, many different factors have to be considered; among them, precipitation intensity and duration, topography, basin size, drainage patterns of streams, ground saturation, soil permeability, drainage, and vegetation cover.

The installation of more and more impermeable surfaces, for example roads, parking lots, and roofs, increases the amount of surface water directly flowing into the rivers and creeks, and increases the risk of these streams flooding.

2.4. B. Flood Event Profile, Frequency of Occurrence, Probability

Floods are one of the most common and widespread of all natural disasters. Stewart County and its cities, like the majority of other communities in the United States, have experienced some flooding after spring rains, heavy thunderstorms or tropical storms.

Heavy rains can potentially cause flooding and/or flash flooding. Periodic floods occur naturally on many rivers, forming an area known as the flood plain. These river floods usually result from heavy rain, which causes rivers to overflow their banks. A flood that rises and falls rapidly with little or no advance warning is called a flash flood. Flash floods usually result from intense rainfall over a relatively small area. There are often many causes for a flood.

A flood happens when an area of land, usually low-lying, is covered with water. The worst floods usually occur when a river overflows its banks. Floods happen when soil and vegetation cannot absorb all the water; water then runs off the land in quantities that cannot be carried in stream channels or kept in natural ponds or man-made reservoirs.

A flash flood is a rapid flooding of low-lying areas, rivers and streams; caused by the intense rainfalls associated with a thunderstorm, or multiple training thunderstorms. Flash flooding occurs when the ground becomes saturated with quickly fallen rain water that was unable to be absorbed. The runoff collects in low-lying areas and rapidly flows downhill, threatening anything in its path with suddenly rising water. Flash floods most often occur in normally dry areas that have recently received precipitation, but may also be seen anywhere downstream from the source of the precipitation (even dozens of miles from the source).

Flash floods are extremely dangerous due to their sudden nature. Vehicles do not provide protection against flash floods, as vehicles can be swept away. Being in a vehicle can make people overly confident and less likely to avoid the flash flood; more than half of the fatalities attributed to flash floods are a result of people being swept away in vehicles when trying to cross flooded intersections. As little as six (6) inches of water can be enough to carry away most SUV-sized vehicles. In the United States, the National Weather Service (part of NOAA) reported in 2005 that in a national 30-year average more people die yearly in floods (127 on average) than by lightning (73), tornadoes (65), or hurricanes (16).
On September 29, 1998 the remnants of Hurricane George brought 5 inches or greater of rain across Stewart County. Numerous roads were flooded with water making some impossible to travel on and left others closed. This flood event caused a reported $25,000 of property damage and $8,000 in crop damage.

Table 17: Stewart County Flood Events (Jan. 1, 1950- Apr. 30, 2012)

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – County (multi)</td>
<td>7/6/1994</td>
<td>1400</td>
<td>Flash Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2-County</td>
<td>10/4/1995</td>
<td>0100</td>
<td>Flash Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3-County</td>
<td>9/29/1998</td>
<td>11:50 AM</td>
<td>Flash Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>25 K</td>
<td>8 K</td>
</tr>
<tr>
<td>4-Richland (multi-cnty)</td>
<td>3/27/2005</td>
<td>3:00 AM</td>
<td>Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>25 K</td>
<td>0</td>
</tr>
<tr>
<td>5-Blufftown</td>
<td>12/14/2009</td>
<td>2300</td>
<td>Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>3K</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>53 K</td>
<td>8 K</td>
</tr>
</tbody>
</table>

Source: National Climatic Data Center

The local police department reported that during the night of March 27, 2005 heavy rains had caused flooding of several streets in Richland. Stewart County experienced 4 to 5 inches of rain fall on March 27th between the hours of midnight and noon. This flood event caused a reported $25,000 of property damage. The major flood areas within the County include low lying areas, areas close to natural water features, and lakes. These areas are predominantly low lying meaning that they have the potential to flood during periods of heavy rain fall. These areas can occur in various places throughout the county, from private water features or man-made lakes and ponds to areas such as the entire western border of Stewart County, which is comprised of the Chattahoochee River also Lake Walter F. George rests within the county. This flooding of the area is usually associated with drainage problems, for the ground has become saturated, making it hard for the water to follow its normal pattern of drainage. It is usually recommended that development not be allowed or at least limited in the flood plains or low lying areas due to the problem with the ground saturation problems.
According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence interval for a flood is roughly every 3.4 years, and the historic frequency states that there is about a 29% chance that a flood will hit Stewart County in a given year. The historical record is not accurate enough to allow for a breakdown by jurisdiction, although it does list one occurrence as happening in one jurisdiction, but allows for the disclaimer and area, which makes it unclear as to only the particular area being hit or the entire Stewart County jurisdiction.

In 2009, a series of strong southern stream short waves were embedded within a large scale mean trough located across the central into the northeast United States. The heavy rain on totally saturated ground from recent months of much above normal rainfall led to renewed flooding and flash flooding, especially across central Georgia, where two to four inches of rain was common during this period. The Stewart County Emergency Management Director reported minor flooding of some roads and property across the county, mostly adjacent to overflowing creeks and streams. Monetary damage was confined to minor debris removal in these areas.

Several sources were researched in order to determine the extent of the Flood hazard. The USGS gauge at Hannahatchee Creek does not have any historic crest levels recorded. The National Climatic Data Center hazard history also does not have any recorded flood depths. In addition, Base Flood Elevations have not been established in Stewart County. There are no other known sources that may be used to determine the extent of the Flood hazard in Stewart County. Therefore, a potential extent cannot be scientifically or statistically determined based on known available data.

2.4. C. Inventory of Assets Exposed to Floods

Floods can cause severe damage by flooding buildings, damaging septic tanks, contaminating private wells, and cause crop losses. Individual events might not be disastrous; however the costs and losses can have a lasting impact on a community as well as property owners. In the GEMA Critical Facility Inventory Map by ITOS, 45 critical facilities are mapped for Stewart County. As can be seen from the GEMA Flood Hazard Score map by ITOS depicted below in Maps 10 to 12, the flood score hazard is minimal, ranging from 0 to 1 in some cases, the 1 score happening amongst areas that are on or beside waterways. Please refer to the “Hazard Scores” definitions listed in the appendix for further clarification.

Stewart County was mapped by FEMA in 2010. There are no NFIP Repetitive Loss Structures in Stewart County.
Map 10. Flood Score Hazards, Stewart County

Source: GEMA by ITOS 2013
Map 11. Flood Score Map, City of Richland

Source: GEMA by ITOS 2013
Map 12. Flood Hazard Score, City of Lumpkin

For a complete listing of all structures in the cities and county at risk from flooding, please refer to GEMA worksheet #3a in Appendix D on pages D14 to D16.

2.4. D. Estimate of Potential Losses to Floods

According to the data from the NCDC, the flood in March 1998 caused property damage along the county line, estimating $25,000 worth of property damage and $8,000 worth of crop damage in the area. The local police department reported that during the night of March 27, 2005 heavy rains had caused flooding of several streets in Richland. Stewart County experienced 4 to 5 inches of rain fall on March 27th between the hours of midnight and noon. This flood event caused a reported $25,000 of property damage.

All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of each critical facility, please refer to the GEMA worksheet #3b on Flood Hazard Scores in Appendix D, pages D31 through D37. Please refer to the GEMA maps by ITOS (see Maps 23 to 25 below), depicting no Flood Hazard score for Stewart.

Source: GEMA by ITOS 2013
County and the Cities of Richland and Lumpkin. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b on Flood Hazard Scores in Appendix D31-D37.

Lumpkin, Richland, and Omaha are not currently mapped for Flood Hazards and this may be the reason those areas have been given a score of 1. A score of 1 means that either the floodplains have not been determined or that it is a low risk area. For the benefit of the plan, these areas are listed as a 1, with the definition of not being mapped. One critical facility identified has been found to be within a Flood Plain, that being Florence Marina,

According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence interval for a flood is roughly every 4 years, and the historic frequency states that there is about a 25% chance that a flood will hit Stewart County in a given year. It can be assumed that structures with the greatest replacement value will sustain the most monetary damage. The Stewart County Detention Facility has the highest replacement value, approximately $39,067,200. In the City of Lumpkin, the highest replacement value is for the Stewart County Elementary, which is $8,860,000.

The non-critical structures in the City of Richland have a value of $904,805, in the City of Lumpkin $24,068,764, and in the unincorporated Stewart County a value of $66,917,051. The Stewart County wide value for non-critical structures total $112,133,784. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D11-D19.

According to GMIS, there are no NFIP repetitive loss properties for Stewart County, the City of Lumpkin, and the City of Richland.

2.4. E. Land Use and Development Trends Related to Floods

Lakefronts and river sides are popular sites for residential development. However, development within the floodplain is not ideal because of two factors: it slows the flow of the storm water because it impedes the storm flow, and at the same time increases the size of the storm flow, because the soil’s ability to absorb precipitation is reduced through the installation of impervious surfaces. Without floodplain maps, development can occur in the county in flood hazardous areas, because no restrictions can be enforced. Stewart County has been mapped for flood prone areas under the Federal Emergency Management Agency program and participates in the National Flood Insurance Program. The Cities of Lumpkin and Richland have been mapped. However, they do not participate in the National Flood Insurance Program and are sanctioned as such. The Stewart County Flood Hazard Map can be found in Appendix A, page A13. According to the Stewart County Comprehensive plan, adopted in 2006, land use and development of flood plains, wetlands, and various other limiting soil types will be encouraged to respect the natural limitation of these soil types. Flood prone areas, accordingly, will be used for passive recreation and other open space uses. Overall development is currently discouraged in the flood plain areas.
2.4. F. Multi-Jurisdictional Flood Differences

Most flooding is a result of creek overflow and not due to storm drainage problems. Improper drainage can lead to flooded streets, which in turn can cause aquaplaning of the vehicles traveling on the roads.

Stewart County has been mapped for flood prone areas under the Federal Emergency Management Agency program and participates in the National Flood Insurance Program. The Cities of Lumpkin and Richland have been mapped. However, they do not participate in the National Flood Insurance Program and have been sanctioned for such. The Stewart County Flood Hazard Map can be found in Appendix A, page A13. All of Stewart County scored 0 to 1 on a scale from 0 to 4 as depicted on the GEMA Flood Hazard Score Map 22 below, which means that floods are undesignated or that area has not been mapped. The flood hazard scores used for the GEMA map by ITOS are derived from the FEMA Q3 “Zone” values. The Q3 layer is derived from the FEMA paper flood insurance rate maps. This layer cannot be used for a legal flood determination. Detailed flood studies are not completed for the county, which means that 100-year flood elevations are not mapped on the FIRM map.

The Cities should request the Federal Emergency Management Agency to map the county for flood prone areas. The cities should have base flood elevations determined by FEMA, since without floodplain maps, development can occur in the county in flood hazardous areas. The Stewart County adopted its Flood Hazard map in 2010. The county’s flood hazard map can be found in Appendix A, on page A12. Protection from the flooding hazard requires a county-wide enforcement of floodplain and wetlands ordinances. Once flood control structures are constructed, threats for the cities and county will be reduced.

2.4. G. General Overall HRV Summary of Floods

Stewart County has experienced some flooding in the past, and all can expect a similar event in the future. Most flooding is a result of creek overflow and not due to storm drainage problems. Stewart County and the cities of Lumpkin and Richland, like the majority of all other communities in the United States, has experienced flooding after spring rains, heavy thunderstorms or tropical storms. Due to its geographical location close to the Gulf and Atlantic coast, all three jurisdictions are and will remain susceptible to torrential rainfalls from tropical systems. Therefore, in order to reduce future risk of monetary damage, sound mitigation strategies are needed in both cities and county.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances,
development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

2.5. Drought

2.5. A. Identify Drought

A drought is a period of time when there is not enough water to support agricultural, urban or environmental water needs. A drought usually refers to an extended period of below-normal rainfall, but can also be caused by drying bores or lakes, or anything that reduces the amount of available liquid water. Although what is considered "normal" varies from one region to another; droughts are a threat of nearly all the world's climatic regions. In addition, the effects of drought vary depending on agricultural, urban and environmental water needs. A drought is most harmful during the planting and growing season in agricultural areas. A drought can result in extensive damage to crops or prevents their successful growth.

The hydrologic imbalance is caused when the evaporation and transpiration of soils and plants is greater than the precipitation. Lack or insufficient rain for an extended period leads to water shortages, crop damage, stream flow reduction, and depletion of groundwater and soil moisture. It can even upset the hydrologic cycle and impact fish, wildlife and plant species. Drought can therefore have a serious economic impact on a community and its population, including food shortages.

In Georgia, droughts affect municipal and industrial water supplies, stream-water quality, recreation at reservoirs, navigation, agricultural and forest resources. Since drought conditions make natural fuels (grass, brush, trees, dead vegetation, etc.) more fire-prone, drought is also a key factor in wildfire development.

2.5. B. Drought Event Profile, Frequency of Occurrence, Probability

A drought lasting one to three months is considered short term; four to six months is considered immediate; and a drought event over 6 months is considered long term.

In June 2000 a dry spell fell on the State of Georgia, little or no rain fell during this period. Currently, the entire state is under severe drought conditions (D2-D4), as shown in the map below. The National Climatic Data Center estimated crop losses at $306.7 million statewide, however no data specific to Stewart County is available.
### Table 18: Stewart County Drought Events 2000-2012

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-County</td>
<td>2/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-County</td>
<td>4/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3-County</td>
<td>5/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4-County</td>
<td>6/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>306.7 M</td>
</tr>
<tr>
<td>5-County</td>
<td>7/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6-County</td>
<td>10/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7-County</td>
<td>4/1/2002</td>
<td>12:00 AM</td>
<td>Dry</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8-County</td>
<td>8/1/2002</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9-County</td>
<td>3/1/2004</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10-County</td>
<td>05/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>11-County</td>
<td>09/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>12-County</td>
<td>10/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>13-County</td>
<td>11/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>14-County</td>
<td>12/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>15-County</td>
<td>09/01/2011</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>16-County</td>
<td>09/01/2011</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>17-County</td>
<td>12/1/2011-12/1/2012</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
</tbody>
</table>

**TOTALS:** 0 0 0 306.720 M

*Source: National Climatic Data Center 2012*
In Stewart County, approximately five drought events (many spanning several months each) have been reported to the National Climatic Data Center. None were reported before the year 2000. It is difficult to determine how often drought conditions can be predicted. According to the NOAA information listed above, recurrence intervals for droughts in Stewart County are every 2 to 4 years, depending on severity.

According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence interval of a drought is approximately one every two years (2.40) and the historic frequency states that there is a 42% chance that a drought will occur in Stewart County in a given year. The historical data is not detailed enough to have a breakdown per jurisdiction, particularly due to the fact that the hazard is broad enough to affect the entire area, as in, if Lumpkin is affected, so will the unincorporated areas of Stewart County and the City of Richland.

In the state of Georgia, seven drought events were reported to the National Climatic Data Center between 1950 and 2012, affecting between 81 and 98 counties at a single time.
Stewart County was named a Disaster Area by the President in 1992, 1993, 1997, 1999 and 2003 for drought. Currently, the entire state is in an extended drought, which it has been in since 2010.

The Palmer Drought Index is a measurement of dryness based on recent precipitation and temperature. It was developed by meteorologist Wayne Palmer. The Palmer Drought Index is based on a supply-and-demand model of soil moisture. Supply is comparatively straightforward to calculate, but demand is more complicated as it depends on many factors - not just temperature and the amount of moisture in the soil but hard-to-calibrate factors including evapotranspiration and recharge rates. Palmer tried to overcome these difficulties by developing an algorithm that approximated them based on the most readily available data — precipitation and temperature. The index has proven most effective in determining long-term drought — a matter of several months — and not as good with conditions over a matter of weeks. It uses a 0 as normal, and drought is shown in terms of negative numbers; for example, negative 2 is moderate drought, negative 3 is severe drought, and negative 4 is extreme drought. Palmer's algorithm also is used to describe wet spells, using corresponding positive numbers. Palmer also developed a formula for standardizing drought calculations for each individual location based on the variability of precipitation and temperature at that location. The Palmer index can therefore be applied to any site for which sufficient precipitation and temperature data is available (wikipedia.com).
Table 19: South-West Georgia Palmer Drought Severity Index 2000-2014

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Date</th>
<th>Description</th>
<th>Date</th>
<th>Description</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/1/2001</td>
<td>mid-range</td>
<td>12/1/2004</td>
<td>moderately moist</td>
<td>7/1/2008</td>
<td>moderate drought</td>
<td>2/1/2012</td>
<td>extreme drought</td>
</tr>
<tr>
<td>7/1/2001</td>
<td>mid-range</td>
<td>2/1/2005</td>
<td>mid-range</td>
<td>9/1/2008</td>
<td>mid-range</td>
<td>4/1/2012</td>
<td>extreme drought</td>
</tr>
<tr>
<td>10/1/2001</td>
<td>mid-range</td>
<td>5/1/2005</td>
<td>moderately moist</td>
<td>12/1/2008</td>
<td>mid-range</td>
<td>7/1/2012</td>
<td>extreme drought</td>
</tr>
<tr>
<td>12/1/2001</td>
<td>mid-range</td>
<td>7/1/2005</td>
<td>very moist</td>
<td>2/1/2009</td>
<td>moderate drought</td>
<td>9/1/2012</td>
<td>severe drought</td>
</tr>
<tr>
<td>1/1/2002</td>
<td>mid-range</td>
<td>8/1/2005</td>
<td>extremely moist</td>
<td>3/1/2009</td>
<td>mid-range</td>
<td>10/1/2012</td>
<td>severe drought</td>
</tr>
<tr>
<td>10/1/2002</td>
<td>mid-range</td>
<td>5/1/2006</td>
<td>mid-range</td>
<td>12/1/2009</td>
<td>very moist</td>
<td>7/1/2013</td>
<td>very moist</td>
</tr>
<tr>
<td>5/1/2003</td>
<td>mid-range</td>
<td>12/1/2006</td>
<td>mid-range</td>
<td>7/1/2010</td>
<td>mid-range</td>
<td>2/1/2014</td>
<td>moderately moist</td>
</tr>
<tr>
<td>6/1/2003</td>
<td>moderately moist</td>
<td>1/1/2007</td>
<td>mid-range</td>
<td>8/1/2010</td>
<td>moderate drought</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/1/2003</td>
<td>very moist</td>
<td>2/1/2007</td>
<td>mid-range</td>
<td>9/1/2010</td>
<td>moderate drought</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: National Climatic Data Center
As can be seen in the table above, the Palmer Drought Severity Index ranges from extremely moist to extreme drought in south-west Georgia. In the past 15 years, Stewart County has been in a drought 36% of the time, in a state of mid-range moisture 38% of the time, and in a state of excess moisture 26% of the time.

2.5. C. Inventory of Assets Exposed to Drought

Critical facilities and non-critical structures, as well as the population, tend not to be at physical risk from a drought. Most prone to experience drought damage is the agricultural sector.

There are twenty (20) agricultural structures within the City of Richland, none within the City of Limpkin, and 1,023 in Stewart County. For a complete listing of all structures in the cities and county, please refer to GEMA worksheet #3a in Appendix D on pages D12-D15. Please note that concerning droughts, there is no spatial depiction available in the GEMA mapping tool by ITOS.

In the GEMA Critical Facility Inventory Map by ITOS, 45 critical facilities are mapped for Stewart County. It is not expected that any of them would be damaged through drought conditions.

According to the 2002 Census of Agriculture, approximately 11.5% of the total land area in the county is land in farms. Corn is the largest harvested crop, followed by wheat. In 1997 there were 83 farms in Stewart County and in 2002 there were 85 farms in the county. The 33,835 acres of land in farms (2002) of Stewart County is most endangered by drought conditions. The average farm size in acres in 2002 was 398 acres. It is not unusual in the county to find pastures located in the middle of timberlands or land subdivided for timberland and the harvesting crops.

Since the total population of Stewart County is not increasing significantly, not a lot of future development is expected. According to ePodunk, information gathered from the U.S. Census Bureau, Stewart County ranks 158 out of 159 Fastest Growing Counties, with a loss of total population of 4.8% from 2000 to 2003. This prevents too much pressure being placed on existing water resources. Stewart County adheres to the Southern Building Code. New buildings should then be well insulated, especially around air conditioners and ducts, to prevent waste of water for cooling purposes. Therefore, the probability of future occurrences is the same for each jurisdiction.

2.5. D. Estimate of Potential Losses to Drought

Critical facilities and non-critical structures are not at risk of experiencing damage or downtime from droughts; however, fires can occur as a result of dry weather. The 1,023 agricultural structures in Stewart County listed in the GEMA worksheet #3a on Inventory of Assets in Appendix D, pages D12-D15, have a value of $17,409,300; the structures itself probably will not be affected, but the contents if they are storage facilities for agricultural
product or farm animals. In the City of Richland, the 20 agricultural structures have a value of around $209,218.

All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b in Appendix D, pages D23-D31. While the hazard score from this report is not relevant to this hazard, the report serves as the best available for a total inventory of critical facilities for these purposes.

The population is normally not directly at risk either, except in the latter stages of a severe drought, when drinking water drops to critically low levels. In today’s world, no deaths should be expected due to droughts, since both water and food can be transported into the affected areas. However, the loss of crops in the agricultural sector can impose a severe economic burden on the local peanut farmers. Crop damage cannot be accurately quantified since different crops require different amounts of rain, temperature are different during the droughts, the duration and the severity of the droughts vary. The peanut farmers are most likely to be affected by water shortages due to drought conditions.

Potential losses would occur from the exposure of crops planted in Stewart County, and farmers would need to be compensated for the loss. Since the agricultural producers’ percentage of return on economic investments is among the lowest of any economic sector, the economic impact for the community is getting less and less.

2.5. E. Land Use and Development Trends Related to Drought

Since 1964, there has been a steady decline of total farms in Stewart County; however, a slight increase was felt from 1997 to 2002. The risk of damage from this natural hazard is therefore declining steadily. Farmland irrigation is a good means of preparedness and mitigation.

2.5. F. Multi-Jurisdictional Drought Differences

Usually, a meteorological drought due to changed weather patterns affects a large area. Stewart County, Richland and Lumpkin would be affected at the same time, but farmers in the county would be affected to a more severe extent.

Please note that concerning droughts, there is no spatial depiction available in the GEMA mapping tool by ITOS. The threat applies mainly in the agricultural parts of the county, to a lesser extent in the cities. Please refer to the basic Maps 23 to 25 below.

An agricultural drought would affect Stewart County more than the cities, since there are farms in the countryside.
Map 14: Basic Map of Stewart County

Source: GEMA by ITOS 2013
Map 15: Basic Map of the City of Richland

Source: GEMA by ITOS 2013
2.5. G. General Overall HRV Summary of Drought

Most other natural hazards have a sudden, dramatic impact on the community, whereas a drought is a longer, slower moving process. It starts with a meteorological drought - reduced rainfall, which can turn into an agricultural drought – loss of crops, and have its climax in a hydrological drought, where the surface and ground water supplies fall below normal levels. This process can take years to develop.

Droughts affect municipal water supplies, stream-water quality, recreation at reservoirs, navigation, agricultural and forest resources. The farmers are most likely to be affected by water shortages due to drought conditions. According to the Georgia Guide, approximately 15.7 % of the total land area in the county in 2007 was farmland. Corn is the largest
harvested crop, followed by wheat. In 2007 there were 94 farms in the county. The 49,043 acres of land in farms (2007) of Stewart County is most endangered by drought conditions.

The average farm size in acres in 2007 was 490 acres. It is not unusual in the county to find pastures located in the middle of timberlands or land subdivided for timberland and the harvesting crops. This farmland of Stewart County is most endangered by drought conditions.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances, development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

2.6 Wildfires

2.6.A. Identify Wildfires

Fires are one of the most common and widespread of all natural disasters besides floods. Wild fires are a sweeping and destructive conflagration, especially in a wilderness of a rural area, and are usually signaled by dense smoke that fills the area for miles around.

A distinction is normally made between three classes of wildfires: surface, ground, and crown fires. A surface fire, the most common type, burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire is usually started by lightning and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. These fires are generally the result of dry conditions combined with lightning or carelessness, and spread unconstrained through the environment.

It may take decades after a wildfire for the scorched and barren land areas to return to pre-fire conditions. If the wildfire destroyed the ground cover, then erosion becomes one of several potential problems.

2.6.B Wildfire Event Profile, Frequency of Occurrence, Probability

Georgia has several “danger zones”, including all wooded, brush, and grassy areas in the state. However, the observed fired danger usually ranges from low to moderate.

According to the available records, no Forest Fire Presidential Disaster Declarations has been made for Stewart County.
According to the Wildfire Risk Layer in the GEMA maps by ITOS (depicted in Maps 26 to 28 below), most of Stewart County scored either a 1, meaning that the wildfire danger is “very low”, or a 0, meaning that there is “no fire danger because no houses, agriculture, water, or city.” A couple of patches did show up as 2 on the scale, however this rating is defined as low for any fire danger. The city of Richland fell under the same classifications as did the City of Lumpkin.

The Georgia Forestry Commission uses a Burning Index to determine the fire danger class. When the Burning index is at or above the 97 percentile, it is considered to be a class 5 (i.e. Extreme Fire Danger Day); class 5 being the highest fire danger class. When the Burning Index is between 90 to 97 percentiles, it is a Class 4 (i.e. Very High Fire Danger Day). The fire danger class changes frequently, and it is very important for the Fire Department and EMA Director to stay informed about the current fire danger for better preparedness.

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>BI Percentiles*</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Extreme</td>
<td>97th</td>
</tr>
<tr>
<td>4</td>
<td>Very High</td>
<td>90th to 97th</td>
</tr>
<tr>
<td>3+</td>
<td>High to Very High</td>
<td>81st to 90th</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
<td>61st to 80th</td>
</tr>
<tr>
<td>3-</td>
<td>Low to Moderate</td>
<td>46th to 60th</td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>21st to 45th</td>
</tr>
<tr>
<td>1</td>
<td>Low</td>
<td>0th to 20th</td>
</tr>
</tbody>
</table>

Source: Georgia Forestry Commission

*B1: Dividing Burning Index (BI) by 10 gives a reasonable estimate of flame length in feet at the head of a fire. Burning Index is fuel model dependent. At the Georgia Forestry Commission, this is the basis for Class Day.

A Fire Occurrence map for Stewart County for the fiscal years 2002-2006, created by the Georgia Forestry Commission, shows that there have been 136 occurrences during the four years. Please refer to Appendix A, page A16. According to this map, there have been a total of 134 fires, of which 48 covered 1 to 2 acres, 62 fires covered 2 to 4 acres, and 17 fires covered 4 to 8 acres. None of the 137 fires occurring in the years of 2002-2006 was covering an area larger than 8 acres.

The complete Community Wildfire Protection Plan for Stewart County may be found in Appendix A. According to this plan, on a year-to-year basis, the leading cause of wildfires in Stewart County is machine use (example: harvesting combine) followed by fires resulting from arson, and escaped residential leaf pile fires. During Fiscal Year 2010 there were 9 machine use fires in Stewart County on 12.00 acres.
Communities-at-risk are locations where a group of two or more structures is close proximity to a forested or wildland area place homes and residents at some degree of risk from wildfire. Other characteristics of the “community” such as the closeness of structures, building materials, the accumulation of combustible debris near the structures, access in and out, and the distance from the nearest fire station or a permanent water source (pond or dry hydrant) may contribute to the risk.

In Stewart County, there are many individual (isolated) homes and out building on farms and small properties that could be damaged or destroyed in the event of a disastrous wildfire. On these properties, the owners must be educated so they can assume a greater responsibility for wildfire protection by making improvements to their residential land scape and their homes that will provide some wildlife protection until the fire department can arrive. This can only be accomplished if rural residents know how to make their homes and properties “Firewise.”

Improvements to the community infrastructure (roads, utilities, etc.) may be beyond the capabilities of the homeowners. However, if access by emergency vehicles can be enhanced by widening the entrance right-of-way(s), creating “hammerhead-T’s” or other ways for fire trucks to turn around and operate safely and residences can be identified with reflective “911 addresses” wildfire protection can be greatly improved.

Modifications in and around individual residences may need to be budgeted by the residents over time (for example, making a roof more fire resistance may have to wait until it is time to replace the current roof covering), however, moving firewood away from the home, skirt ing raised decks and keeping roofs free of accumulated flammable debris are improvements most families can do in the short-run.

In most instances, communities-at-risk will benefit from the reduction/removal of flammable vegetation within 100 feet of homes and outbuildings through prescribed burning or by mechanical means. Fuel management with the home ignition zone (within 100 feet from the home) either by removing highly flammable vegetation or by replacing the vegetation with fire resistant plant species will significantly improve wildfire safety.
According to the Hazard Frequency Table, in Appendix A, page A2, the historic occurrence interval of wildfires is approximately over 100% of occurrence per year. The historic data is not sufficient enough to be able to detail jurisdictional differences or occurrences.
2.6.C. Inventory of Assets Exposed to Wildfires

According to the Wildfire Risk Layer in the GEMA maps by ITOS (depicted in Maps 26 to 28 below), most of Stewart County scored either a 1, meaning that the wildfire danger is “very low”, or a 0, meaning that there is “no fire danger because no houses, agriculture, water, or city.” A couple of patches did show up as 2 on the scale, however this rating is defined as low for any fire danger. The city of Richland fell under the same classifications as did the City of Lumpkin. Therefore, the wildfire danger is low for all critical facilities and non-critical structures in the cities and the county. Critical Facilities and non-critical facilities are not impacted as much by wildfires as are timber and forest land. According to the Georgia County Guide, 2006, Stewart County had approximately 249,000 acres of forest land, which amounts to almost 85% of all land in the county. In the City of Richland, there are 1,306 non-critical structures, of which 1,000 are classified residential, 250 commercial, 20 agricultural and 15 religious or non-profit. In the City of Lumpkin are 901 non-critical structures, of which 744 are classified residential, 118 commercial, 0 agricultural and 18 religious or non-profit. In the county, there are 2,464 non-critical structures, of which 1,300 are classified as residential, 56 commercial, 1,023 agricultural, and 54 as religious or non-profit. These non-critical structures potentially are all exposed to wildfires, just like the identified critical facilities. For a complete listing of all structures in the cities and county, please refer to GEMA worksheet #3a in Appendix D on pages D19-D22.

Since the total population of Stewart County is not increasing significantly, minimal future development is expected. According to ePodunk, information gathered from the U.S. Census Bureau, Stewart County ranks 158 out of 159 Fastest Growing Counties, with a loss of total population of 4.8% from 2000 to 2003. This, in a way, prevents the sprawl of new residential development into wooded areas.

2.6.D. Estimates of Potential Losses to Wildfires

None of the critical facilities are in danger of being damaged by a wildfire according to the GEMA Wildfire Hazard Score Maps by ITOS depicted in Maps 26 to 28 below. The same is true for the non-critical structures in the cities and county, since the risk of wildfires in Stewart County is very low. Losses from previous wildfires are not known, but it can be expected that private citizens experience some losses due to wildfires in their forest lands. All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b in Appendix D, pages D37-D45.

2.6.E. Land Use and Development Trends Related to Wildfires

As residential areas expand into relatively untouched wilderness areas, people living in these communities become threatened by forest fires. Protecting structures in these areas from fire poses special problems, and can stretch firefighting resources to the limit.
The county has an excellent ground water supply and individual wells provide an adequate water supply. The Georgia Forestry Commission (GFC) has developed a fire weather system; an enhanced version of the forecast segment of the Forestry Weather Interpretation System (FWIS). With this system, 3-day 5-period forecasts are generated twice per day (6:00 am and 12:30 pm EST) for each district or district component. In addition to the text weather forecasts, maps, and graphs of selected observed or forecast weather and fire related variables are produced. Current and forecast fire danger rating information for GFC and cooperating weather station network is generated. The National Fire Danger Rating Systems (NFDRS) was developed by the US Forest Service for predicting fire occurrence and behavior based on fuels, topography, and man-caused fire risk factors, along with current weather conditions. Although the National Fire Danger Rating System indices should not be directly applied to any particular site, they do not supply the practitioner with a set of indices that can be used to compare recent history, and adjacent fire management areas.

Fire danger rating relates only to the potential of the initiating fire, and the ratings are relative, not absolute. To do this, the GFC operates a network of 19 automated weather stations throughout the state of Georgia. The stations record current weather conditions each hour. Weather data from stations maintained by cooperating agencies, including the US Forest Service, the US Park Service, the Department of Defense, and the University of Georgia, are collected as well.

2.6.F. Multi-Jurisdictional Wildfire Differences

The aforementioned Fire Occurrence Map for Stewart County by the Georgia Forestry Commission, inserted as Fire Occurrence Map, Appendix A, page A16, shows that the 136 fire occurrences were well dispersed throughout the county and two cities. The Wildfire Risk Layer in the GEMA map by ITOS is based on the USDA Forest Services, RMRS Fire Sciences Laboratory “Wildland Fire Risk to Flammable Structures, V 1.0” map. Although this data is not intended for use at a detail greater than state-wide analysis, it has been included as the best available data on wildfire risk. Most of Stewart County scored either a 1 or a 0, meaning very low to no fire danger. Only a few patches in Richland scored a 2, but this score is not alarming, for it is defined as low. Please refer to maps 26 to 28 below.
Map 17: Wildfire Hazard Score, Stewart County

Source: GEMA by ITOS 2013  Please refer to the appendix for a further definition of the hazard scores.
Map 18: Fire Hazard Score, Richland

Source: GEMA by ITOS 2013  Please refer to the appendix for a further definition of the hazard scores.
Map 19: Fire Hazard Score, Lumpkin

The western part of Stewart County scored a 1, meaning very low threat of fire, while the Eastern part of the county scored either a 1 or a zero, meaning low threat to no threat at all. The central part of the county, which comprises of the city of Richland, scored in the range of 0 to 2, which ranges from no threat to that of a low threat tolerance. The Southern part of the county, comprising of the city of Lumpkin scored primarily as a 1, meaning a very low threat threshold. Stewart County is not served by a paid fire department. The volunteer fire departments of the incorporated areas as well as the volunteer fire department in Louvale serve the unincorporated areas of the county. There are 10 registered volunteer fire fighters in the City of Lumpkin and one fire truck. The city of Richland has a 8 person registered volunteer fire department and three fire trucks. The county operates a full-time Emergency Medical Service with five full time paramedics, four full time emergency technicians, thirteen part-time paramedics, and three part-time emergency technicians. This allows for emergency medical service coverage 24 hours a day, seven days a week. All EMTS and Paramedics are state certified and most are nationally certified. The county also has 3
ambulances. In 1991, Stewart County began its operation of the water and sewer authority, which serves the community of Louvale, which is the most densely populated area of the unincorporated county. Stewart county also owns the City of Omaha’s water system and Providence Canyon and Florence Marina have their own water systems. The City of Lumpkin also has its own water system, which currently has an excess capacity of 120,000 gallons per day. The City of Richland is currently upgrading its water system and in the future will increase the number of water storage tanks.

2.6.G. General Overall HRV Summary of Wildfires

Wildfires are generally the result of dry conditions combined with lightning or carelessness, and spread unconstrained throughout the environment.

According to the Wildfire Risk Layer in the GEMA map, the wildfire danger in Stewart county is low. There are a few patches, within the city of Richland, where the rating is of the score 2, however, this is still a low rating. Lack of public water or access to water in some of the outlying areas in the county impedes the fire fighting capabilities. The Fire Insurance Rating (ISO) is 7.0 within 5 miles of the city limits of Lumpkin and Richland, and 10 in all other parts of the county. Public awareness helps to mitigate such fires. This might include banning outdoor burning during the dry season.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances, development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.
3 – Local Technological Hazard, Risk and Vulnerability Summary

3.1. Hazardous Materials (in-transit and fixed)

3.1. A. Identify Hazardous Materials

Categorized as hazardous materials are chemical substances, which can pose a threat to the community health and/or the environment, when released or misused. Exposure to hazardous materials can result in long-lasting health effects, serious injury, and even death. Sources of such hazardous materials include agriculture, industry, medicine and research, and consumer goods.

In the United States, an estimated 4.5 million facilities manufacture, use, and/or store hazardous materials in varying quantities. Facilities which manufacture, use and/or store hazardous materials include not only isolated large industrial plants, but also local dry cleaners, gardening supply stores, and even homes, where hazardous chemicals often used for cleaning are stored and used regularly. The presences of hazardous materials are increasing in volume and number of locations.

Hazardous materials come in solid, liquid or gas forms. Such materials can be explosive, flammable and combustible to include poisons and radioactive materials. Most often hazardous materials are released as a result of transportation accidents (in-transit source) on highways, railroads, waterways, and pipelines. In addition, chemical accidents can occur at industrial and manufacturing plants resulting in the release of hazardous materials (fixed source).

According to the Emergency Planning and Community Right-to-Know Act, information about hazardous materials is available for communities, emphasizing the importance of the awareness of hazardous materials.

3.1. B. Hazardous Materials Event Profile, Frequency of Occurrence, Probability

Hazardous Materials can be accidently released in two situations: In-transit- when the materials are transported; fixed locations- where the materials are produced, processed and/or stored.

The Environmental Protection Division (EPD) of the Georgia Department of Natural Resources maintains a list of all facilities and their chemical inventory, plus a history of spill events. This allows the State to keep track of fixed spills.

Since 2003, there have been eleven (11) incidents related to hazardous materials. Eight (8) related to some type of spill, several on Hwy 27, 280, and 520. Since hazardous materials are transported on U.S. Hwy 27 and GA State Highways 280 and 520, as well as on the rail road leading through Stewart County, these and adjoining areas are vulnerable to accidents.
Spills of hazardous materials must be reported to the Department of Natural Resources (DNR) and to the National Response Center (NRC) by the responsible party. For Stewart County, the DNR and NRC have information about the following events since 2000. Please refer to Table 20 depicted below.

Table 21: Reported Hazardous Material Incidents in Stewart County 2000-2012

<table>
<thead>
<tr>
<th>Complaint Id:</th>
<th>Complaint Received Date:</th>
<th>Caller Name</th>
<th>Nature of Complaint</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>24909</td>
<td>11/17/2003</td>
<td>Phoenix Lumber Co</td>
<td>Diesel Oil spill</td>
<td>Bojangles Chicken at Hwy 520 &amp; 280</td>
</tr>
<tr>
<td>28371</td>
<td>8/5/2004</td>
<td>Unknown</td>
<td>Improper disposal of sewage</td>
<td>110 Banks St</td>
</tr>
<tr>
<td>30153</td>
<td>12/8/2004</td>
<td>Larry Eason Trucking</td>
<td>Diesel Oil spill</td>
<td>Bojangles Truck Stop</td>
</tr>
<tr>
<td>33402</td>
<td>7/3/2005</td>
<td>Unknown</td>
<td>Petroleum spill</td>
<td>B/w Docks of 1 &amp; 3 at Florence Marina</td>
</tr>
<tr>
<td>34743</td>
<td>9/9/2005</td>
<td>Unknown</td>
<td>Burning copper wire</td>
<td>Junkyard on Co Rd 61</td>
</tr>
<tr>
<td>35898</td>
<td>11/28/2005</td>
<td>Circle Environmental</td>
<td>Diesel spill</td>
<td>Intersection of Hwy 520 &amp; 280</td>
</tr>
<tr>
<td>37407</td>
<td>2/17/2006</td>
<td>Estes</td>
<td>Overthrown Tractor Trailer with something labeled poison but is not leaking.</td>
<td>Ga 520 at Brooklyn, Stewart County</td>
</tr>
<tr>
<td>40524</td>
<td>7/24/2006</td>
<td>B&amp;S Air</td>
<td>Unknown substance spill</td>
<td>City Water Tower</td>
</tr>
<tr>
<td>46811</td>
<td>6/12/2007</td>
<td>Unknown</td>
<td>Diesel fuel spill</td>
<td>Hwy 520 &amp; 27</td>
</tr>
<tr>
<td>63592</td>
<td>10/18/2010</td>
<td>Unknown</td>
<td>Unknown substance spill in Marina</td>
<td>Lakepoint Marina</td>
</tr>
<tr>
<td>66451</td>
<td>9/20/2011</td>
<td>SE Freightliner</td>
<td>C3 Flammable Liquid spill</td>
<td>Intersection of Mathis Store Rd and Hwy 280E/520</td>
</tr>
</tbody>
</table>

Source: DNR and NRC 2012
According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence interval is 1.22, or roughly 1-2 incidents per year, for a fixed source spill and none (0.0) for an in-transit spill. Although the chance of an in-transit spill appears minimal, it is still considered in mitigation efforts. Historical frequencies could not be broken down by jurisdiction due to lack of data. With no known scale or other scientific statistic, there is no way to identify the potential extent of this hazard, other than by potential damage or losses.

3.1. C. Inventory of Assets Exposed to Hazardous Materials

The transportation routes that traverse Stewart County enhance not only the economic potential of the county, but also serve as corridors along which unknown volumes of hazardous materials are transported daily. U.S. highways and state highways service Stewart County. The main thoroughfares in Stewart County are U.S. Highway 27 and Georgia Highway 520. According to the Georgia Guide, there are 419.7 miles of road in the county. The county contains 280.4 miles of county roads. Of these roads, 44% are unpaved. According to the Georgia Traffic Flow Map of 2012 by GDOT, which measures the annual average 24-hour traffic for all types of motor vehicles, the busiest stretch of road in Stewart County is the part of GA 520 going through Stewart County, with about 4,000 to 6,000 traffic counts. This is the second lowest category of the 6 traffic flow categories used by GDOT. Stewart County has railroad service although the lines are leased out and currently sit in-active. Therefore, a railway is not another potential source of hazardous material spills. In the GEMA Critical Facility Inventory Map by ITOS, 45 critical facilities are mapped for Stewart County. Assuming an accident is happening on one of the major thoroughfares like U.S. Highway 27 or GA State Highway 520, any of these 45 critical facilities could potentially be affected by a hazardous material spill, especially if a buffer of about 1 mile is placed around all major thoroughfares in the cities and county (see also Maps 20 to 22). Concerning non-critical structures, it is not known how many are located along the major thoroughfares.

Since some hazardous material spills occur even at home, potentially all non-critical structures in the city and county are endangered of being affected. In the City of Richland, there are 1,306 non-critical structures, of which 1,000 are classified residential, 250 commercial, 20 agricultural and 15 religious or non-profit. In the City of Lumpkin there are 901 non-critical structures, of which 744 are classified residential, 118 commercial, 0 agricultural and 18 religious or non-profit. In the county, there are 2,464 non-critical structures, of which 1,300 are classified as residential, 56 commercial, 1,023 agricultural, and 54 as religious or non-profit. These non-critical structures potentially are all exposed to hazardous materials, just like the identified critical facilities. For a complete listing of all structures in the cities and county, please refer to GEMA worksheet #3a in Appendix D on pages D13-D16.


Potential losses can be estimated for fixed source spills because the location and a rough estimate of the hazardous material are known. However, in-transit spills are caused by such a large number of variables that the loss potential is hard to judge.
Should an accident occur on U.S. Highway 27, many of the critical facilities would be affected as would the facilities located along Hwy 520. All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b Appendix D, pages D23-D31. While the hazard score from this report is not relevant to this hazard, the report serves as the best available for a total inventory of critical facilities for these purposes.

The non-critical structures in the City of Richland have a value of $30,904,805, the City of Lumpkin have a value of $24,086,764, and in the unincorporated areas of Stewart County has a value of $112,133,784. The Stewart County-wide value for non-critical structures totals $167,125,353. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D13-D16.

When the Fire Department responds to hazardous materials incidents, and the responsible party is known, this polluter is charged for the clean-up. The cities or county only have to pay when the cause or source of the incident cannot be found.

3.1. E. Land Use and Development Trends Related to Hazardous Materials

Stewart County has a total of 419.7 miles of road in the county. The county contains 280.4 miles of county roads. Of these, 44% are unpaved roads. Roads with a substantial number of households located on them are paved. The majority of the roads in the City of Richland are paved. Many of these paved streets need to be repaved and widened. The dirt streets need to be paved and drainage problems need to be addressed. All streets in the City of Lumpkin are paved, however many need to be repaved and widened. Drainage problems in the eastern part of the city need to be addressed.

3.1. F. Multi-Jurisdictional Hazardous Materials Differences

There is no spatial depiction per se available in the GEMA mapping tool by ITOS. The threat applies mainly along the major thoroughfares as depicted in the Transportation Maps 20 to Map 22 below.
Map 20. 1 mile buffer around Stewart County critical facilities, roads, and highways
Map 21: 1 Mile Buffer around Richland critical facilities, roads, and highways
3.1. G. General Overall HRV Summary of Hazardous Materials

The location at a minor traffic intersection and the fairly low traffic volume going through the county, place the community at a lesser risk of hazardous material releases and transportation accidents. The potential for loss exists countywide along roads. The main thoroughfares in Stewart County and Richland are Georgia Highways 27 and 520 and U.S. Highway 27 and Georgia Highway 520. U.S. Highway 27 extends through the City of Lumpkin.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of
Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances, development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

3.2. **Dam Failure**

3.2. A. **Identify Dam Failure**
A dam is a barrier constructed for the purpose of preventing the flow of water. Dams are especially effective when built across a watercourse for impounding water. Dams have many benefits including improved navigation, agricultural irrigation, provision of drinking water, and possible hydroelectric power generation. Dams also create lakes for recreation, and can help in preventing or reducing floods.

Dam failure can pose serious risks. Dams fail for two main reasons: a physical weakness in the structure caused by a faulty design, improper operation or poor maintenance and the inundation of the dam by flood waters during extreme events such as a hurricane.

Dam failure has the potential to cause extreme property damage and fatalities.

Stewart County has a series of 25 dams located within the county. These dams are primarily in the classification listed as II which means that there is a very low risk of loss of life due to dam failure. Most of these dams are small, local dams on private property that do not endanger the lives of those living near them.

3.2. B. **Dam Failure Event Profile, Frequency of Occurrence, Probability**

There are 25 dams located in the county, all on small ponds. So far, no problems were recorded pertaining to dam failure. However, twenty-one of the dams are Category II dams, meaning that a malfunction is not expected to cause loss of life. The remaining four dams are exempt from classification.
Table 22: Georgia Safe Dams in Stewart County 2012

<table>
<thead>
<tr>
<th>Name</th>
<th>Classification</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bradley Lake Dam</td>
<td>II</td>
<td>Columbus</td>
</tr>
<tr>
<td>Briscoe Lake Dam</td>
<td>II</td>
<td>Columbus</td>
</tr>
<tr>
<td>Davis Pond Dam</td>
<td>II</td>
<td>Lumpkin</td>
</tr>
<tr>
<td>Forts Pond Dam</td>
<td>II</td>
<td>Lumpkin</td>
</tr>
<tr>
<td>Gussie Lake Dam</td>
<td>II</td>
<td>Richland</td>
</tr>
<tr>
<td>Halliday Lake Dam</td>
<td>II</td>
<td>Columbus</td>
</tr>
<tr>
<td>Halidays Pond Dam</td>
<td>E</td>
<td>Lumpkin</td>
</tr>
<tr>
<td>Hadchodkee Pond Dam</td>
<td>II</td>
<td>Columbus</td>
</tr>
<tr>
<td>Holders Pond Dam</td>
<td>II</td>
<td>Lumpkin</td>
</tr>
<tr>
<td>Jenkins Pond Dam</td>
<td>E</td>
<td>Cusseta</td>
</tr>
<tr>
<td>Loiselle Dam</td>
<td>II</td>
<td>Columbus</td>
</tr>
<tr>
<td>Lumpkin Sewage Treatment Plant</td>
<td>II</td>
<td>Lumpkin</td>
</tr>
<tr>
<td>McGlaun Dam</td>
<td>II</td>
<td>Cusseta</td>
</tr>
<tr>
<td>Merrit Large Lake Dam</td>
<td>II</td>
<td>Weston</td>
</tr>
<tr>
<td>Merrit Small Lake Dam</td>
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<td>Weston</td>
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<td>Minick lake Dam</td>
<td>II</td>
<td>Richland</td>
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<td>Parish Lake Dam</td>
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<td>Stewart County</td>
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<td>Parish Lake Dam South</td>
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<td>Perkins Lake Dam</td>
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<td>Red Hill Farms Lake Dam</td>
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<td>Singers Pond Dam</td>
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<td>Usehrs Millpond Dam</td>
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<td>Van Cleve Lake Dam</td>
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<td>Williams Lake Dam</td>
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<td>Williams Pond Dam</td>
<td>II</td>
<td>Stewart County</td>
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*Source: Georgia Safe Dams 2012*

The failure of any of the dams is not expected to cause loss of life. According to the Hazard Frequency Table in Appendix A, page A2, the historic recurrence interval is not established, and the historic frequency does not indicate a dam failure will cause flooding in Stewart County in a given year. With no known scale or other scientific statistic, there is no way to identify the potential extent of this hazard, other than by potential damage or losses.
3.2. C. Inventory of Assets Exposed to Dam Failure

Stewart County is mapped for flooding and flood-prone areas under the FEMA program. Most of Stewart County scored 0 on a scale from 0 to 4 as depicted on the GEMA Flood Hazard Score Map in Chapter 2.4.F., which means possible but undetermined flood hazards or outside the 500-year floodplain. However, there are a few areas within the county that scored 1, which means the area was not included in any flood study or there are possible but undetermined flood hazards.

The twenty-five (25) privately and county-owned, smaller dams impound small ponds, and flooding from a failure of one of these dams would not cause extensive damage or loss of life. As mentioned above in the chapter on flooding, no critical facilities are located in flood-prone areas. In the City of Lumpkin and the county, no non-critical structures are known to be endangered by flooding. For a complete listing of all structures in the cities and county at risk from flooding, please refer to GEMA worksheet #3a in Appendix D on pages D13-D16.

Since the total population of Stewart County is fairly stable, not much future development is expected. According to the 2010 Georgia Guide, Stewart County ranked 151 out of 159 counties in population growth.

3.2. D. Estimate of Potential Losses to Dam Failure

As mentioned above in the chapter on flooding, no critical facilities are located in flood prone areas.

All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b in Appendix D, pages D23-D31. While the hazard score from this report is not relevant to this hazard, the report serves as the best available for a total inventory of critical facilities for these purposes.

The non-critical structures in the City of Richland have a value of $30,904,805, the City of Lumpkin have a value of $24,086,764, and in the unincorporated areas of Stewart County has a value of $112,133,784. The Stewart County-wide value for non-critical structures totals $167,125,353. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D13-D16.

3.2. E. Land Use and Development Trends Related to Dam Failure

Flooding is the main effect of dam failure. The same patterns apply here that were mentioned in the chapter on floods.

3.2. F. Multi-Jurisdictional Dam Failure Differences
There is a very low chance that Stewart County and the Cities of Richland and Lumpkin would be flooded due to dam failure. Damage for the county would exceed damage in the cities.

Stewart County is mapped for flooding and flood-prone areas under the FEMA program. Most of Stewart County scored 0 on a scale from 0 to 4 as depicted on the GEMA Flood Hazard Score Map in Chapter 2.4.F., which means possible but undetermined flood hazards or outside the 500-year floodplain. However, there are a few areas within the county that scored 1, which means the area was not included in any flood study or there are possible but undetermined flood hazards.

Map 23. Flood Score Hazards, Stewart County

Source: GEMA by ITOS 2013
Map 24. Flood Score Map, City of Richland

Source: GEMA by ITOS 2013
3.2. G. General Overall HRV Summary of Dam Failure

The county has not experienced serious flooding in the past and the little that has occurred is a result of creek overflow.

The two cities are not mapped for flooding and flood prone areas under the FEMA program and flood areas are undetermined.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances,
development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

3.3. Civil Disturbance

3.3. A. Identify Civil Disturbance

Civil Disturbance involves an event or public crisis that disrupts a community and its average, normal peace, and generally threatens the safety of the community and its citizens. Examples include political demonstrations, riots, prison uprisings, strikes, and public nuisances or assemblies that have become significantly disruptive. Effects of civil disturbance include injury to participants and spectators, and property damage. Generally, it is cities with populations of more than 100,000 which are the most vulnerable to civil disturbance, although communities with concentrations of ethnic groups or residents of desperate economic status are also vulnerable. The control of such groups requires law enforcement agencies that have been trained and are experienced in riot control.

3.3. B. Civil Disturbance Event Profile, Frequency of Occurrence, Probability

Since Civil Disturbance is hard to predict and is generally guided by the persons participating in the demonstration, there is no data available for Stewart county as far as an event profile. Currently, no information exists as to the frequency of occurrence for civil disturbance in Stewart County and the cities of Richland and Lumpkin. Currently, the hazardous event profile does not include any information for the Civil Disturbances. However, the Committee for this plan feel that the areas surrounding the Stewart County Detention Center has a civil disturbance risk hazard of 2 on a scale of 1 to 10, with 1 being no disturbance and 10 being a worst-case scenario. Civil Disturbance Stewart County and the cities of Richland and Lumpkin may not be large enough centers for a civil disturbance to occur, but any part of the area has the potential for being affected at any one time. With no known scale or other scientific statistic, there is no way to identify the potential extent of this hazard, other than by potential damage or losses.

3.3. C. Inventory of Assets Exposed to Civil Disturbance

Since civil disturbances are hard to predict and could occur at any point in time and place, a specific inventory of exposed assets cannot be determined. However, any of the critical facilities could be targeted at any one time. All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by Information Technology Outreach Services (ITOS) have a combined total replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b in Appendix D, pages D23-D31. Since no actual data exists for civil disturbance, approximate values can be estimated by looking at the hazards for which there are numbers, as those referenced above.
The non-critical structures in the City of Richland have a value of $30,904,805, in the City of Lumpkin $24,086,764 and in the unincorporated Stewart County a value of $112,133,784. The Stewart County wide value for non-critical structures total $167,125,353. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D13-D16.

3.3. D. Estimate of Potential Losses to Civil Disturbance

All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b in Appendix D, pages D D21-D26. While the hazard score from this report is not relevant to this hazard, the report serves as the best available for a total inventory of critical facilities for these purposes.

The non-critical structures in the City of Richland have a value of $30,904,805, in the City of Lumpkin $24,086,764 and in the unincorporated Stewart County a value of $112,133,784. The Stewart County wide value for non-critical structures total $167,125,353. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D13-D16.

3.3. E. Land Use and Development Trends Related to Civil Disturbance

There is currently no determination of land uses and development trends that can be attributed to Civil Disturbance or action against them occurring with exception of the Stewart County Detention Center.

3.3. F. Multi-Jurisdictional Civil Disturbance Differences

There is a very low chance that Stewart County and the Cities of Richland and Lumpkin would be affected by the occurrence of a civil disturbance. Damage from a civil disturbance would be greater within the cities of Richland or Lumpkin, due to number of critical facilities located within their city designation.
Map 26: Basic Map of Stewart County

Source: GEMA by ITOS 2013
Map 27: Basic Map of the City of Richland

Source: GEMA by ITOS 2013
3.3. G. General Overall HRV Summary of Civil Disturbance

Neither the county or the two cities have experienced any civil disturbances, but the potential is always there.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employs a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. The has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. This E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances,
development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

3.4. **Terrorism**

3.4. A. Identify Terrorism

Based on a standard definition, Terrorism is the use of force or violence to elicit a general climate of fear in a population, with the goal of bringing about a certain political objective, or coercing or intimidating a government or civilian population. Terrorists therefore may be members of political organizations, nationalistic and religious groups, revolutionaries, and even state institutions (such as armies and intelligence services).

Acts of Terrorism can take many different forms; including but not limited to, threats of terrorism, assassinations, kidnappings, hijackings, the use of explosives, bomb scares and bombings, cyber attacks (computer-based), contaminating water or food supplies, and the use of chemical, biological, nuclear and/or radiological agents in populated areas.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks.

3.4. B. Terrorism Event Profile, Frequency of Occurrence, Probability

Terrorist attacks are often based on a political agenda or national cause. Stewart County and its jurisdictions are in close proximity to the Ft. Benning Military Installation. Ft. Benning is the largest Infantry base in the nation. A terrorist attack on the base would severely impact the installation and many surrounding counties to include Stewart County. In addition to property damage and fatalities, an unknown number of Stewart County residents are employed by Ft. Benning; this would have a direct impact on the county’s economy. Being an agricultural county, Stewart County would suffer greatly from an agri-terrorism event which could result in contaminated food and water supply, affecting the economy and the well-being and quality of life for the citizens. There are currently no historical records of acts of terrorism, and as of the writing of this grant, there have been no probabilities of future attacks predicted or developed. Fort Benning may have developed these occurrences for their base, but the information is not public at this time. With no known scale or other scientific statistic, there is no way to identify the potential extent of this hazard, other than by potential damage or losses.

3.4. C. Inventory of Assets Exposed to Terrorism

In addition to injuries and fatalities to people, pets and livestock a terrorist event can affect many areas of the environment and economy.

3.4. D. Estimate of Potential Losses to Terrorism
It is hard to estimate the potential losses to terrorism due to the nature of the act. Any one of the Critical facilities or non-critical facilities could be targeted. The Critical Facilities for Stewart County, the City of Richland, and The City of Lumpkin are outlined below, on the GEMA Hazard Score Maps by ITOS depicted in Maps 35 to 37 below. All 45 critical facilities identified in the GEMA Critical Facility Inventory Map by ITOS have a combined total replacement value of $66,778,560. For a complete listing of replacement values of critical facilities, please refer to the GEMA worksheet #3b in Appendix D, pages D23-D31. While the hazard score from this report is not relevant to this hazard, the report serves as the best available for a total inventory of critical facilities for these purposes.

The non-critical structures in the City of Richland have a value of $30,904,805, in the City of Lumpkin $24,086,764 and in the unincorporated Stewart County a value of $112,133,784. The Stewart County wide value for non-critical structures total $167,125,353. For a complete listing of values of non-critical structures, please refer to the GEMA worksheet #3a on Inventory of Assets in Appendix D on pages D13-D16.
3.4. E. Land Use and Development Trends Related to Terrorism

There is currently no determination of land uses and development trends that can be attributed to Terrorism.

3.4. F. Multi-Jurisdictional Terrorism Differences

There is a very low chance that Stewart County or Cities of Richland and Lumpkin would be affected by the occurrence of terrorism. There is no substantial chance for a terrorist act and each location would react appropriately. Damage from an act of terrorism would be greater within the cities of Richland or Lumpkin due to the number of critical facilities located within their city designation.

3.4. G. General Overall HRV Summary of Terrorism
Neither the county or the two cities have experienced any terrorism, but the potential is always there.

To decrease vulnerability to this hazard, Stewart County and the Cities of Richland and Lumpkin have adopted the International Building Code. Stewart County and the City of Lumpkin employ a Code Enforcement Officer and the City of Richland contracts with a local independent contractor for code enforcement. In addition to updating the development regulations, Stewart County has also implemented an E911 system to improve the county’s ability to warn citizens of local emergencies. This has occurred since the previous Stewart County Pre-Disaster Mitigation Plan was updated in 2008. The E911 system was established in 2009. As of 2014, there have been no changes in codes, ordinances, development patterns, or mitigations projects that would affect the risk that the county faces from this hazard.

4 – Local Natural Hazard Mitigation Goals and Objectives

There have been no changes in the overall priorities of Stewart County, Lumpkin or Richland as they relate to mitigation since completion of the 2008 Stewart County Pre-Disaster Mitigation Plan. Most of the mitigation efforts listed below will be implemented by the county’s EMA department. Other represented departments in the process will be the county Fire, EMS, Sheriff, Senior Centers, Board of Education, DFCS, and the local Red Cross. On the municipal level, most of the mitigation efforts will be implemented by the local government and its local police and public works department. The funding for necessary projects will be included in the public safety or public works portion of the yearly budget.

Six general mitigation goals have been established. Reaching for these goals will have positive impacts on mitigation for all hazards. The overall goals are as follows:

| Goal #1 | Protect the public health and safety. |
| Goal #2 | Institutionalize mitigation. |
| Goal #3 | Provide immediate warning to the public in the event of a severe weather event or onset of a natural hazard. |
| Goal #4 | Respond effectively to and recover from severe weather events. |
| Goal #5 | Respond promptly, appropriately and efficiently in the event of a natural or man-made hazard when shelters are required. |
| Goal #6 | Maintain up-to-date data base and assessment of vulnerability of critical facilities endangered by hazard. |

Mitigation Goal # 1

Objective 1

Provide educational programs and activities for the community to promote severe weather awareness

Task 1

Provide public training classes and disseminate information
Action Step 1  Continue scheduling training classes for the volunteer fire fighters through GA Public Safety Training Center (GPSTC)
Category: Training
Responsible Org: Stewart Co. Fire Dept.
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Cost: Free for staff except staff time
Funding Source: GPSTC
Priority: High

Action Step 2  Utilize the Stewart County “Commissioner Times” to disseminate hazard mitigation information to the general public
Category: Public Education and Awareness
Responsible Org: Stewart Co. Commissioners Office
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co.
Timeline: Quarterly
Status: Ongoing
Cost: $500/issue (copies + staff time)
Funding Source: Local Government
Priority: High

Action Step 3  Utilize public information outlets such as newspapers to disseminate hazard mitigation information to the general public by providing the media with information
Category: Public Education and Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Weekly
Status: Ongoing
Cost: $100/year
Funding Source: Local Government
Priority: Medium

Action Step 4  Provide public with hazard mitigation information through severe weather awareness forms displayed in Courthouse and other public places
Category: Public Education, Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Daily
Status: Ongoing
Costs: $100 (copies + staff time)
Funding Source: Dept. Operating Budget
Priority: Medium

Objective 2: Provide educational and meaningful programs and activities for the community to promote severe weather training
Action Step 1  Form Public Education Committee
Category: Public Education, Awareness
Responsible Org: Stewart County EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Costs: $100 (copies + staff time)
Priority: High

Action Step 2
Form Local Emergency Response team
Category: Public Education, Awareness
Responsible Org: Stewart County EMA
Coordinating Org: Stewart County EMA
Jurisdiction: Stewart County, Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Cost: $100/year
Funding Source: Local Government
Priority: High

Benefit: In the event of a disaster, Mitigation Goal #1 will benefit the county and cities by informing and preparing citizens. Furthermore, Mitigation Goal #1 will assist in structuring the emergency response and resources available while preventing further deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin. In addition, Goal #1 will prevent further damage to the areas critical facilities with a replacement value of less than 85 million dollars, and non-critical structures with a replacement value of approximately 141 million dollars.

Mitigation Goal # 2
Institutionalize mitigation

Objective 1
Improve the comprehensive mitigation strategy

Task 1
Monitor plan implementation annually
Action Step 1
Establish a date for formal annual review of mitigation strategy implementation
Category: Prevention
Responsible Org: Pre-Disaster Mitigation Executive Committee
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014, annually
Status: Ongoing
Cost: $200 staff time
Funding Source: Departmental Operating Budget
Priority: Medium

Task 2
Maintain current Local Emergency Operations Plan (LEOP) for Stewart County
Action Step 1
Update the Local Emergency Operations Plan (LEOP) for Stewart County
Category: Preparedness
Responsible Org: County and city departments
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014-2016
Status: Ongoing
Cost: $5,000
Funding Source: Dept. Operating Budget
Priority: Medium

Objective 2
Prevent losses of vital public records

Task 1
Duplicate and safely store vital public sector records off-site
Action Step 1
Local government and constitutional officers adopt policy of (1) duplicating existing, essential records, (2) duplicating essential records annually thereafter, and (3) designating a secure, off-site depository for essential public records
Category: Emergency Services
Responsible Org: Local Governments
Coordinating Org: Chief Appointed Officials
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014-2016, annually
Status: Ongoing
Cost: $10,000
Funding Source: Local Government
Priority: Low

Benefit: In the event of a disaster, Mitigation Goal #2, Objective 2 offers insurance of up-to-date, well maintained and safely stored county records while preventing the loss of vital records.

Objective 3 Increase coordination between local public departments and between the public and private sectors in pre-disaster planning

Task 1 Share information between emergency agencies concerning services, regulations, capabilities, personnel, equipment, needs, limitation etc

Action Step 1 Continue good communication and coordination between emergency services

Category: Emergency Services
Responsible Org: City and County Law (Police, Sheriff), Fire Dept., Public Works, EMS

Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Monthly
Status: Ongoing
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budget
Priority: High

Action Step 2 Maintain good working relationship with surrounding counties and their emergency services

Category: Emergency Services
Responsible Org: Emergency Service providing agencies (local and state), City and County governments

Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budget
Priority: High

Benefit: In the event of a disaster, Mitigation Goal #2, Objective 3 provides the much needed share of vital information through the accurate channels. Objective 3 maintains effective communication among the governmental departments as well as the public and private sectors. Furthermore, Mitigation Goal #2 will prevent further disaster related deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin. In addition, Goal #2 will prevent further damage to the areas critical facilities with a replacement value of less than 85 million dollars, and non-critical structures with a replacement value of approximately 141 million dollars.

Mitigation Goal #3 Provide immediate warning to the public in the event of severe weather or onset of a natural hazard

Objective 1 Inform public in advance through public warnings

Task 1 Procure equipment and software on a regular basis to insure proper function of warning equipment

Action Step 1 Conduct monthly tests of the outdoor emergency warning siren system (once procured)
Category: Equipment
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Cost: $20/month staff time
Funding Source: Local Government
Priority: High

Action Step 2
Monitor for and participate in the weekly test of the NOAA tone alert radio (once received)

Category: Equipment
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Weekly
Status: Ongoing
Cost: $10/week
Funding Source: Local Government
Priority: High

Task 1 Acquire funding to purchase and install additional weather sirens

Action Step 1 Through a grant, acquire a second weather siren for the portion of the county with the majority of the population, and later a third siren for the remainder of the county

Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland
Timeline: 2014-2016
Status: Ongoing
Costs: $25,000 per siren
Funding Source: GEMA/FEMA/NOAA/USDA/DCA/Stewart County
Priority: Medium

Benefit: In the event of a disaster, Mitigation Goal #3 insures proper operations of emergency warning system. Providing timely warning to the public to prevent fatalities and injuries. Mitigation Goal #3 will prevent further disaster related deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin. In addition, Goal #3 will prevent further damage to the areas critical facilities with a replacement value of less than 85 million dollars, and non-critical structures with a replacement value of approximately 141 million dollars.

Mitigation Goal #4 Respond effectively to and recover from severe weather events

Objective 1 Coordinate training for members of Stewart Counties EMA office on natural hazards

Task 1 Work through State and Federal agencies to identify funding for and coordinate, schedule and register for appropriate training classes

Action Step 1 Identify funding sources in order to send members of Stewart Co. EMA to training classes

Category: Training
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Cost: $1,000/year
Funding Source: GEMA/FEMA/USDA/
Task 2  Conduct periodic exercises and drills to insure effective coordination and cooperation among all agencies.

Action Step 1  Promote participation in the National Weather Service yearly tornado drill in critical facilities (School campus, Senior Center, DFCS)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Cost: $5,000
Funding Source: Dept. Operating Budget
Priority: High

Action Step 2  Support the fire drills in the critical facilities (Schools monthly, Senior Center annually, Head Start annually)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. Fire Department
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Monthly/Annually
Status: Ongoing
Costs: $1,000 staff time
Funding Source: Dept. Operating Budget
Priority: High

Action Step 3  Continue to distribute NOAA tone alert radios to city and county employees in key positions for their homes
Category: Prevention
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Monthly
Status: Ongoing
Cost: $5,000 plus installation time
Funding Source: FEMA/GEMA
Priority: High

Task 3  Conduct post-disaster assessment of preparation for, and response to hazard event
Action Step 1  Request GEMA to provide an experienced emergency response professional or team of professionals to perform a detailed, post-disaster assessment of disaster preparations and response as soon as possible after a disaster event
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Regional All Hazards Council
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: As needed
Status: Ongoing
Cost: $2,500
Funding Source: GEMA
Priority: High

Benefit: In the event of a disaster, Mitigation Goal #4 insures well trained and informed EMA and other public agency staff in the event of a natural hazard and/or severe weather. In addition, Mitigation Goal #4 provides an effective post-disaster assessment to determine the success and efficiency of the natural hazard and/or severe weather preparation as well as response. Mitigation Goal #4 will prevent further disaster related deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin. In addition, Goal #4 will prevent further damage to the areas critical facilities with a replacement value of less than 85 million dollars, and non-critical structures with a replacement value of approximately 141 million dollars.

Mitigation Goal #5

Respond promptly, appropriately and efficiently in the event of a natural or man-made hazard when shelters are required.

Objective 1
Increase the capability of the employees of the Department of Family and Children Services (DFCS). These DFCS employees have been trained in basic shelter operations.

Task 1
Presenting the American Red Cross Shelter Simulation course to the DFCS employees.

Action Step 1
Schedule and perform simulation course
Category: Disaster Response
Responsible Org: American Red Cross
Coordinating Org: Stewart Co. DFCS
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2013
Status: Ongoing
Cost: $4.50 per student
Funding Source: Local Red Cross
Priority: Medium

Action Step 2
Increase response capabilities by purchasing shelter equipment.
Category: Disaster Response
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Monthly
Status: Ongoing
Cost: $1,000/year
Funding Source: GEMA/FEMA/USDA/DCA/
Priority: High

Benefit: In the event of a disaster, Mitigation Goal #5 insures well trained and informed DFCS employees in the event of a natural hazard or man-made hazard when shelters are required. In addition, Mitigation Goal #5 will be beneficial by having informed and prepared emergency shelter operators to prevent fatalities and injuries among the 6,058 residents of the Stewart County, the Cities of Richland and Lumpkin.

Mitigation Goal #6
Maintain up-to-date data base and assessment of vulnerability of critical facilities endangered by hazards

Objective 1:
Use the on-line map tool from GEMA to map and identify any new critical facilities.

Task 1
Update and map all critical facilities using ITOS

Action Step 1
Determine critical facilities through Pre-Disaster council and tax assessor
Category: Inventory
Responsible Org: Stewart Co.
Coordinating Org: Stewart Co.
Jurisdiction: Stewart Co., Richland, Lumpkin
Objective 2: Keep up-to-date records of critical facilities.
Task 1: Maintain records every five years as each Pre-Disaster Plan gets updated
Action Step 1: Make assessment of any new or deleted facilities since last update

Category: Inventory
Responsible Org: Stewart Co.
Coordinating Org: Stewart Co.
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2018
Status: Ongoing
Cost: $25/hour
Funding Source: Stewart Co.
Priority: High

Benefit: In the event of a disaster, Mitigation Goal #6 insures that all critical facilities within the county are accounted for. Without proper identification of critical facilities, the county and cities may not receive proper funding for recovery should a disaster strike. In addition, Goal #6 will prevent further damage to the areas critical facilities with a replacement value of less than 85 million dollars, and non-critical structures with a replacement value of approximately 141 million dollars.

4.1. Thunderstorm

4.1. A. Community Mitigation Goals

For Stewart County, thunderstorms pose the most common natural hazard. To be able to limit damage from high winds, and lightning strikes, mitigation must be prepared in advance. The winds accompanying thunderstorms are not as fast as a tornado, but the damage caused is similar. Therefore the goals, objectives, tasks and action steps are the same. The mitigation efforts can also be used for tropical storms and hurricanes, as well as winter storms.

4.1. B. Identification and Analysis of Range of Mitigation Options

1. Structural and non-structural mitigation

The goals identified are both structural and non-structural options. Home owners are responsible for structural improvement of existing buildings, for example, installing lightning rods. Non-structural options encourage the expansion of public education to supplement the property owner’s structural options. It is important to educate the population of the dangers of lightning and hail which accompany thunderstorms. Some precaution measures regarding lightning includes avoiding natural lightning rods such as tall, isolated trees in an open area or on the top of a hill, and to avoid touching metal objects such as wire fences, golf clubs, and metal rods during a thunderstorm.

2. Existing policies, regulations, ordinances and land use
Stewart County, the Cities of Richland, and Lumpkin have officially adopted off the Southern Building Codes Standards.

3. Community values, historic, and special considerations

The community values both private and public property. The community also values the historic and scenic value of public and private property. Any aspect of the community that helps maintain or build its unique character is of the utmost importance to the community.

4. New buildings and infrastructure

Concerning thunderstorms, enforced building codes require structures to be built to the design wind speeds and Manufactured Housing has to be tied down.

5. Existing buildings and infrastructure

Existing buildings normally do not suffer as much damage from the winds and the rain, but rather the lightning associated with thunderstorms. The local governments encourage residents in older buildings, to retrofit their buildings, and to bring them up to a safe standard to include power surge protectors and/or lightning rods. The analysis did not reveal anything else the local governments can do to reduce the impact of thunderstorms in existing buildings and infrastructure. However, life saving measures can be accomplished through early warnings. Therefore, as part of the public awareness strategy, residents are advised to secure outdoor objects that could blow away, and to shut windows securely. Residents are also advised not to handle any electrical appliances or telephones to avoid lightning strikes, and to avoid water faucets and sinks, because metal pipes can transmit electricity.

Residents on the streets in a car are advised to stay in the car and pull safely onto the shoulder away from trees.

4.1. C. Thunderstorm - Mitigation Strategy and Recommendation

<table>
<thead>
<tr>
<th>Mitigation Goal #1</th>
<th>Reduce the potential for loss of life and property damage from high winds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1</td>
<td>Mitigate additional damage for vulnerable manufactured homes</td>
</tr>
<tr>
<td>Task 1</td>
<td>Protect manufactured homes against damage from high winds</td>
</tr>
<tr>
<td>Action Step 1</td>
<td>Through building code standards, require mobile homes to be tied down and withstand a 75 mph wind load</td>
</tr>
</tbody>
</table>

Category: Property Protection
Responsible Org: Local Governments
Coordinating Org: City Councils/County Comm.
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Daily
Status: Ongoing
Costs: staff time
Funding Source: Dept. Operating Budget
Priority: Low
Benefit: In the event of a thunderstorm (and other high wind disasters), Tasks 1 will insure safe residences, while preventing fatalities and injuries among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin.

Objective 2  Educate citizens on the dangers and potential of severe weather

Task 1  Educate citizens about the importance of (1) monitoring weather information, (2) heeding public weather warnings, (3) using the installed weather radios in the home and workplace, and (4) take disaster response courses

Action Step 1  Encourage the general public to purchase additional weather radios

Category:  Public Education/Awareness
Responsible Org:  Stewart Co. EMA
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Richland, Lumpkin
Timeline:  Annually
Status:  Ongoing
Costs:  $500 for staff time and copies
Funding Source:  Citizens
Priority:  Medium

Action Step 2  Encourage the American Red Cross to teach a Citizen’s Disaster Course on a frequent basis

Category:  Public Education/Awareness
Responsible Org:  American Red Cross
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Richland, Lumpkin
Timeline:  Annually
Status:  Ongoing
Costs:  $2,000
Funding Source:  American Red Cross
Priority:  Medium

Benefit: In the event of a disaster, Mitigation Goal #1, Objective 2 will benefit the county and cities by educating citizens of the dangers involved with thunderstorms while enabling them to receive the most advanced severe weather warnings through additional weather radios. Mitigation Goal #2 will prevent further disaster related deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin. In addition, Goal #2 will prevent further damage to the areas critical facilities with a replacement value of less than 85 million dollars, and non-critical structures with a replacement value of approximately 141 million dollars.

Mitigation Goal #2  Prevent property damage and fatalities due to lightning strikes

Objective 1  Educate residents of the county of the danger of being exposed to lightning

Task 1  Educate the population on potential damage and loss of life from lightning

Action Step 1  Alert citizens to the presence of lightning through weather radios and other broadcasts

Category:  Public Education/Awareness
Responsible Org:  Stewart Co. EMA
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Richland, Lumpkin
Timeline:  Annually
Status:  Ongoing
Costs:  Nominal, $250 staff time
Funding Source:  Citizens
Priority:  Medium

Action Step 2  Inform the public that staying inside a house or car, and not using electrical appliances during a thunderstorm can reduce the risk of lightning strikes
Benefit: In the event of a disaster, Mitigation Goal #2 will benefit the county and cities by informing and preparing citizens thereby preventing thunderstorm and severe weather related deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin.

Objective 2 Prevent damage to private and public property

Task 1 Protect critical facilities from damage due to lightning strikes
Action Step 1 Make sure critical facilities and equipment are grounded

Action Step 2 Install lightning rods on all critical facilities those are not equipped yet

Action Step 3 Identify and remove weak, aging and diseased trees

Task 2 Install back-up power generators for critical facilities
Action Step 1 Obtain and install power generators or other back-up Systems where needed
Benefit: In the event of a thunderstorm, Objectives 1 and 2 will inform and prepare citizens, while preventing severe weather related fatalities among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin. Implementation of these objectives will prevent damage to the critical facilities with replacement value of less than 85 million dollars, and damage to non-critical structures with a replacement value of approximately 141 million dollars.

4.1. D. Special Multi-Jurisdictional Strategy

In regards to thunderstorms and other severe weather there is no geographical difference in the risk involved. Therefore the same mitigation measures apply in each jurisdiction, Stewart County, Richland and Lumpkin.

4.1. E. Public Information and Awareness Strategy

Conveying public announcements to the residents, and promoting the purchase and use of weather radios as proposed in one of the action steps above will enhance public information and awareness, and reduce the risk of fatalities due to thunderstorms and other severe weather.

4.2. Hurricane and Tropical Storm

4.2. A. Community Mitigation Goals

For Stewart County, the rainfall associated with tropical storms and hurricanes are an ever present threat. Tropical cyclones above 74 miles per hour are considered a hurricane. Due to its geographical location, Stewart County and the Cities of Richland and Lumpkin will always be susceptible to the torrential rainfalls of tropical systems. In order to limit damage from high winds, mitigation plans must be developed for advanced notice. Mitigation includes activities to lessen the damage from such storms, including identification of floodplains for preservation of lives and property. The development of a plan to evacuate and shelter residents prior to a storm is a component of preparedness.

Since the damage from the high winds is similar to thunderstorms and tornadoes, the goals, objectives, tasks and action steps are the same with a few modifications. Many of the
mitigation efforts for flooding caused by tropical storms can be found in the chapter in Flood Mitigation.

4.2. B. Identification and Analysis of Range of Mitigation Options

See Tornado (Chapter 4.3.B.), Thunderstorm (Chapter 4.1.C.), and Flood Mitigation (Chapter 4.4.B.) for additional information.

Life saving measures can be accomplished through early warnings and emergency retrofitting. Therefore, the following mitigation actions can be taken in the event of a hurricane or tropical storm in addition to the measures mentioned.

Prior to a tropical storm and/or hurricane shutters and/or pre-cut plywood should be hung covering all windows, and secured with screws every 18 inches. Manufactures Homes should be strapped or tied to concrete foundations with cables or chains. Owners of boats are advised to have the boats moored securely or chained to a trailer. All household members should be aware of different evacuation routes.

4.2. C. Hurricane and Tropical Storm - Mitigation Strategy and Recommendation

See Thunderstorm (Chapter 4.1.C.), Tornado (Chapter 4.3.C.), and Flood Mitigation (Chapter 4.4.C.)

4.3. Tornado

4.3. A. Community Mitigation Goals

Since Stewart County lies in a medium high risk area, and tornados can be expected in all parts of the community, the county and cities must prepare for this hazard in advance. In previous years Stewart County has not experienced much structural damage or serious injuries or fatalities. Tornados have most commonly caused tree and agricultural damage within Stewart County. The best chance to survive a tornado is to plan in advance, and to respond quickly to a tornado watch or warning.

The official tornado season begins in March and extends through August, but these violent whirling winds may occur throughout the year. Weather band radios, tie-downs for mobile homes and warning systems are mitigating activities. Search and rescue, and public information training are preparedness areas. Safe shelters are a key to response. The general public does not understand how little time responders have to a sudden tornado strike, and how important it is that all parties be prepared at all times to respond correctly. Due to the similarities in the damage caused by tornadoes and thunderstorm winds, all goals, objectives, tasks and action steps of the hazards are interchangeable.

4.3. B. Identification and Analysis of Range of Mitigation Options
1. Structural and non-structural mitigation

The identified goals address structural and non-structural options. Stewart County, as well as Richland and Lumpkin responders, including the Stewart County Fire and Rescue volunteers, will be certain that personnel, vehicles and equipment are maintained and protected. Education and early warning of citizens are non-structural options.

2. Existing policies, regulations, ordinances and land use

Stewart County, the Cities of Richland and Lumpkin have adopted official building code standards according to Southern Building Codes

3. Community values, historic, and special considerations

The community values it’s residential and historic assets and is determined to protect them against severe weather.

4. New buildings and infrastructure

Stewart County and its jurisdictions will adopt the official building codes to ensure the safety of residential housing. However, mobile homes are not safe during a tornado under any circumstances, and residents are advised to take shelter in any well-built building, or seek the designated emergency shelter for the most immediate safety.

The proposed mitigation strategies and heightened building standards will reduce the impact of the tornado hazard on existing structures greatly, especially by lessening the debris field.

5. Existing buildings and infrastructure

Cars, older buildings, and mobile homes are not safe during a tornado, and can rarely be effectively secured against tornados. The local governments encourage residents in older buildings to retrofit their buildings, and to bring them up to a safe standard. The analysis did not reveal anything else the local governments can do to reduce the impact of tornados in existing buildings and infrastructure. However, life saving measures can be accomplished through early warnings. As part of the public awareness strategy, residents are advised to leave their cars and mobile homes, and take shelter in any well-built building with a strong foundation, or seek the designated emergency shelter for safety.

4.3. C. Tornado – Mitigation Strategy and Recommendation

<table>
<thead>
<tr>
<th>Mitigation Goal #1</th>
<th>Reduce the potential for loss of life and property damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1</td>
<td>Reduce the risk of personal injury and loss of life by educating the citizens on tornado safety issues</td>
</tr>
<tr>
<td>Task 1</td>
<td>Obtain and distribute comprehensive material on tornado safety</td>
</tr>
<tr>
<td>Action Step 1</td>
<td>Promote regular tornado drills at high occupancy locations such as schools, Court Houses, the Doctor’s Offices, daycare facilities, hospitals, and industries</td>
</tr>
</tbody>
</table>

Category: Public Education/Awareness
| Responsible Org: | Stewart Co. EMA |
| Coordinating Org: | Stewart Co. EMA |
| Jurisdiction: | Stewart Co., Richland, Lumpkin |
| Timeline: | Annually |
| Status: | Ongoing |
| Costs: | Nominal, $200 staff time |
| Funding Source: | Dept. Operations Budget |
| Priority: | Medium |

**Action Step 2** Distribute tornado safety information in form of flyers, brochures, or public safety announcements

| Category: | Public Education/Awareness |
| Responsible Org: | Stewart Co. EMA |
| Coordinating Org: | Stewart Co. EMA |
| Jurisdiction: | Stewart Co., Richland, Lumpkin |
| Timeline: | Annually |
| Status: | Ongoing |
| Costs: | $500 for staff time and copies |
| Funding Source: | Dept. Operating Budget |
| Priority: | Medium |

**Action Step 3** Provide print media with “print ready” articles on tornado safety, present tornado awareness programming on local television station, and provide public service announcements to all local media

| Category: | Public Education/Awareness |
| Responsible Org: | Stewart Co. EMA |
| Coordinating Org: | Stewart Co. EMA |
| Jurisdiction: | Stewart Co., Richland, Lumpkin |
| Timeline: | Annually |
| Status: | Ongoing |
| Cost: | $500 for staff time |
| Funding Source: | Departmental Operating Budget |
| Priority: | Medium |

**Benefit:** In the event of a tornado, Mitigation Goal #1 will benefit the county and the cities by informing and educating citizens of the threats and dangers involved with tornados. In addition, Mitigation Goal #1 will reduce tornado related fatalities among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin.

**Mitigation Goal #2** Prepare emergency personnel and local government to respond effectively to needs both during and after tornado event.

**Objective 1** Provide emergency personnel with needed equipment

**Task 1** Research funding for the development of a pager system to notify emergency personnel of impending weather warning prior to issuance by the National Weather Service to allow more time for mobilization.

**Action Step 1** Develop grant application for pager system for emergency personnel notifying them of impending weather warnings.

| Category: | Emergency Services |
| Responsible Org: | Stewart Co. EMA |
| Coordinating Org: | Stewart Co. EMA |
| Jurisdiction: | Stewart Co., Richland, Lumpkin |
| Timeline: | 2014-2016 |
| Status: | Ongoing |
| Costs: | $20,000 |
| Funding Source: | GEMA/FEMA/USDA/DCA |
| Priority: | High |
Task 2  Develop a call-in procedure for emergency personnel
Action Step 1  Create procedure to call off-duty employees at the scene of the
disaster event.
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014-2016
Status: Ongoing
Cost: $50 for staff time
Funding Source: Department Operating Budget
Priority: High

Benefit: In the event of a tornado (of any other disaster), this Mitigation Goal 2 would help structuring the emergency response and resources available, and prevent deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin, as well as prevent damage to the critical facilities with a replacement value of less than 85 million dollars, and damage to non-critical structures with a replacement value of approximately 141 million dollars.

4.3. D. Special Multi-Jurisdictional Strategy

There are no differences between Stewart County, the Cities of Richland and Lumpkin pertaining to tornado hazards. The risk is the same in each jurisdiction; therefore, most of the mitigation measures for tornados apply to each. Tornado drills in the school are measures the County EMA will be taking for the residents of the cities and the county. The county and cities’ emergency personnel have access to emergency radar via the Internet in key locations throughout the community. The weather warning system, especially in the county, could be improved via stated mitigation goals.

4.3. E. Public Information and Awareness Strategy

The installation of emergency sirens will enhance this strategy. Promoting tornado drills and encouraging home and property owners to purchase weather radios will enhance public information and awareness.

4.4. Flood

4.4. A. Community Mitigation Goals

Floods are one of the most widespread and regularly recurring natural hazards and Stewart County has experienced serious flooding in the past with considerable property damage. Stewart County, Richland, and Lumpkin must expect the possibilities of similar events in the future. Due to its geographical location, each of the two municipalities will always be susceptible to torrential rainfalls from tropical systems. Flooding does not pose so much a risk to the lives of the residents, but mainly causes monetary damage to some homes, to roads and bridges. Achieving the following mitigation goals will aid in diminishing significant damage from this hazard.
Flooding occurs due to excessive rainfall, severe thunderstorms, heavy rainfall connected with tropical storms and hurricanes, as well as dam failure. The goals, objectives, tasks and action steps described in this chapter therefore also apply to mitigate flooding from heavy rain from the above mentioned natural hazards in this chapter, and from dam failure as discussed in 5.3.

4.4. B. Identification and Analysis of Range of Mitigation Options

1. Structural and non-structural mitigation

Structural mitigation includes identifying problem areas, as well as keeping the storm drainage system free of debris to reduce the risk of flooding. These efforts need to be supplemented and completed with non-structural mitigation measures, for example increasing public awareness of the dangers of flooded rivers, and developing flood insurance rate maps for the county.

2. Existing policies, regulations, ordinances and land use

Stewart County and the Cities of Richland and Lumpkin each have a zoning ordinance in place. The zoning ordinance lays out permitted uses for land.

Lakefronts and river sides are popular sites for residential development. However, development within the floodplain is not ideal because of two factors: it slows the flow of the storm water because it impedes the storm flow, and at the same time increases the size of the storm flow, because the soil’s ability to absorb precipitation is reduced through the installation of impervious surfaces. Without floodplain maps, development can occur in the county in flood hazardous areas, because no restrictions can be enforced. Stewart County has been mapped for flood prone areas under the Federal Emergency Management Agency program and participates in the National Flood Insurance Program. The Cities of Lumpkin and Richland have been mapped. However, they do not participate in the National Flood Insurance Program and are sanctioned as such. The Stewart County Flood Hazard Map can be found in Appendix A, page A13. According to the Stewart County Comprehensive plan, adopted in 2006, land use and development of flood plains, wetlands, and various other limiting soil types will be encouraged to respect the natural limitation of these soil types. Flood prone areas, accordingly, will be used for passive recreation and other open space uses. Overall development is currently discouraged in the flood plain areas.

3. Community values, historic and special conditions

The community values it’s residential and historic assets and is determined to protect them against severe weather.

4. New buildings and infrastructure
Stewart County and its jurisdictions will adhere to the official building codes standards of the Southern Building Codes to ensure the safety of residential housing. New roads and bridges are being built with sufficient culverts and appropriate storm drainage systems.

The county is currently mapped for flooding and has a FIRM rating. Any new construction should refer to floodplain maps.

5. Existing buildings and infrastructure

The proposed mitigation strategies will help reduce the effects of flooding on existing buildings and infrastructure by optimizing the flow of storm waters. Most flooding in the county is a result of creek overflow.

Residents in flood prone areas are also advised, as part of the public storm information, to turn off electricity, water and propane gas services, and elevate fuse boxes. Residents traveling in cars and on streets are advised to turn around if they come to a flooded road, and to abandon stalled cars. Existing roads can be upgraded by improving storm drainage systems and enlarging culverts to allow storm waters to run off.

4.4. C. Flood - Mitigation Strategy and Recommendation

<table>
<thead>
<tr>
<th>Mitigation Goal #1</th>
<th>Reduce damage to private and public property due to flooding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1</td>
<td>Ensure that private properties are safe from flood damage</td>
</tr>
<tr>
<td>Task 1</td>
<td>Develop flood insurance rate maps for Stewart County, the City of Richland and the City of Lumpkin</td>
</tr>
<tr>
<td>Action Step 1</td>
<td>Work with FEMA to create digital flood insurance rate maps with base flood elevation for all of Stewart County including the Cities of Richland and Lumpkin</td>
</tr>
<tr>
<td>Category:</td>
<td>Prevention</td>
</tr>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart County, Lumpkin, Richland</td>
</tr>
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<td>Timeline:</td>
<td>2014-2016</td>
</tr>
<tr>
<td>Status:</td>
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</tr>
<tr>
<td>Costs:</td>
<td>$20,000</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>FEMA</td>
</tr>
<tr>
<td>Priority:</td>
<td>Low</td>
</tr>
</tbody>
</table>

Action Step 2 Develop Flood Damage Prevention Ordinance and complete other requirements for participation in the NFIP for the City of Lumpkin and Richland

| Category:         | Prevention                                                 |
| Responsible Org:  | City of Lumpkin                                           |
| Coordinating Org: | City of Lumpkin                                           |
| Jurisdiction:     | Lumpkin                                                   |
| Timeline:         | 2014-2016                                                 |
| Status:           | Ongoing                                                   |
| Costs:            | $500 staff time and materials                             |
| Funding Source:   | Local                                                     |
| Priority:         | Medium                                                    |

Action Step 3 The jurisdictions will continually review and uphold ordinances related to remaining in compliance with the NFIP program
<table>
<thead>
<tr>
<th>Category:</th>
<th>Property Protection, Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. EMA, Stewart Co. BOC</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA, Stewart Co. BOC</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart County</td>
</tr>
<tr>
<td>Timeline:</td>
<td>Annually</td>
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<td>Status:</td>
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<tr>
<td>Costs:</td>
<td>$250 staff time</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Local</td>
</tr>
<tr>
<td>Priority:</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Benefit: In the event of flooding (and dam failure), this Task 1 would help having informed and prepared citizens, and prevent deaths among residents of Stewart County and the Cities of Richland and Lumpkin in flood prone areas.

Objective 2

Ensure that public roads and bridges are safe from flooding

Task 1

Enlarge storm drainage pipes located under roads in key locations to avoid flooding of the streets.

Action Step 1

Petition GDOT to enlarge storm drainage pipes and construct new pipes in key locations under roads to avoid flooding of the roads.

<table>
<thead>
<tr>
<th>Category:</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>City and County Public Works</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Richland, Lumpkin</td>
</tr>
<tr>
<td>Timeline:</td>
<td>2014-2016</td>
</tr>
<tr>
<td>Status:</td>
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<tr>
<td>Costs:</td>
<td>$500,000</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>GDOT</td>
</tr>
<tr>
<td>Priority:</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Benefit: In the event of flooding (and dam failure), this Task 1 would help having a storm drainage system large enough to handle flood waters, and prevent deaths among the residents of Stewart County and the Cities of Richland and Lumpkin in flood prone areas. Residents traveling on affected roads could also be saved.

4.4. D. Special Multi-Jurisdictional Strategy

In general, Stewart County is more affected by flooding of roads than the City of Richland and the City of Lumpkin, especially since most of the earthen dams are located in the county. This is why efforts to prevent flooding apply mainly to the county.

4.4. E. Public Information and Awareness Strategy

Residents of Stewart County and the cities of Richland and Lumpkin should be made aware of the danger of floods and the necessary actions to protect property and prevent fatalities.

4.5. **Wildfire**

4.5. A. Community Mitigation Goals
Wildfires impact timber and forest land, and can spread unconstrained through the environment. Since these fires are generally the result of dry conditions combined with lightning or carelessness, public awareness helps to mitigate such fires. Preparedness may include banning outdoor burning during the dry season.

4.5. B. Identification and Analysis of Range of Mitigation Options

1. Structural and non-structural mitigation

Most mitigation measures against wildfires are of the non-structural kind, raising awareness, and raising the preparedness level.

2. Existing policies, regulations, ordinances and land use

Currently, there are no policies, regulations, ordinances, or land use standards for wildfire prevention due to the “random” quality of wildfires. Prevention could include non-development of areas that have had wildfire affects on a more frequent interval.

3. Community values, historic, and special considerations

The community values it’s residential and historic assets and is determined to protect them against severe weather.

4. New buildings and infrastructure

Stewart County will ensure the safety of residential housing. New houses constructed near wooded areas should be built using fire-resistant materials, avoiding wooden shakes and shingles for a roof. Safety zones should be created between the home and the woods through stone walls or swimming pools. All newly built structures are required to have smoke detectors installed.

5. Existing buildings and infrastructure

The purchase of more effective fire fighting equipment, as proposed, will greatly improve the ability of the fire department to respond quickly to a possible wildfire, and therefore save existing buildings from the harmful effects of fire.

Existing buildings near wooded areas can be kept safe by removing fire hazards around the home, like trimming trees and shrubs, and keeping them free of dead wood. Debris should be removed from gutters. During a wildfire, all windows and doors should be closed to avoid draft. Flammable drapes should be removed and blinds shut. As part of the public awareness strategy, residents are advised to close gas valves and leave their homes if a wildfire gets too close.

4.5. C. Wildfire – Mitigation Strategy and Recommendation

Mitigation Goal #1 Strengthen the fire fighting capabilities of Stewart County
Objective 1  Renew and enhance the fire fighting equipment and staff capabilities of the Stewart County Volunteer Fire Department

Task 1  Find funding sources to purchase newer fire equipment for the Stewart County Volunteer Fire Department

Action Step 1  Through grant money, purchase new fire fighting equipment

<table>
<thead>
<tr>
<th>Category:</th>
<th>Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. Fire Department</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Richland, Lumpkin</td>
</tr>
<tr>
<td>Timeline:</td>
<td>2014-2016</td>
</tr>
<tr>
<td>Status:</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Costs:</td>
<td>$48,000</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>FEMA/ GEMA/DCA/ USDA</td>
</tr>
<tr>
<td>Priority:</td>
<td>High</td>
</tr>
</tbody>
</table>

Benefit: In the event of a wild fire, this Task 1 would help assuring effective emergency response, and prevent deaths among the 5,252 residents of the Stewart County and the cities of Richland and Lumpkin, as well as prevent damage to the critical facilities with a replacement value of less than 85 million dollars, and damage to non-critical structures with a replacement value of less than 141 million dollars.

Task 2  Promote certification of fire fighters and cross-certification

Action Step 1  Get more volunteer fire fighters certified and recertified through GA Public Safety Training Center (GPSTC)

<table>
<thead>
<tr>
<th>Category:</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. Fire Dept.</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Richland, Lumpkin</td>
</tr>
<tr>
<td>Timeline:</td>
<td>Annually</td>
</tr>
<tr>
<td>Status:</td>
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<td>Funding Source:</td>
<td>GPST</td>
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Mitigation Goal #2  Minimize the potential for wildfires

Objective 1  Inform the public about dry conditions that would increase the potential for wildfires

Task 1  Coordinate the information efforts between the Stewart County Fire Department and the Georgia Forestry Commission (GFC)

Action Step 1  Get regular forecasts from the GFC’s fire weather system on fire danger ratings

<table>
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<tr>
<th>Category:</th>
<th>Preparedness</th>
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<td>Responsible Org:</td>
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<tr>
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Task 2  Educate the public about preventive measures

Action Step 2  Send out information about wildfire danger and prevention measures

<table>
<thead>
<tr>
<th>Category:</th>
<th>Prevention/Protection</th>
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Objective 1  Complete the CWPP Action Plan
   Task 1  Educate local citizens on the CWPP
   Action Step 1  Implement community fuel reduction/improve emergency access/educate homeowners in 3 high priority “communities-at-risk”
      Category:  Education
      Responsible Org:  Omaha, Wrightsville, Rag Town
      Coordinating Org:  Stewart Co. EMA, GFC
      Jurisdiction:  Stewart Co.
      Timeline:  Annually
      Status:  Ongoing
      Costs:  $15,000
      Funding Source:  Local
      Priority:  High

   Action Step 2  Hold a wildfire prevention/Firewise Communities workshop
      Category:  Education

Benefit: In the event of a wild fire, this Task 1 would help having unnatural fire sources, and prevent deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin, as well as prevent fire damage to the critical facilities with a replacement value of less than 85 million dollars, damage to non-critical structures with a replacement value of approximately 141 million dollars, and prevent damage to timberland.
Task 2  Implement firefighter training
Action Step 1  Two course training for firefighters: Standards for Survival and Wildland Fire Behavior
Category: Training
Responsible Org: Stewart Co.
Coordinating Org: Stewart Co., GFC
Jurisdiction: Stewart Co.
Timeline: Annually
Status: Ongoing
Costs: $1,500
Funding Source: Local
Priority: Medium

Task 3  Provide necessary infrastructure and equipment
Action Step 1  Install 10 dry hydrants in strategic locations of county
Category: Equipment
Responsible Org: Stewart Co.
Coordinating Org: Stewart Co.
Jurisdiction: Stewart Co.
Timeline: Annually
Status: Ongoing
Costs: $15,000
Funding Source: Local
Priority: Medium

Action Step 2  Obtain/maintain two water tankers to improve water availability for firefighting in rural areas of the county
Category: Equipment
Responsible Org: Stewart Co.
Coordinating Org: Stewart Co.
Jurisdiction: Stewart Co.
Timeline: Annually
Status: Ongoing
Costs: $200,000
Funding Source: Local
Priority: High

Action Step 3  Obtain Personal Protective Equipment and Fire Shelters plus hand tools
Category: Equipment
Responsible Org: Stewart Co.
Coordinating Org: Stewart Co.
Jurisdiction: Stewart Co.
Timeline: Annually
Status: Ongoing
Costs: $25,000
Funding Source: Local
Priority: High
Benefit: In the event of a wild fire, Tasks 1, 2 and 3 would help having informed and prepared citizens, and prevent deaths among the 6,058 residents of Stewart County and the cities of Richland and Lumpkin, as well as prevent fire damage to the critical facilities with a replacement value of less than 85 million dollars, damage to non-critical structures with a replacement value of approximately 141 million dollars, and prevent damage to timberland.

Communities-at-risk are locations where a group of two or more structures is close proximity to a forested or wildland area place homes and residents at some degree of risk from wildfire. Other characteristics of the “community” such as the closeness of structures, building materials, the accumulation of combustible debris near the structures, access in and out, and the distance from the nearest fire station or a permanent water source (pond or dry hydrant) may contribute to the risk.

In Stewart County, there are many individual (isolated) homes and out building on farms and small properties that could be damaged or destroyed in the event of a disastrous wildfire. On these properties, the owners must be educated so they can assume a greater responsibility for wildfire protection by making improvements to their residential landscape and their homes that will provide some wildlife protection until the fire department can arrive. This can only be accomplished if rural residents know how to make their homes and properties “Firewise.”

Improvements to the community infrastructure (roads, utilities, etc.) may be beyond the capabilities of the homeowners. However, if access by emergency vehicles can be enhanced by widening the entrance right-of-way(s), creating “hammerhead-T’s” or other ways for fire trucks to turn around and operate safely and residences can be identified with reflective “911 addresses” wildfire protection can be greatly improved.

Modifications in and around individual residences may need to be budgeted by the residents over time (for example, making a roof more fire resistance may have to wait until it is time to replace the current roof covering), however, moving firewood away from the home, skirting raised decks and keeping roofs free of accumulated flammable debris are improvements most families can do in the short-run.

In most instances, communities-at-risk will benefit from the reduction/removal of flammable vegetation within 100 feet of homes and outbuildings through prescribed burning or by mechanical means. Fuel management with the home ignition zone (within 100 feet from the home) either by removing highly flammable vegetation or by replacing the vegetation with fire resistant plant species will significantly improve wildfire safety.

4.5. D. Special Multi-Jurisdictional Strategy

The county is at a higher risk for wildfires, so the fire ban needs to be applied in the county more so than in the cities. The fire danger in the City of Richland is slightly lower than in the county, since the county has more timberland than the city. The City of Richland and Lumpkin have an ISO rating of 7; the county, 10.
4.5. E. Public information and Awareness Strategy

Since carelessness can cause wildfires, public awareness and banning outdoor burning during the dry season help to mitigate such fires. Both the city and the county residents have to be made aware of the dangers of wildfires in the county.

4.6. Drought

4.6. A. Community Mitigation Goals

Most other natural hazards have a sudden, dramatic impact on the community, whereas a drought is a longer, slower moving process. It starts with a meteorological drought - reduced rainfall, which can turn into an agricultural drought – loss of crops, and have its climax in a hydrological drought, where the surface and ground water supplies fall below normal levels. This process can take years to develop. Farmers are most likely to be affected by water shortages due to drought conditions. Droughts affect municipal water supplies, stream-water quality, recreation at reservoirs, navigation, agricultural and forest resources. Farmland irrigation is a means of mitigation and preparedness. Additional sources of water may be identified to assist with individual and family consumption during time of response and recovery.

4.6. B. Identification and Analysis of Range of Mitigation Options

1. Structural and non-structural mitigation
Most important is promoting the awareness of the importance and value of water as a non-structural mitigation effort, brought about by involving the community in the efficient use of limited water resources. Structural measures include the allocation of emergency water supplies.

2. Existing policies, regulations, ordinances and land use
There are no existing policies, regulations, or ordinances applicable concerning droughts or water conservation. The farmland of Stewart County is most endangered. The county has a great deal of agricultural mixtures on single tracts of land. The loss of crops in the agricultural sector can impose a severe economic burden on the local peanut farmers. Since the agricultural producers’ percentage of return on economic investments is among the lowest of any economic sector, the economic impact of a potential drought for the community is diminishing.

3. Community values, historic, and special considerations
The community values its farmers and agricultural sector. Stewart County’s farmers have experienced drought conditions in the past, and know that effective mitigation measures are needed.

4. New buildings and infrastructure
Stewart County will ensure the safety of residential housing. New buildings should be well insulated, especially around air conditioners and ducts. Outdoor awnings or solar screens on windows can reduce heat entering the house by as much as 80%.

5. Existing buildings and infrastructure

Buildings and infrastructure are not threatened from drought conditions, but residents are encouraged to keep their faucets or water wells well maintained in order to reduce wasting of water.

During a drought, water use should be lowered by repairing any leaks in faucets, pipes and wells, and by reusing water. Fans can be used to circulate cool air, and air conditioner filters should be cleaned weekly during periods of high use to run more efficiently. Outdoor awnings or solar screens on windows can reduce heat entering the house by as much as 80%. Farmers should contact the County Farm Service Agency for assistance and information on drought procedures.

4.6. C. Drought – Mitigation Strategy and Recommendation

Mitigation Goal #1
Manage available water resources during drought events

Objective 1
Ensure the reasonable allocation of supply during drought events through a coordinated public and private effort

Task 1
Educate the residents of Stewart County about the effects of drought on public health and safety, economic activity, and environmental resources

Action Step 1
Heighten the public awareness on actions the public and private sector can take to conserve water through public announcements

Category: Preparedness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: As needed
Status: Ongoing
Costs: $500 for staff time and copies
Funding Source: Dept. Operating Budget
Priority: Medium

Task 2
Conserve water during times of drought

Action Step 1
Formulate policies for conservation of water during times of water shortage and drought

Category: Prevention
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: As needed
Status: Ongoing
Costs: Nominal, $200 staff time
Funding Source: Dept. Operating Budget
Priority: Medium

Benefit: In the event of a drought, these Tasks 1 and 2 would help having informed and prepared citizens. Critical facilities and non-critical structures are not at risk of experiencing
damage or downtime from droughts; however, fires can occur as a result of dry weather. No structural damage is expected in the event of a drought; however, a drought can result in severe loss of agricultural products and/or livestock which are likely stored in such structures. Preserving water resources and redirecting sources to the agricultural sector could prevent loss of crops and livestock.

4.6. D. Special Multi-Jurisdictional Strategy

If at all, the drought hazard is a problem in Stewart County, and not in either of the cities, thus the residents in the county, and especially the farmers, need to be educated on water conservation. The education campaign by the EMA Director will target both city and county residents.

Both the cities of Richland and Lumpkin have public water systems. The public water systems service all households within the city limits. The residents of Stewart County receive water from private wells. County residents on wells are always at risk of being without water if private wells fall dry due to drought. An agricultural drought would affect Stewart County more, since there are more farms in the countryside than in the city.

4.6. E. Public Information and Awareness Strategy

Public announcements and education activities advise and educate citizens, property owners, renters, businesses and local officials about the effects of drought on public health and safety, economic activity, and environmental resources, and inform them on mitigation measures that can be taken to conserve water.

5 – Local Technological Hazard Mitigation Goals and Objectives

There have been no changes in the overall priorities of Stewart County, Lumpkin or Richland as they relate to mitigation since completion of the 2008 Stewart County Pre-Disaster Mitigation Plan. Most of the mitigation efforts listed below will be implemented by the county’s EMA department. Other represented departments in the process will be the county Fire, EMS, Sheriff, Senior Centers, Board of Education, DFCS, and the local Red Cross. On the municipal level, most of the mitigation efforts will be implemented by the local government and its local police and public works department. The funding for necessary projects will be included in the public safety or public works portion of the yearly budget.

5.1. Hazardous Materials

5.1. A. Community Mitigation Goals

There is one industry within Stewart County that utilizes a significant quantity of hazardous materials, in addition to the businesses, city services, and private citizens who are all responsible for avoiding hazardous material incidents in-transit. Classified chemicals are
transported through the county daily. This increases the county’s risk of hazardous materials being released and transportation accidents.

The most important goal in mitigation of accidental releases of these potentially dangerous substances is the quick identification, control, and containment, which requires the first responders to have a sound knowledge of hazardous materials’ properties.

Mitigation for in-transit accidents involving different modes of transportation is accomplished by proper maintenance of roads, railroad tracks, traffic control devices, inspection of vehicles to eliminate safety deficiencies, and by careful routing traffic on the safest highways. In the event of an accident, outlining responsibilities and developing operational plans are critical as a coordinated approach to response.

5.1. B. Identification and Analysis of Range of Mitigation Options

1. Structural and non-structural mitigation
   Structural measures can mainly be taken by the private sector in securing their handled materials. The public sector’s primary options are non-structural measures.

2. Existing policies, regulations, ordinances and land use
   Stewart County’s Volunteer Fire Department is first responders in the case of a Hazard Material release, and is only responsible for the containment of the hazard, not the clean-up. Normally the clean-up is performed by contractors of the insurance companies or the polluter company(s) involved. Local traffic laws and their enforcement mitigate in-transit releases due to transportation accidents.

3. Community values, historic, and special considerations
   The community is aware of the significant risk involved with the release of a hazardous material as a result of transportation accidents. Releases of hazardous materials have to be avoided as much as possible, and handled promptly and effectively.

4. New buildings and infrastructure
   Stewart County will ensure the safety of residential housing. This will be accomplished as a by-product of the actions outlined as goals and objectives below.

5. Existing buildings and infrastructure
   In the mitigation strategy, the goal is to reduce the risk involved with potentially harmful effects of commercial vehicles transporting hazardous materials through the county by offering them a secure parking area for temporary overnight parking. This action step will reduce the risk of accidents due to tired drivers, and prevent trucks from stopping in inappropriate spaces. This will ensure the safety of existing roads and adjoining buildings. In the event of a hazardous material accident, residents can be asked to stay indoors or inside cars, and to seal homes and buildings to prevent contaminates from entering. Wet towels and duct tape should be used to seal gaps under doorways and windows, fireplace dampers should be closed, and ventilation systems should be turned off. In extreme cases, evacuation might be necessary.

5.1. C. Hazardous Materials Incident/Transportation accidents – Mitigation Strategy and Recommendation
Mitigation Goal #1
Ensure that public safety officials are trained and stay current with the properties, risks, and appropriate mitigation measures associated with hazardous materials

Objective 1
Secure and maintain active memberships in emergency, governmental and non-governmental associations as appropriate

Task 1
Establish budget for associational memberships
Action Step 1
Incorporate costs for membership into EMA budget
Category: Prevention
Responsible Org: Stewart Co. Fire Department
Coordinating Org: City Council/County Comm.
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014-2016
Status: Ongoing
Costs: $200
Funding Source: Local
Priority: Low

Task 2
Designate an individual to (1) serve as local hazardous material resource contact and (2) have responsibility for local and cooperative capacity building
Action Step 1
Formal designation by EMA Director
Category: Emergency Services
Responsible Org: Stewart Co. Fire Department
Coordinating Org: City Council/County Comm.
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014-2016
Status: Ongoing
Costs: None
Funding Source: Local
Priority: Low

Benefit: In the event of a hazardous material release, Tasks 1 and 2 would assure effective emergency knowledge and response, and prevent injury or deaths among the 6,058 residents of Stewart County and the cities of Richland and Lumpkin, as well as prevent damage to the critical facilities with a replacement value of less than 85 million dollars, and damage to non-critical structures with a replacement value of approximately 141 million dollars.

Mitigation Goal #2
Be prepared to respond appropriately to any foreseeable hazardous material event

Objective 1
Maintain active membership on GEMA All Hazards Council and other associations as appropriate

Task 1
Secure position on All Hazards Council
Action Step 1
Network with emergency personnel staff on All Hazards Council
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Costs: Negligible, $100 staff time
Funding Source: Local
Priority: Low

Action Step 2
Participate in all Hazards Council educational programs and training exercises
Objective 2  Secure external funding sources to help finance local capacity building
Task 1  Submit competitive applications to fund equipment/training when potential funding sources are identified
Action Step 1  Be in contact with emergency personnel staff at state and federal level to find funding sources

Objective 3  Protect the community from the effects of hazardous material potentially parked locally for short periods (overnight) while in transit.
Task 1  Identify and designate a secure area for temporary parking of commercial vehicles transporting hazardous materials.
Action Step 1  Analyze land uses for the purpose of identifying and securing an area

Objective 4  Protect the lives of county residents in the event of a spill
Task 1  Issue public safety announcements in the event of a spill
Action Step 1  Inform the public of location, extent, dangers, and procedures to follow in the event of a release
Action Step 2  Develop an evacuation plan for locations with high...
Benefit: In the event of a hazardous material release, Objectives 1 to 4 would assure effective emergency knowledge and response, and prevent injury or deaths among the 6,058 residents of Stewart County and the cities of Richland and Lumpkin, as well as prevent damage to the critical facilities with a replacement value of less than 85 million dollars, and damage to non-critical structures with a replacement value of approximately 141 million dollars.

5.1. D. Special Multi-Jurisdictional Strategy

Each of the municipalities are vulnerable to hazardous materials released in transportation accidents. The mitigation strategies mentioned above are joint effort of the Volunteer Fire Department and EMA, and will benefit each municipality.

5.1. E. Public Information and Awareness Strategy

Conveying public service announcements will enhance public information and awareness.

5.2. Dam Failure

5.2. A. Community Mitigation Goals

The integrity of all publicly-owned dams is important to avoid flooding due to a technological error. The presented goal attempts to supplement currently ongoing efforts to ensure the safe condition of all dams and therefore the community. Protective construction techniques of dams may assist in mitigating such a hazard. Planning and training to ensure adequate warning communication, identification of evacuation routes and movement to high ground is considered preparedness. Coordinated reaction by community agencies to evacuate, shelter, and rescue injured persons is part of response and recovery.

Due to the similarities in the damage cause by flooding due to excessive rainfall, tropical storms and hurricanes, all goals, objectives, tasks and action steps for the mitigation of these hazards with the mitigation for dam failure are interchangeable.

5.2. B. Identification and Analysis of Range of Mitigation Options

See Flood Mitigation (Chapter 4.4.B.)
5.2. C. Dam Failure – Mitigation Strategy and Recommendation

Mitigation Goal #1 Prevent damage or interruption to the economic and recreational benefits the community gains from the county and privately-owned dams

Objective #1 Maintain the county owned dams, and support maintaining the physical integrity of the privately owned dams

Task 1 Respond promptly to any physical threats to the county and privately owned dams

Action Step 1 Maintain a stockpile of sandbags and appropriate materials on site for immediate application if needed

Category: Prevention
Responsible Org: City and County. Public Works
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014
Status: Ongoing
Costs: $4,000 for overtime and materials
Funding Source: Local Government
Priority: Medium

Benefit: In the event of flooding from dam failure, Task 1 will assure effective and quick emergency response, and prevent deaths among the residents of Stewart County and the cities of Richland and Lumpkin, particularly those who reside in flood prone areas. Task 1 will also prevent damage to the non-critical structures. In addition Task 1 will offer security to residents traveling on affected roads. There are no critical structures identified in hazardous areas.

5.2. D. Special Multi-Jurisdictional Strategy

Stewart County is in general more affected by flooding of roads than the City of Richland and the City of Lumpkin, especially since most of the earthen dams are located in the county. This is why efforts to prevent dam failure apply mainly to the county.

5.2. E. Public Information and Awareness Strategy

Residents of Stewart County and the cities of Richland and Lumpkin must be made aware of the danger of dam failure; similarly dam owners and operators must be made aware of their responsibility of maintaining the dams.

5.3 Civil Disturbance

5.3. A. Community Mitigation Goals

The random aspect of a civil disturbance makes it hard for a community to prepare for the occurrence of any type of disturbance. In the previous years, Stewart County has not experienced any such occurrence or any structural damage or serious injuries or fatalities. A Warning system is a mitigating activity. Search and rescue, and public information training are preparedness areas. Safe shelters are a key response. The general public does not understand how little time responders have to a sudden civil disturbance of any kind and how important it is that all parties be prepared at all times to respond correctly.
5.3. B. Identification and Analysis of Range of Mitigation Options

1. Structural and non-structural mitigation

The goals identified are both structural and non-structural options. Home owners are responsible for structural improvement of existing buildings. Non-structural options encourage the expansion of public education. It is important to educate the population of the dangers of possible civil disturbances.

2. Existing policies, regulations, ordinances and land use

Currently there are no special policies, regulations, ordinances, or land use directives in Stewart County, the Cities of Richland and Lumpkin for dealing with civil disturbances.

3. Community values, historic, and special considerations

The community values it’s residential and historic assets and is determined to protect them against Civil Disturbance.

4. New buildings and infrastructure

Residents should be advised to take shelter in any well-built building, or seek the designated emergency shelter for the most immediate safety, should the need arise.

5. Existing buildings and infrastructure

Analysis did not reveal anything tangible that the local governments can do to reduce the impact of civil disturbances on existing buildings and infrastructure.

5.3. C. Civil Disturbance – Mitigation Strategy and Recommendation

Mitigation Goal #1

Objective 1

Analyze probable areas prone to Civil Disturbance Activity

Defining the target area

Task 1

Obtain comprehensive material on civil disturbance areas

Action Step 1

Research and analyze potential locations for civil disturbances

Category: Awareness

Responsible Org: Stewart Co. EMA

Coordinating Org: Stewart Co. EMA

Jurisdiction: Stewart Co., Richland, Lumpkin

Timeline: Annually

Status: Ongoing

Costs: Nominal, $200 staff time

Funding Source: Dept. Operations Budget

Priority: Medium

Action Step 2

Distribute civil disturbance safety information in form of flyers, brochures, or public safety announcements

Category: Public Education/Awareness

Responsible Org: Stewart Co. EMA

Coordinating Org: Stewart Co. EMA

Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Costs: $500 for staff time and copies
Funding Source: Dept. Operating Budget
Priority: Medium

Action Step 3 Provide print media with “print ready” articles on
Civil disturbance safety, present civil disturbance awareness
programming on local television station, and provide public
service announcements to all local media
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Cost: $500 for staff time
Funding Source: Departmental Operating Budget
Priority: Medium

Benefit: In the event of a civil disturbance, Mitigation Goal #1 will benefit the county and
the cities by informing and educating citizens of the threats and dangers involved.

Mitigation Goal # 2 Prepare emergency personnel and local government to respond effectively to needs
both during and after civil disturbance event.
Objective 1 Provide emergency personnel with needed equipment
Task 1 Research funding for the development of a system to notify emergency personnel of
any civil disturbance
Action Step 1 Develop grant application for system for
Notifying emergency personnel
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014-2016
Status: Ongoing
Costs: Staff time, anywhere from
$10 per hour to $50 per hour
Funding Source: GEMA/FEMA/USDA/DCA
Priority: High

Task 2 Develop a call-in
procedure for emergency personnel
Action Step 1 Create procedure to call off-duty employees at the scene of the
disturbance.
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014
Status: Ongoing
Cost: $50 for staff time
Funding Source: Department Operating Budget
Priority: High

Benefit: In the event of a tornado (of any other disaster), this Mitigation Goal 2 would help
structuring the emergency response and resources available, and prevent deaths among the
6,058 residents of Stewart County and the Cities of Richland and Lumpkin, as well as
prevent damage to the critical facilities with a replacement value of less than 85 million dollars, and damage to non-critical structures with a replacement value of approximately 141 million dollars.

5.3. D. Special Multi-Jurisdictional Strategy

There are no differences between Stewart County, the Cities of Richland and Lumpkin pertaining to civil disturbance hazards. The risk is the same in each jurisdiction; therefore most of the mitigation measures for civil disturbances apply to each.

5.3. E. Public Information and Awareness Strategy

Developing a warning system and making available information about civil disturbances will enhance public information and awareness.

5.4  Terrorism

5.4. A. Community Mitigation Goals

The random aspect of terrorism makes it hard for a community to prepare for the occurrence of any type of disturbance. In the previous years, Stewart County has not experienced any such occurrence or any structural damage or serious injuries or fatalities. A Warning system is a mitigating activity. Search and rescue, and public information training are preparedness areas. Safe shelters are a key response. The general public does not understand how little time responders have to a sudden terrorist attack of any kind and how important it is that all parties be prepared at all times to respond correctly.

5.4. B. Identification and Analysis of Range of Mitigation Options

1. Structural and non-structural mitigation

The goals identified are both structural and non-structural options. Home owners are responsible for structural improvement of existing buildings. Non-structural options encourage the expansion of public education to supplement property owner’s structural options. It is important to educate the population of the dangers terrorism and terrorist attacks.

2. Existing policies, regulations, ordinances and land use

Currently there are no special policies, regulations, ordinances, or land use directives in Stewart County, the Cities of Richland and Lumpkin for dealing with terrorism and terrorist attacks.

3. Community values, historic, and special considerations

The community values it’s residential and historic assets and is determined to protect them against terrorism and terrorist attacks.
4. New buildings and infrastructure

Residents should be advised to take shelter in any well-built building, or seek the designated emergency shelter for the most immediate safety, should the need arise.

5. Existing buildings and infrastructure

Analysis did not reveal anything tangible that the local governments can do to reduce the impact of civil disturbances on existing buildings and infrastructure.

5.4. C. Terrorism – Mitigation Strategy and Recommendation

Mitigation Goal #1 Reduce the potential for loss of life and property damage
Objective 1 Reduce the risk of personal injury and loss of life by educating the citizens of terrorism and terrorist attacks

Task 1 Obtain and distribute comprehensive material on terrorism

Action Step 1 Promote regular drills at high occupancy locations such as schools, Court Houses, the Doctor’s Offices, daycare facilities, hospitals, and industries
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Costs: Nominal, $200 staff time
Funding Source: Dept. Operations Budget
Priority: Medium

Action Step 2 Distribute terrorism information in form of flyers, brochures, or public safety announcements
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Costs: $500 for staff time and copies
Funding Source: Dept. Operating Budget
Priority: Medium

Action Step 3 Provide print media with “print ready” articles on terrorism safety, present terrorism awareness programming on local television station, and provide public service announcements to all local media
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: Annually
Status: Ongoing
Cost: $500 for staff time
Funding Source: Departmental Operating Budget
Priority: Medium
Benefit: In the event of a tornado, Mitigation Goal #1 will benefit the county and the cities by informing and educating citizens of the threats and dangers involved with terrorism. In addition, Mitigation Goal #1 will prevent terrorism related fatalities among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin.

Mitigation Goal #2 Prepare emergency personnel and local government to respond effectively to needs both during and after terrorist event.

Objective 1 Provide emergency personnel with needed equipment

Task 1 Develop a call-in procedure for emergency personnel

Action Step 1 Create procedure to call off-duty employees at the scene of the disaster event.

Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Richland, Lumpkin
Timeline: 2014
Status: Ongoing
Cost: $50 for staff time
Funding Source: Department Operating Budget
Priority: High

Benefit: In the event of a terrorist attack, this Mitigation Goal 2 would help structuring the emergency response and resources available, and prevent deaths among the 6,058 residents of Stewart County and the Cities of Richland and Lumpkin, as well as prevent damage to the critical facilities with a replacement value of less than 85 million dollars, and damage to non-critical structures with a replacement value of approximately 141 million dollars.

5.4. D. Special Multi-Jurisdictional Strategy

There are no differences between Stewart County, the Cities of Richland and Lumpkin pertaining to terrorist hazards. The risk is the same in each jurisdiction; therefore most of the mitigation measures apply to each. Terrorism drills in the school are measures the County EMA will be taking for the residents of both the cities and the county.

5.4. E. Public Information and Awareness Strategy

Promoting terrorism drills will enhance public information and awareness.

6 – Execution of the Plan

6.1. Implementation Action Plan

6.1. A. Administrative Actions

The chief elected officials and the appointed officials of Stewart County, the City of Richland and the City of Lumpkin in the executive committee are responsible for the administrative personnel and operations of the local government and the mitigation activities
proposed in this plan. The Emergency Management Agency (EMA) coordinates disaster planning, develops Standard Operating Procedures, and coordinates all local and state resources involved in conducting disaster operations. The EMA maintains emergency notification rosters for 24-hour emergency notification, and other data to ensure prompt and effective response.

It is also the responsibility of the EMA to implement this plan after the County Commission and City Councils have authorized the adoption of this plan, after GEMA has given its approval, and prior to FEMA approval. To do this, the officials will present the necessary policy changes, ordinance adoptions, or other revisions in procedures to the governing body, and make recommendations on how to accomplish the goals of this mitigation plan. The action steps have to be implemented and the executive committee has to report on the progress. The EMA Director shall assume the responsibility to coordinate and support these activities, and to oversee the implementation of the plan. The EMA Director also assures the upkeep and maintenance of the plan, and is authorized to call a committee meeting to review and update the plan at least every five years. Completion of mitigation projects shall be noted in the document, and additional mitigation measures shall be developed.

6.1. B. Authority and Responsibility

The office of the EMA Director has the authority and responsibility for implementation vested. The EMA Director will brief the appropriate officials concerning their roles and responsibilities in emergency management and in this plan. Responsible Organizations to conduct the diverse mitigation measure are the following.

Cities and County:
City and County Officials
EMA
Fire Department
Law Enforcement
Pre-Disaster Mitigation Committee
Public Services and Utilities
School Board
Senior Center
Other Agencies:
American Red Cross
DFCS Department of Family and Children Services
FEMA
Georgia DOT
GEMA

For a list of mitigation activities prioritized by Responsible Organizations, please refer to Appendix D, pages D65-D67.

6.1. C. Prioritization: Methodology, and Use of Cost Benefit
In order for this plan to be effective, its contents must be known and understood by those who are responsible for its implementation. The Pre-Disaster Mitigation Plan Committee was tasked to prioritize the alternative mitigation actions based on their perceived cost benefit, community benefit and/or support for the action, and the potential that the action will receive the necessary funding. Please see GEMA worksheet #4 Evaluate Alternative Mitigation Actions in Appendix D, page D52-D64.

1. Methodology
   The methodology used to prioritize the mitigation measures is the review by committees. Each department identified as responsible organizations for an action step has to review the action steps. Those action steps which are not difficult to conduct, which have broad acceptance, and which are low-cost measures with local funding available, will be conducted first. Action steps, where funding is not certain, are tackled in a second step.

2. Use of Cost Benefit
   Since purchases are involved in some of the action steps of the EMA office, the EMA Director will have to meet with city and county officials to review the costs and the benefits of the purchases. As soon as funding sources like grants are identified, a review of the purchase proposals has to be conducted. The review of the county and city officials evaluates the costs and the foreseen benefits of the purchases, and prioritizes them accordingly. Therefore, prioritization is based on the costs, the available funding, and the benefits of the projects.

3. Use of Other Calculations
   Each department identified as responsible organization for an action step will review the action steps. Those action steps which are not difficult to conduct, and which are low-cost measures with local funding available, will be conducted first. Action steps, where funding is not certain, are addressed in a second step.

4. Use of Other Review Structure
   No other review structures are identified at this moment, but will be used if the need arises.

6.1. D. Incorporation of Local PDM Plan into other Plans/Planning Measures

Stewart County updated the Local Emergency Operations Plan in 2004. This Pre-Disaster Mitigation Plan will be among the documents reviewed for inclusion in these documents. Once GEMA and FEMA have determined the relevance of this plan, the River Valley Regional Development Center representative will go before the Board of Commissioners and ask them to adopt the plan.
Pursuant to Georgia law, local governments must prepare and adopt a comprehensive plan to maintain eligibility for state grants, loans and/or permits. All three jurisdictions are diligent in maintaining their “Qualified Local Government” status. Although the chief elected official of the jurisdiction is accountable for ensuring these plans are prepared in accordance with stringent state planning and procedural standards, and formally adopted, responsibility for ensuring this is accomplished is commonly deferred to the chief administrative official. The chief elected and/or appointed officials of all three jurisdictions and the EMA Director serve on the pre-disaster mitigation plan executive committee. Annual review and evaluation of this mitigation plan will serve to facilitate incorporation of mitigation measures into daily management functions (budgeting, permit issuance) of the local governments as well as the joint, local comprehensive plan. The current joint comprehensive plan for Stewart County, Lumpkin and Richland was adopted in 2006. It is scheduled to be updated no later than February 2017. The River Valley Regional Commission has helped not only with preparation of this pre-disaster mitigation plan, but has also assisted the community to maintain compliance with state-mandated comprehensive and other planning requirements.

The Stewart County Emergency Operations Plan will be available with updates made frequently by the EMA Director, and resubmitted and approved. Any changes to this document through findings of the Pre-Disaster Mitigation Plan will be incorporated.

Elements of the 2008 local pre-disaster mitigation plan were incorporated into the 2011 joint comprehensive plan update and the Local Emergency Operations Plan for Stewart County to assist them in their planning efforts. Specifically elements were included in the sections referencing ongoing environmental protection efforts by the County. Elements of the current pre-disaster mitigation plan will be incorporated into any future planning documents including the Joint Comprehensive Plan (to be updated in 2017) as well. This plan will also be reviewed for inclusion in the County’s solid waste management plan.

6.2. Evaluation, Monitoring, Updating

6.2. A. Method

The Pre-Disaster Mitigation Committee will be responsible for evaluating the plan. The first task of the committee will be to determine the criteria to be used for evaluation of the plan. Included among these criteria shall be:

* Is the risk assessment still appropriate, or has the nature or magnitude of the hazard and/or the vulnerability of the county changed over time?
* Are current resources appropriate for implementing this plan?
* Have members of the public been adequately involved in the process? Are their comments being heard?
* Do the goals and objectives continue to address expected conditions in Stewart County?
*Have outcomes been adequate?
*Have lead agencies participated as originally proposed?
*What problems have occurred in the implementation process?

An evaluation handbook will be developed using the goals, objectives, tasks and action steps of Chapters 4 and 5 as the format. This document will be used to record the name and contact information of the individual assigned responsibility for overseeing implementation of each action step included in the plan. These assignments will be made at the “organizational” meeting held after formal plan adoption. This handbook will be used by the executive committee to maintain a current, written record of progress made with plan implementation. The record of project information recorded during the course of the year(s) will be useful for the end-of-year evaluation (and five-year update). Future updates will use a similar format as the update for this plan. This process included monthly involvement of committee members at meetings to discuss each aspect of the plan. Each chapter was read and discussed. If an update was needed, changes were made in the final document. The critical facilities were established in conjunction with the committee members and the tax assessor. The tax assessor also provided information on building areas and values. The remainder of information to be updated involved research to several sources, to include U.S. Census Bureau, NCDC, CWPP, DNR, and GDOT. The same process described in this paragraph will be used for future updates of the plan.

6.2. B. Responsibility

The Pre-Disaster Mitigation Committee will be responsible for evaluating the plan. The office of the EMA Director has the authority and responsibility to call the appropriate meeting of the Committee. The EMA Director will brief the appropriate officials concerning their roles and responsibilities in emergency management and in evaluating this plan.

6.2. C. Timeframe

An evaluation and update of the plan shall be conducted at least every five years. The EMA Director will call a meeting of the Pre-Disaster Mitigation Committee for this purpose.

6.2. D. Reporting

Changes to the Stewart County Pre-Disaster Mitigation Plan will be reported to GEMA and FEMA.

6.3. Multi-Jurisdictional Strategy and Considerations

The Stewart County Emergency Management Agency is the authorized agent of Stewart County and the cities of Lumpkin and Richland for Pre-Disaster Mitigation planning. Both the cities and the county have been working partners in the development of this Pre-Disaster Mitigation Plan. Upon GEMA approval of the Stewart County Pre-Disaster Mitigation Plan, and prior to FEMA approval, both City Councils and the County Commission will publish
their resolutions to adopt the plan, and oversee the implementation of the actions prescribed in the Stewart County Pre-Disaster Mitigation Plan. This precludes the need for each jurisdiction to produce different/separate action plans in order to manage hazard risks.

6.4. **Plan Update and Maintenance**

6.4. A. **Public Involvement**

Public involvement will be assured for the review and update of this plan. The public is invited to serve on the Pre-Disaster Mitigation Committee, and give input at the public hearings. Public hearings are a forum for expressing opinions, and proposing mitigation strategies. The plan will be published, and copies will be kept at the Emergency Management Agency for review and comments. Contained in the plan will be the contact information of the EMA Director responsible for collecting and incorporating public comments in the plan.

6.4. B. **Timeframe**

Updates to the Stewart County Pre-Disaster Mitigation Plan will be made every five years. The EMA Director will coordinate, publish and report changes to this plan as required. Updated are going to be needed if there are changes to the risk assessment, if problems have occurred in the implementation process, if deficiencies have been identified through drills and exercises, and when proposed mitigation actions have been completed. New mitigation projects will be identified at that point. Has a natural or technological disaster occurred, the effectiveness of the implementation of this plan will be reviewed and if necessary updated, as soon as the emergency response activities have been terminated.

6.4.C. **Reporting**

Any changes and updated to the plan will be reported by the EMA Director to GEMA and FEMA.

7 – **Conclusion**

7.1. **Conclusion Summary**

Through the planning process necessary to create this Pre-Disaster Mitigation plan, the officials in Stewart County, Richland and Lumpkin have obtained a better understanding of the dangers of natural and technological hazards, assessed the community’s vulnerability and risk through study of its disaster history, and developed strategies to mitigate the damaging effects of hazards. The planning committee, formally approved by the County Commission and City Councils, held many work sessions, but also two public hearings, where the members of the community had the opportunity to comment and make
suggestions about disaster mitigation. Efforts were taken to include as many persons as possible in the planning process.

The local adoption of this mitigation plan completes another important step. The community now has the task of implementing the action steps identified. Out of the prioritization of the goals and strategies, an action plan has evolved, giving Stewart County the tools needed to be proactive rather than reactive to hazards and their destructive effects.

Stewart County can capitalize on past successes in emergency preparedness, and continue its efforts to provide for the health, safety and general well-being of the residents of Stewart County, making the community a safer place to live and work.

7.2. References

7.2.A. Publications

FEMA Pre-Disaster Mitigation How-to Guides (FEMA)
Georgia Department of Transportation (GDOT): 2006 Traffic Flow Map.
GEMA Supplements to FEMA Pre-Disaster Mitigation How-to Guides (GEMA)
Southwest Georgia News, Edison, Georgia.

7.2.B. Web Sites

Atlantic Oceanographic and Meteorological Laboratory
http://www.aoml.noaa.gov/
Department of Motor Vehicle Safety (DMVS)
http://www.dmvs.ga.gov/reports/index.asp
Department of Transportation http://www.dot.gov
Drought in Georgia http://www.droughtingeorgia.org
ISO - Insurance Services Office, Inc http://www.iso.com
National Climatic Data Center http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent=storms
7.2.C. Other

Stewart County, City of Richland and City of Lumpkin Joint Comprehensive Plan 2006
Stewart County Emergency Operations Plan 2012
Federal Emergency Management Agency FEMA
Georgia Department of Natural Resources GDNR
Georgia Department of Transportation GDOT
National Climatic Data Center NCDC
National Oceanic and Atmospheric Administration NOAA
Et al.

7.3. Additional Sources of Information
Interviews with local sources
Appendix A - Hazard Identification, Risk Assessment and Vulnerability (HRV)

Hazard Frequency Table Stewart County

Natural Hazards
- Thunderstorms
- Tropical Storms/Hurricanes
- Tornadoes
- Floods
- Droughts
- Excessive Heat
- Wildfires
- Funnel Cloud/ Water Spout

Man-made Hazards
- Civil Disturbance
- Terrorism

Technological Hazards
- Hazardous Materials Spills
- Dam Failure

Stewart County Community Wildfire Protection Plan
<table>
<thead>
<tr>
<th>Hazard</th>
<th>Number of Events in Historic Record</th>
<th>Number of Years in Historic Record</th>
<th>Number of Events in Past 10 Years</th>
<th>Number of Events in Past 20 Years</th>
<th>Number of Events in Past 50 Years</th>
<th>Historic Recurrence Interval (years)</th>
<th>Historic Frequency % chance/year</th>
<th>Past 10 Year Record Frequency Per Year</th>
<th>Past 20 Year Record Frequency Per Year</th>
<th>Past 50 Year Record Frequency Per Year</th>
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<td>Hurricane/Tropical Storm Wind:Total</td>
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<td>10</td>
<td>20</td>
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<td>Tornado</td>
<td>8</td>
<td>56</td>
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<td>3</td>
<td>5</td>
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<td>41</td>
<td>15</td>
<td>26</td>
<td>48</td>
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<td>0.44</td>
</tr>
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<td>14</td>
<td>41</td>
<td>8</td>
<td>14</td>
<td>14</td>
<td>2.93</td>
<td>34.15</td>
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<td>0.7</td>
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<td>2</td>
<td>41</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>20.50</td>
<td>4.88</td>
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<td>0.1</td>
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<td>Hall:Total</td>
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<td>25</td>
<td>9</td>
<td>19</td>
<td>22</td>
<td>1.14</td>
<td>88.00</td>
<td>0.9</td>
<td>0.95</td>
<td>0.44</td>
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<td>25</td>
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<td>0</td>
<td>3</td>
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<td>4</td>
<td>5</td>
<td>5</td>
<td>5.00</td>
<td>20.00</td>
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<td>0.25</td>
<td>0.1</td>
</tr>
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<td>25</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>12.50</td>
<td>8.00</td>
<td>0.1</td>
<td>0.1</td>
<td>0.04</td>
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<td>Drought</td>
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<td>12</td>
<td>4</td>
<td>5</td>
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<td>41.67</td>
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<tr>
<td>Snow &amp; Ice</td>
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<td>Dam Failure</td>
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<td>0</td>
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<tr>
<td>HazMat Release (fixed)</td>
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<td>11</td>
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</tr>
</tbody>
</table>

NOTE: The historic frequency of a hazard event over a given period of time determines the historic recurrence interval. For example: If there have been 20 HazMat Releases in the County in the past 5 years, statistically you could expect that there will be 4 releases a year.

Realize that from a statistical standpoint, there are several variables to consider. 1) Accurate hazard history data and collection are crucial to an accurate recurrence interval and frequency. 2) Data collection and accuracy has been much better in the past 10-20 years (NCDC weather records). 3) It is important to include all significant recorded hazard events which will include periodic updates to this table.

By updating and reviewing this table over time, it may be possible to see if certain types of hazard events are increasing in the past 10-20 years.
A.1. Thunderstorms

A. 1. A. Descriptions

Isolated Thunderstorms tend to form where there is abundant moisture at low and middle levels of the atmosphere, and when there is a force that can lift warm air, such as a warm or cold front, a sea breeze or a mountain. The warm air is forced to rise rapidly. Thunderstorms can develop isolated, in clusters or in lines. A single thunderstorm can affect a certain location for an extended time, and cause some of the most severe weather; or several thunderstorms can affect that location over a few hours. Thunderstorm winds generally move in a straight line, and not in a rotating air column like tornados. The winds are normally short-lived, and can come in gusts over 50 miles per hour.
### A.1.B Data

#### Stewart County Thunderstorm Events 1950-2012

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
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<tbody>
<tr>
<td>Stewart</td>
<td>1/15/1971</td>
<td>10:50 AM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Stewart</td>
<td>12/3/1983</td>
<td>9:40 PM</td>
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<td>0 kts.</td>
<td>0</td>
<td>0</td>
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<td>OK</td>
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<tr>
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<td>4/22/1984</td>
<td>2:55 PM</td>
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<td>OK</td>
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<tr>
<td>Stewart</td>
<td>2/9/1990</td>
<td>5:00 AM</td>
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<td>0</td>
<td>0</td>
<td>OK</td>
<td>OK</td>
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<td>2/10/1990</td>
<td>5:15 AM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
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<td>0</td>
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<td>OK</td>
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<td>Stewart</td>
<td>2/16/1990</td>
<td>11:10 AM</td>
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**Totals:**
0
0
104K
OK

*Source: National Climatic Data Center*

The precipitation originating from shower clouds and thunderstorms can not only be in raindrops, but also in the form of pellets of soft hail or hail stones.
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| TOTALS: | 0   | 0   | 12K | 2K  |

Source: National Climatic Data Center
Please refer also to the GEMA Critical Facility Inventory Report in Appendix D, pages D23 to D31.

A.1. C Map: Wind Hazard Scores

Please refer to Chapter 2.1.F for the GEMA map by ITOS of Wind Hazard Scores

A.2. Hurricane and Tropical Storm

A.2.A. Description

Both types of tropical cyclones, Tropical Storms and Hurricanes, begin as tropical depressions over warm oceanic water. One speaks of tropical depressions, if winds are under or up to 39 MPH (34 KTS). Winds speeds of 39 to 73 MPS (34-63 KTS) are associated with tropical thunderstorms, and everything above 74 MPH wind speed is called a hurricane, Hurricanes occur especially in the western Atlantic under warm, humid conditions, and are accompanied by excessive rain, thunder, lightning.

A.2.B. Data

Stewart County Hurricane and Tropical Storm Events 1950-2011

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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>12. Stewart</td>
<td>2/22/1990</td>
<td>0845</td>
<td>TSTM WIND</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13. Stewart</td>
<td>3/17/1990</td>
<td>0030</td>
<td>TSTM WIND</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14. Stewart</td>
<td>4/10/1990</td>
<td>1515</td>
<td>TSTM WIND</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15. Stewart</td>
<td>4/10/1990</td>
<td>1600</td>
<td>TSTM WIND</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No.</td>
<td>First Name</td>
<td>Date</td>
<td>Time</td>
<td>Location</td>
<td>Type</td>
<td>Wind Speed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
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<td>------------</td>
<td>------------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Stewart</td>
<td>8/30/1990</td>
<td>1125</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
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</tr>
<tr>
<td>17.</td>
<td>Stewart</td>
<td>8/30/1990</td>
<td>1215</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
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<td></td>
</tr>
<tr>
<td>18.</td>
<td>Stewart</td>
<td>4/9/1991</td>
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<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Stewart</td>
<td>4/29/1991</td>
<td>1600</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Stewart</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Stewart</td>
<td>3/30/1992</td>
<td>1500</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Stewart</td>
<td>4/9/1991</td>
<td>1600</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>LOVALE</td>
<td>4/15/1999</td>
<td>640</td>
<td></td>
<td>TSTM WIND</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>LOVALE</td>
<td>5/5/1991</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>LUMPIN</td>
<td>3/30/1992</td>
<td>1500</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>RICHLAND</td>
<td>4/9/1991</td>
<td>1600</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>LOVALE</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>OMAHA</td>
<td>4/9/1991</td>
<td>1600</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>LUMPIN</td>
<td>1/13/1992</td>
<td>1710</td>
<td></td>
<td>TSTM WIND</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: NCDC 2012

Please refer also to the GEMA Critical Facility Inventory Report in Appendix D, pages D23- D31.

**A.2.C. Map: SLOSH**

Please refer to Chapter 2.2.F. for the GEMA map by ITOS for the SLOSH hazard.

**A.3. Tornado**

**A.3.A. Description**

A tornado is a violent destructive whirling wind, accompanied by a funnel-shaped cloud. Tornados occur most often in association with tropical thunderstorms during...
warm and humid weather most commonly associated with the spring and summer season. Tornados can generate the strongest winds known on earth, many of which can exceed speeds of 250 miles per hour. Structural destruction is often caused by these high-speed winds and the impact of wind-borne debris.

**Stewart County Tornado Events (Jan. 1, 1950- Apr. 30, 2012)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-County</td>
<td>12/5/1954</td>
<td>1440</td>
<td>Tornado</td>
<td>F2</td>
<td>1</td>
<td>20</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>2-County</td>
<td>12/5/1954</td>
<td>1530</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>3-County</td>
<td>12/5/1954</td>
<td>1600</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>4-County</td>
<td>4/9/1961</td>
<td>1040</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>25 K</td>
<td>0</td>
</tr>
<tr>
<td>5-County</td>
<td>3/18/1981</td>
<td>1345</td>
<td>Tornado</td>
<td>F1</td>
<td>0</td>
<td>0</td>
<td>25 K</td>
<td>0</td>
</tr>
<tr>
<td>6-Omaha</td>
<td>4/3/1998</td>
<td>16:20</td>
<td>Tornado</td>
<td>F0</td>
<td>0</td>
<td>0</td>
<td>10 K</td>
<td>5 K</td>
</tr>
<tr>
<td>7-County</td>
<td>3/1/2007</td>
<td>16:11</td>
<td>Tornado</td>
<td>F1</td>
<td>0</td>
<td>0</td>
<td>20 K</td>
<td>0</td>
</tr>
<tr>
<td>8-County</td>
<td>2/17/2008</td>
<td>16:52</td>
<td>Tornado</td>
<td>F0</td>
<td>0</td>
<td>0</td>
<td>420 K</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1</strong></td>
<td><strong>20</strong></td>
<td><strong>1,225K</strong></td>
<td><strong>5 K</strong></td>
</tr>
</tbody>
</table>

*Source: National Climatic Data Center*

Please refer also to the GEMA Critical Facility Inventory Report in Appendix D, pages D23 to D31.

**A.3.C. Map**

Based on NOAA and Storm Prediction Center Statistics, FEMA has created a map displaying Tornado activity in the United States per 1,000 square miles. According to this map, Stewart County is located in the zone where 6-10 tornados have been recorded per 1,000 square miles, meaning that there is indeed a probability of tornado activity.
According to a second map of Design Wind Zones in the United States, created by the American Society of Civil Engineers, most of Georgia located in Wind Zone III, meaning that extreme wind speeds can be expected to be up to 200 mph.
Please also refer to Chapter 2.3 for the GEMA map by ITOS of Wind Hazard Scores.
A.4. Flood

A.4.A. Description

Floods are defined as the rising of bodies of water, like rivers and streams, overflowing their natural or artificial banks onto normally dry land. These high-water stages are often related with severe tropical storms or torrential rains from hurricanes. Floods can be slow as the result of extended rain or a storm event, or fast rising as the result of a flash flood.

A.4. B. Data

Stewart County Flood Events (Jan. 1, 1950–Apr. 30, 2012)

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – County (multi)</td>
<td>7/6/1994</td>
<td>1400</td>
<td>Flash Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2-County</td>
<td>10/4/1995</td>
<td>0100</td>
<td>Flash Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3-County</td>
<td>9/29/1998</td>
<td>11:50 AM</td>
<td>Flash Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>25 K</td>
<td>8 K</td>
</tr>
<tr>
<td>4-Richland (multi-cnty)</td>
<td>3/27/2005</td>
<td>3:00 AM</td>
<td>Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>25 K</td>
<td>0</td>
</tr>
<tr>
<td>5-Blufftown</td>
<td>12/14/2009</td>
<td>2300</td>
<td>Flood</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>3 K</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>53 K</td>
<td>8 K</td>
</tr>
</tbody>
</table>

Source: National Climatic Data Center

Please refer also to the GEMA Critical Facility Inventory Report in Appendix D, pages D31 to D36.

A.4.C. Map: Flood Hazard Scores Stewart County

Please refer to Chapter 2.4.F for the GEMA Flood Hazard Score map by ITOS. The following map from the Stewart County Comprehensive plan outlines the flood map for the region.
A.5 Wildfire

A.5.A. Description

Fires are one of the most common and widespread of all natural disasters besides floods. Wild fires are a sweeping and destructive conflagration, especially in a wilderness of a rural area, and are usually signaled by dense smoke that fills the area for miles around.

A distinction is normally made between three classes of wildfires: surface, ground, and crown fires. A surface fire, the most common type, burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire is usually started by lightning and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees.

A.5.B. Data

A Fire Occurrence map for Stewart County for the fiscal years 2002-2006, created by the Georgia Forestry Commission, shows that there have been 136 occurrences in the past 4 years. Please refer to Appendix A, page A14. According to this map, there have been a total of 134 fires, of which 48 covered 1 to 2 acres, 62 fires covered 2 to 4 acres, and 17 fires covered 4 to 8 acres. None of the 137 fires occurring in the years of 2001-2005 was covering an area larger than 8 acres.

Please refer also to the GEMA Critical Facilities Inventory in Appendix D, pages D37 to D45.
A.5.C. Map: Wildfire Risk Scores

For a copy of the GEMA Fire Hazard Score Map by ITOS, please refer to Chapter 2.5.F

The following map from the Georgia Forestry Commission shows fire occurrences for Stewart County for the last 4 fiscal years, from 2002-2006. The color of the box indicates the acreage span (1 to 2 acres, 2 to 4 acres, etc) and the number inside the box indicates the number of fires in that area of the county. According to this map, there have been a total of 136 occurrences in the past 4 years. According to this map, there have been a total of 134 fires, of which 48 covered 1 to 2 acres, 62 fires covered 2 to 4 acres, and 17 fires covered 4 to 8 acres. None of the 137 fires occurring in the years of 2001-2005 was covering an area larger than 8 acres.
Fire Occurrence Map for Stewart County for Fiscal Year 2002-2006

Source: Georgia Forestry Commission, 2007
A.6.  Drought
A.6.A. Description

A drought is a period of time when there is not enough water to support agricultural, urban or environmental water needs. A drought usually refers to an extended period of below-normal rainfall, but can also be caused by drying bores or lakes, or anything that reduces the amount of available liquid water. Although what is considered "normal" varies from one region to another; droughts are a threat of nearly all the world's climatic regions. In addition, the effects of drought vary depending on agricultural, urban and environmental water needs. A drought is most harmful during the planting and growing season in agricultural areas. A drought can result in extensive damage to crops or prevents their successful growth.
### A.6.B. Data

#### Table: Stewart County Drought Events 2000-2012

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-County</td>
<td>2/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-County</td>
<td>4/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3-County</td>
<td>5/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4-County</td>
<td>6/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5-County</td>
<td>7/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6-County</td>
<td>10/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
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<td>0</td>
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</tr>
<tr>
<td>7-County</td>
<td>4/1/2002</td>
<td>12:00 AM</td>
<td>Dry</td>
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<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>8-County</td>
<td>8/1/2002</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9-County</td>
<td>3/1/2004</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10-County</td>
<td>05/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>11-County</td>
<td>09/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>12-County</td>
<td>10/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>13-County</td>
<td>11/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>14-County</td>
<td>12/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>15-County</td>
<td>09/01/2011</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>16-County</td>
<td>09/01/2011</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>17-County</td>
<td>12/1/2011-12/1/2012</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
</tbody>
</table>

**TOTALS:**

|             | 0 | 0 | 0 | 306.720 M |

*Article I. Source: National Climatic Data Center 2012*

Please refer also to the GEMA Critical Facilities Inventory Appendix D, pages D23 to D31. Since no data exists for civil disturbance, an estimate can developed looking at the numbers for those that do exist, such as referenced above.
Technological Hazards

A.1. Hazardous Materials (in-transit and fixed)
A.1.A. Description
Categorized as hazardous materials are chemical substances, which can pose a threat to the community health and/or the environment, when released or misused. Exposure to hazardous materials can result in long-lasting health effects, serious injury, and even death. Sources of such hazardous materials include agriculture, industry, medicine and research, and consumer goods.

A.1.B. Data

Table: Reported Hazardous Material Incidents in Stewart County 2000-2012

<table>
<thead>
<tr>
<th>Complaint Id:</th>
<th>Complaint Received Date:</th>
<th>Caller Name</th>
<th>Nature of Complaint</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>24909</td>
<td>11/17/2003</td>
<td>Phoenix Lumber Co</td>
<td>Diesel Oil spill</td>
<td>Bojangles Chicken at Hwy 520 &amp; 280</td>
</tr>
<tr>
<td>28371</td>
<td>8/5/2004</td>
<td>Unknown</td>
<td>Improper disposal of sewage</td>
<td>110 Banks St</td>
</tr>
<tr>
<td>30153</td>
<td>12/8/2004</td>
<td>Larry Eason Trucking</td>
<td>Diesel Oil spill</td>
<td>Bojangles Truck Stop</td>
</tr>
<tr>
<td>33402</td>
<td>7/3/2005</td>
<td>Unknown</td>
<td>Petroleum spill</td>
<td>B/w Docks of 1 &amp; 3 at Florence Marina</td>
</tr>
<tr>
<td>34743</td>
<td>9/9/2005</td>
<td>Unknown</td>
<td>Burning copper wire</td>
<td>Junkyard on Co Rd 61</td>
</tr>
<tr>
<td>35898</td>
<td>11/28/2005</td>
<td>Circle Environmental</td>
<td>Diesel spill</td>
<td>Intersection of Hwy 520 &amp; 280</td>
</tr>
<tr>
<td>37407</td>
<td>2/17/2006</td>
<td>Estes</td>
<td>Overturned Tractor Trailer with something labeled poison but is not leaking.</td>
<td>Ga 520 at Brooklyn, Stewart County</td>
</tr>
<tr>
<td>40524</td>
<td>7/24/2006</td>
<td>B&amp;S Air</td>
<td>Unknown substance spill</td>
<td>City Water Tower</td>
</tr>
<tr>
<td>Event ID</td>
<td>Date</td>
<td>Company</td>
<td>Type</td>
<td>Location</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>---------------</td>
<td>--------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>46811</td>
<td>6/12/2007</td>
<td>Unknown</td>
<td>Diesel fuel spill</td>
<td>Hwy 520 &amp; 27</td>
</tr>
<tr>
<td>63592</td>
<td>10/18/2010</td>
<td>Unknown</td>
<td>Unknown substance spill in Marina</td>
<td>Lakepoint Marina</td>
</tr>
<tr>
<td>66451</td>
<td>9/20/2011</td>
<td>SE Freightliner</td>
<td>C3 Flammable Liquid spill</td>
<td>Intersection of Mathis Store Rd and Hwy 280E/520</td>
</tr>
</tbody>
</table>

**Article II.**  
Source: DNR and NRC 2012

Please refer also to the GEMA Critical Facility Inventory Report in Appendix D, pages D23 to D31. Since no data exists for civil disturbance, an estimate can developed looking at the numbers for those that do exist, such as referenced above.

**A.1.C. Map**

Please refer to Chapter 3.1. F. for the GEMA Transportation map by ITOS

**A.2. Dam Failure**

**A.2.A. Description**

A dam is a barrier constructed for the purpose of preventing the flow of water. Dams are especially effective when built across a watercourse for impounding water. Dams have many benefits, to include improved navigation, agricultural irrigation, provision of drinking water, and possibly hydroelectric power. Dams also create lakes for recreation, and can help in preventing or reducing floods.

Dam failure can pose serious risks. Dams fail for two main reasons. A physical weakness in the structure, caused by a faulty design, improper operation or poor maintenance. The inundation of the dam by flood waters and/or extreme precipitation events, for example in the wake of a hurricane. Dam failure has the potential to cause property damage and fatalities as a result of the high energy water swiftly moving downstream.
A.3.B. Data

No data is available on dam failures in Stewart County, Richland, or Lumpkin. Please refer also to the GEMA Critical Facility Inventory Report in Appendix D, pages D23 to D31.

A.3. C. Map

Please refer to Chapter 3.3.F for the GEMA Flood Hazard Score map by ITOS.
Community Wildfire Protection Plan
An Action Plan for Wildfire Mitigation and
Conservation of Natural Resources

STEWART COUNTY
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Executive Summary

The extreme weather conditions that are conducive to wildfire disasters (usually a combination of extended drought, low relative humidity and high winds) can occur in this area of Georgia as infrequently as every 10-15 years. This is not a regular event, but the number of homes that have been built in or adjacent to forested or wildland areas, can turn a wildfire under these weather conditions into a major disaster. Wildfires move fast and can quickly overwhelm the resources of even the best equipped fire department. Advance planning can save lives, homes and businesses.

This Community Wildfire Protection Plan includes an evaluation of the wildland fire susceptibility of wildland/urban interface “communities-at-risk”, an analysis of fire service resources, a description of needed equipment and training, and an Action Plan to address the increasing threat of wildfire. The CWPP does not obligate the County financially in any way, but instead, lays a foundation for improved emergency response if and when grant funding is available to the County.

The plan is provided at no cost to the County and can be very important for County applications for hazard mitigation grant funds through the National Fire Plan, FEMA mitigation grants, and Homeland Security. Under the Healthy Forest Restoration Act (HFRA) of 2003, communities (counties) that seek grants from the federal government for hazardous fuels reduction work are required to prepare a Community Wildfire Protection Plan.

The plan will:

- Enhance public safety
- Improve community sustainability
- Protect ecosystem health
- Raise public awareness of wildfire hazards and wildfire risk
- Educate landowners on how to reduce home ignitability
- Build and improve collaboration at multiple levels

The public does not have to fall victim to this type of disaster. Homes (and communities) can be designed, built and maintained to withstand a wildfire even in the absence of fire engines and firefighters on the scene. It takes planning and commitment at the community level BEFORE the wildfire disaster occurs — and that is what the Community Wildfire Protection Plan is all about.
SIGNATURE PAGE

Joe Lee Williams
Chairman of the Stewart County Commission

[Signature]

1/11/2011
Date

Greg Stewart
Stewart County Fire Chief and Deputy EMA Director

[Signature]

11 Jan 2011
Date

John T. Pollard
Chief Ranger for Stewart County

[Signature]

11 Jan 2011
Date
WILDLAND/URBAN INTERFACE FIRE DISASTERS

Fire influenced and defined the landscape we call the United States, well before the arrival of the first Europeans. Scientists, in fact, think that fires started by lightning or Native Americans occurred over most of the Southeast every 3 to 7 years. These were typically low intensity fires (because of their frequency) which kept the forests open and "park-like" in appearance and prevented heavy accumulations of dense underbrush. When communities became well established across the South, wildfires began to impact public safety and had to be controlled. State forestry agencies became established between 1915 and 1928 and the landscape was generally segregated into communities (or human habitations) and natural or wildland areas.

In the mid 1980's, following a new wave of development in what was previously forest or wildland areas, agencies across the country became aware of an increasingly common phenomena — wildfires were more and more frequently impacting communities. In 1985, a milestone year, over 1400 homes nationwide were lost to wildfire. The catastrophes became known as wildland/urban interface fires and occur when the fuel feeding the fire changes from natural vegetation (trees, shrubs and herbs) and begins to include manmade structures (homes, outbuildings and vehicles). Wildland/urban interface fires can occur anywhere in the United States and can become major disasters when associated with extremes in weather (extended droughts, high winds, low relative humidity, etc.)

The public does not have to fall victim to this type of disaster. Homes (and communities) can be designed, built and maintained to withstand a wildfire even in the absence of fire engines and firefighters on the scene. BUT, it takes planning and commitment at the community level BEFORE the wildfire disaster occurs.

CWPP CORE COMMITTEE

The development of this plan was a collaborative effort for the people of Stewart County. The individuals listed below (the "CWPP Core Committee") participated in the planning process.

CWPP Core Committee
Jimmy Babb, Stewart County EMA Director
Greg Stewart, Fire Chief, Stewart County Fire Department
Eric Storey, Fire Chief, Richland Fire Department
W. Alan Griggs, Richland Fire Department/Stewart County Fire Department

Georgia Forestry Commission Representatives
Chief Ranger John T. Pollard
CWPP Program Specialist Jim Harrell

Meeting Dates
Initial Core Committee Meeting: April 7, 2010
Follow-Up Meeting: August 31, 2010
The CWPP Core Committee contributed to the CWPP development by:

<table>
<thead>
<tr>
<th>Initiation</th>
<th>Agreed on the need to develop a Community Wildfire Protection Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Assessment</td>
<td>Assessed the wildfire hazard of &quot;communities-at-risk&quot;</td>
</tr>
<tr>
<td>Fuels Reduction</td>
<td>Identified and prioritized areas for fuel treatment projects</td>
</tr>
<tr>
<td>Structure Ignitability</td>
<td>Identified strategies for reducing the ignitability of structures within the wildland/urban interface</td>
</tr>
<tr>
<td>Emergency Response</td>
<td>Updated and improved strategies for coordinated wildland fire response</td>
</tr>
<tr>
<td>Education and Outreach</td>
<td>Outlined a public education initiative to increase citizen awareness of residential wildfire protection (Firewise)</td>
</tr>
</tbody>
</table>

**OTHER STAKEHOLDERS**

It is important that a collaborative approach be taken in the development of a successful Community Wildfire Protection Plan. This means allowing for the involvement of multiple interested parties in the Core CWPP Committee that develops the CWPP and providing the opportunity for other interested stakeholders in the community (county) to review and comment on the CWPP. Collaboration is a requirement of the Healthy Forests Restoration Act.

During development of the Stewart County CWPP, opportunities for collaboration were provided by:

- Major stakeholders were invited to participate as members of the CWPP Core Committee.
- A news release was placed in the local paper (Stewart-Webster Journal) explaining the objectives of the Stewart County CWPP, the planning process and the procedure for obtaining a draft copy for review and/or comment.
OBJECTIVE OF THE CWPP

The objective of this Community Wildfire Protection Plan (CWPP) is to improve public safety and reduce structural losses from wildfire in wildland/urban interface areas of Stewart County.

The Wildland/Urban Interface is the presence of structures in locations in which the authority having jurisdiction (AHJ) determines that topographical features, vegetation, fuel types, local weather conditions and prevailing winds result in the potential for ignition of the structures within the area from flames and firebrands from a wildland fire (NFPA 1144, 2008 edition).

There are three generally accepted types of interface areas:

1. “Boundary” wildland/urban interface areas are characterized by development where groups of homes, subdivisions or other structures create a distinct and easily identified border with public or private wildlands, forests or parks.

2. “Intermix” wildland/urban interface areas are places where parcels of improved property and/or structures are scattered and interspersed within wildlands, forests or parks. Frequently, this is a subdivision that is not yet “built-out” with many undeveloped lots interspersed among occupied homes.

3. “Island” wildland/urban interface (also called “occluded interface”) are typically very small pockets of wildland or natural areas surrounded by development or even situated within an incorporated area. A park or greenspace within a city is an example of an island interface area.

This CWPP will provide Stewart County with an evaluation of the wildland fire susceptibility of wildland/urban interface “communities-at-risk” and can be a valuable guide and action plan to address the increasing threat of wildfire. The plan will:

- Enhance public safety
- Improve community sustainability
- Protect ecosystem health
- Raise public awareness of wildfire hazards and wildfire risk
- Educate landowners on how to reduce home ignitability
- Build and improve collaboration at multiple levels

This Community Wildfire Protection Plan will be very important to County applications for hazard mitigation grants through the National Fire Plan, FEMA mitigation grants, and Homeland Security. Under the Healthy Forest Restoration Act (HFRA) of 2003, communities (counties) that seek grants from the federal government for hazardous fuels reduction work are required to prepare a Community Wildfire Protection Plan.

The minimum requirements for a Community Wildfire Protection Plan as described in the HFRA are:
• Collaboration: A Community Wildfire Protection Plan must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.

• Prioritized Fuel Reduction: A Community Wildfire Protection Plan must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.

• Treatment of Structural Ignitability: A Community Wildfire Protection Plan must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

This plan should be looked at as a working document (i.e.; a guide) for local, state and federal agencies to reach common wildfire protection goals. A CWPP committee should meet on a continuing basis from year to year to review accomplishments, discuss impediments, revise outdated portions of the CWPP and develop new, meaningful wildfire protection goals for Stewart County.

DESCRIPTION OF STEWART COUNTY

Stewart County was created by the Georgia General Assembly in 1833 from part of Randolph County. The county is named for General Daniel Stewart, a soldier in the War of 1812. The county seat is Lumpkin.

The Georgia Center for Agribusiness and Economic Development estimates the 2008 county population at 4,666. The 2000 Census classified Stewart County as 100% rural. Eighty-one percent of the county is forested.

The county’s total area is 463.2 square miles (296,448 acres), of which 458.7 square miles (293,568 acres) is land and 4.5 square miles (2,880 acres) is water.

The county’s 94 farms contributed $9,477,000 to the local economy in 2008 and forest products added another $6,621,000.

<table>
<thead>
<tr>
<th>Incorporated Municipalities</th>
<th>Unincorporated Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumpkin</td>
<td>Louvale</td>
</tr>
<tr>
<td>Richland</td>
<td>Brooklyn</td>
</tr>
<tr>
<td></td>
<td>Wightsville</td>
</tr>
<tr>
<td></td>
<td>Omaha</td>
</tr>
</tbody>
</table>
WILDFIRE HISTORY

The Georgia Forestry Commission (GFC) is the state agency responsible for providing leadership, service, and education in the protection and conservation of Georgia's forest resources. Commission professionals provide a wide variety of services including fire detection, issuing burn permits, wildfire suppression and prevention services, emergency and incident command system expertise, rural fire department assistance, forest management assistance to landowners and communities, the marketing and utilization of forest resources, and growing and selling quality tree seedlings for reforestation.

Vision: Healthy sustainable forests providing clean air, clean water and abundant products for future generations.

Mission: To provide leadership, service and education in protection and conservation of Georgia's forest resources.

The Georgia Forestry Commission office located at Route 1, Box 172, Lumpkin, Georgia, 31815, serves Stewart, Quitman and Webster Counties. Telephone: (229) 818-4576.

Personnel:
John T. Pollard, Chief Ranger
Charlie Devorse, Ranger I
Doug Redding, Ranger I

Wildland firefighting equipment assigned to this GFC office:
1 Truck/transport with JD 550
1 Truck/transport with JD 450G
1 Type VI engine (Chief Ranger's pickup truck w/ 150 gallon tank)

On a year-to-year basis, the leading cause of wildfires in Stewart County is machine use (example: harvesting combine) followed by fires resulting from arson, and escaped residential leaf pile fires. During Fiscal Year 2010 there were 9 machine use fires in Stewart County on 12.00 acres.

<table>
<thead>
<tr>
<th>Cause</th>
<th>5-Year Average</th>
<th>FY2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Use</td>
<td>7.00/20.83 acres</td>
<td>9/11.00 acres</td>
</tr>
<tr>
<td>Incendiary</td>
<td>2.40/58.64 acres</td>
<td>4/108.20 acres</td>
</tr>
<tr>
<td>Residential Leaf Piles</td>
<td>3.40/7.32 acres</td>
<td>3/3.47 acres</td>
</tr>
</tbody>
</table>

8
Fire Occurrence Map for
Stewart County for Fiscal Year 2005-2009
The above graphic from the Southern Fire Risk Assessment System (SFRAS) indicates (dark red) that most wildfire ignitions occur in the eastern portion of Stewart County in the vicinity of Lumpkin.
The SFRAS Base Map of Wildland Urban Interface areas in Stewart County illustrates where residential areas are concentrated (areas that could potentially be threatened by a wildfire).
WHAT ARE “COMMUNITIES-AT-RISK”?

Communities-at-risk are locations where a group of two or more structures in close proximity to a forested or wildland area place homes and residents at some degree of risk from wildfire. Other characteristics of the “community” such as the closeness of structures, building materials, the accumulation of combustible debris near the structures, access in and out and the distance from the nearest fire station or a permanent water source (pond or dry hydrant) may contribute to the risk.

In Stewart County, there are many individual (isolated) homes and outbuildings on farms and small properties that could be damaged or destroyed in the event of a disastrous wildfire. On these properties, the owners must be educated so they can assume a greater responsibility for wildfire protection - - - by making improvements to their residential landscape and their homes that will provide some wildfire protection until the fire department can arrive. This can only be accomplished if rural residents know how to make their homes and properties “Firewise”.

Improvements to the community infrastructure (roads, utilities, etc.) may be beyond the capabilities of the homeowners. However, if access by emergency vehicles can be enhanced by widening the entrance right-of-way(s), creating “hammerhead-T’s” or other ways for fire trucks to turn around and operate safely and residences can be identified with reflective “911 addressers” wildfire protection can be greatly improved.

Modifications in and around individual residences may need to be budgeted by the residents over time (for example, making a roof more fire resistant may have to wait until it is time to replace the current roof covering), however, moving firewood away from the home, skirting raised decks and keeping roofs free of accumulated flammable debris are improvements most families can do in the short run.

In most instances, communities-at-risk will benefit from the reduction/removal of flammable vegetation within 100 feet of homes and outbuildings through prescribed burning or by mechanical means. Fuel management with the home ignition zone (within 100 feet of the home) either by removing highly flammable vegetation or by replacing the vegetation with fire resistant plant species will significantly improve wildfire safety.
LOCATION OF COMMUNITIES AT RISK

Stewart Co Wildland Urban Interface
Pre-Storm Location and Level of Concern

Communities-at-Risk
1. Wrightsville
2. Red Hill
3. Rag Town
4. Omaha
<table>
<thead>
<tr>
<th>Community</th>
<th>Score</th>
<th>Hazard Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omaha</td>
<td>121</td>
<td>Extreme Hazard</td>
</tr>
<tr>
<td>Wrightsville</td>
<td>107</td>
<td>Very High Hazard</td>
</tr>
<tr>
<td>Rag Town</td>
<td>97</td>
<td>High Hazard</td>
</tr>
<tr>
<td>Red Hill</td>
<td>52</td>
<td>Moderate Hazard</td>
</tr>
</tbody>
</table>

These hazard ratings were completed by John Pollard, Chief Ranger for Stewart County and Ranger I Doug Redding, during the month of June, 2010. The Georgia Forestry Commission’s Hazard and Wildfire Risk Assessment Scoresheet was used. This document evaluates communities (groups of homes) based upon six criteria: community access, surrounding vegetation, building construction, fire protection, utilities, and additional rating factors. The quantitative wildfire hazard ratings range from a low hazard rating of 0 to 50 points to an extreme hazard rating of over 110 points.
PROTECTING EXISTING STRUCTURES

Critical Facilities
Critical facilities are unique structures which require special consideration in the event of an emergency such as a wildland/urban interface fire. Every county will have some critical facilities and some more urbanized counties will have many. Critical facilities include: a nursing home that may need special consideration because the smoke accompanying a wildfire may be hazardous to the health of elderly residents, a law enforcement dispatch center is a critical facility that will need special consideration to ensure there is no disruption of emergency communications in the event of a disastrous wildfire. Other examples of critical facilities are ethanol plants, auto salvage yards and facilities that produce chemicals that could be hazardous to the local population if released into the atmosphere. Owner/operators of critical facilities need to be aware of the hazards that an approaching wildfire could present. There may be immediate action that could be taken by owner/operators to lessen the impact of a wildfire (such as the elimination of encroaching wildland vegetation in and around the critical facility).

Critical Facilities in Stewart County:
Stewart County Elementary School  Stewart-Quitman High School
Stewart Detention Center (CCA )       Stewart-Webster Hospital
Pumping stations for natural gas and propane  Electrical power transfer stations
Auto Salvage Yard(s) at U.S. Hwy. 27 and County line Road  Webster (Historic: 1850 Village)

RECOMMENDATION: Meet with owner/operators of Critical Facilities to evaluate any wildfire hazard and suggest what owner/operators might do to mitigate any observed hazards and improve wildfire protection.

Public Education Needs
"Firewise" structures are homes and other buildings in the wildland/urban interface that have been built, designed and maintained to survive a wildfire event even in the absence of firefighters on the scene.
Over the past fifty years, many Georgia residents have left the city or the suburbs to build homes in or adjacent to forested areas with a desire to be "close to nature". Unfortunately, this has resulted in neighborhoods or single-family dwellings with one way in and out, with long narrow driveways, no pressurized hydrants or draft source for water and structures so close to wildland vegetation that even the best equipped fire department could not be successful in a severe wildfire event. Most of these homeowners don’t understand the risk associated with living in the wildland/urban interface and expect to be rescued by the fire department in the event of a wildfire emergency.

The key to the reduction of structural losses in the wildland/urban interface cannot rest solely with improved response by the local fire services. There will never be enough fire trucks and firefighters to adequately protect homes in the wildland/urban interface. A major part of the solution to this problem lies with the homeowner — homeowners in the wildland/urban interface must become "partners" with the fire services and assume some responsibility for maintaining their home (structure) and landscape (yard) so that the home can be saved should a wildfire occur in the immediate area. This means a home with no combustible debris on the roof and in the gutters, wood decks that are skirted underneath,
chunky bark or lava rock mulch near the house instead of pine straw or cypress mulch and a “lean, clean and green” landscape of less-flammable plants within 30 feet of the structure.

RECOMMENDATIONS: Initiate a community public education program for Stewart County residents
- Host a Firewise Workshop each year at a centrally-located facility with a meal and refreshments for those who attend.
- Make Firewise Communities brochures available to the public at central locations such as: Farm Services Agency, Chamber of Commerce and the County Courthouse.
- Encourage neighborhoods/communities that qualify to apply for recognition as a Firewise Community/USA.

Reduction of Hazardous Fuels
Because approximately 81 percent of Stewart County is forested, the accumulation of brush (and other mostly ground vegetation) can create conditions that could fuel a disastrous wildfire. Treatment of forested areas with prescribed fire can significantly reduce this hazard while improving pulpwood and sawtimber production and enhancing wildlife habitat. Prescribed burning, however, must be conducted by experienced personnel when weather conditions are conducive to a safe burn and when an authorization has been obtained from the local office of the Georgia Forestry Commission.

Other ways to reduce wildland fuel (vegetation) include:
- Mechanical treatment
- Chemical treatment (herbicides)
- Livestock grazing

The above alternatives to prescribed burning are more intensive and hence, more costly and generally suitable only for smaller acreages.

The goal for structural protection should be a “Firewise” landscape. A Firewise landscape is characterized by trees, shrubs and grasses that are carefully managed within 100 feet of structures - an area called the Home Ignition Zone (HIZ). Most critical is the space within 30 feet of a structure which is usually referred to as the area of Defensible Space. The Defensible Space should include a landscape of less flammable plants, coarse bark or lava rock as mulch adjacent the structure, tree limbs trimmed away from the structure and any decks skirted so leaves and other debris cannot accumulate underneath. The idea is to create a landscape that will prevent flames or firebrands from a wildfire (aerial borne embers) from igniting the structure.

RECOMMENDATION: Promote the use of prescribed burning in Stewart County for wildland fuel reduction.
- Help landowners understand how to prescribe burn legally and safely.
- Educate the general public on the benefits of prescribed burning.
- Work with the Georgia State Patrol and local law enforcement to ensure motorists are alerted to smoke hazards on local roadways.
NEW DEVELOPMENT IN THE COUNTY

Site Plan Review
If farm and ranch land is conserved as a mainstay of the County’s rural economy, new development will, by necessity, occur more frequently on forest and wildland areas. The County Planning and Zoning Board Building Inspector will have an opportunity to significantly influence the wildland fire safety of new developments. It is important that new development be planned and constructed to provide for public safety in the event of a wildland fire emergency.

Over the past 20 years, much has been learned about how and why homes burn during wildland fire emergencies. Perhaps most importantly, case histories and research have shown that even in the most severe circumstances, the loss of homes and outbuildings can be avoided. Homes can be designed, built and maintained to withstand a wildfire even in the absence of fire services on the scene. The Firewise Communities program is a national awareness initiative to help people understand that they don’t have to be victims in a wildfire emergency. The National Fire Protection Association has produced two standards for reference: NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2008 Edition and NFPA 1141 Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas.

When new multi-unit subdivisions are built in rural areas (sometimes referred to as the wildland/urban interface), a number of public safety challenges may be created for the local fire services: (1) the water supply in the immediate areas may be inadequate for fire suppression; (2) if the development is in an outlying area, there may be a longer response time for emergency services; (3) in a wildfire emergency, the access road(s) may need to simultaneously support evacuation of residents and the arrival of emergency vehicles; and (4) when wildland fire disasters strike, many structures may be involved simultaneously, quickly exceeding the capability of even the best equipped fire departments.

RECOMMENDATION:
Strengthen the site plan review process for multi-unit residential development in rural areas subject to wildfires.

- Evaluate (assess) the wildfire hazard of proposed new development in rural areas as part of the site plan review process (Resource: GFC Hazard & Wildfire Risk Assessment Scoresheet).
FIRE SERVICES CAPABILITY

Volunteer Fire Departments
Structural fire protection in the county is provided by the Stewart County Volunteer Fire Department and the City of Richmond VFD. The Stewart County Volunteer Fire Departments operates four fire stations, located in the more populated areas of the county. There is, however, no fire station in the vicinity of Wrightsville, in the south end of the county.

Stewart County VFD: Greg Stewart, Fire Chief
Lumpkin Station
Louvale Station
Brooklyn Station
Omaha Station

City of Richland VFD; Eddie Story, Fire Chief

Firefighting equipment and personnel:
Stewart County VFD
Louvale Station – 1 GFC engine
Brooklyn Station – 1 GFC engine
Omaha Station – 1 engine
Lumpkin Station – 2 municipal engines

City of Richland VFD – 1 GFC Type VI engine and 2 municipal engines

Equipment and Training Needed
Countywide Nomex type wildland personal protective equipment (PPE) is not available for use by volunteer firefighters and none of the VFD’s are equipped with fire shelters. Volunteer firefighters have completed the Incident Management Training Courses, I-100 & I-700, however, none of the county’s firefighters have had the basic wildfire training courses (S-130, Standards for Survival and S-130, Basic Wildfire Behavior).

Water Tankers
There are no water tankers (4,000 – 5,000 gallon capacity) in Stewart County to transport sufficient water for a prolonged response to structural fires in remote areas.

Fire Hydrants
Pressurized fire hydrants exist only in the immediate vicinity of the incorporated areas of Omaha, Louvale and Brooklyn. There is no system of dry hydrants in the county.

Geographical Features
The west portion of the county is characterized by hills and steep slopes. Such terrain can be a significant impediment to wildfire response with engines or crawler tractors. In addition, wildfires are typically more dangerous on this terrain (wildfire behavior can be erratic and fires move much faster up steep slopes) making suppression more difficult and more dangerous for firefighters.
### STEWART COUNTY ACTION PLAN

<table>
<thead>
<tr>
<th>Community/Area at Risk</th>
<th>Project</th>
<th>Agency</th>
<th>Funding Needs</th>
<th>Priority</th>
<th>Community Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Communities-at-risk&quot;</td>
<td>Public Safety/</td>
<td>County/GFC</td>
<td>$15,000</td>
<td>High</td>
<td>Implement community fire reduction/improve emergency access/educate homeowners in 3 high priority “communities-at-risk”</td>
</tr>
<tr>
<td>(Omaha, Wrightsville, Rag Town)</td>
<td>Mitigate Wildfire Hazard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Countywide</td>
<td>Firefighter Training</td>
<td>GFC/County</td>
<td>$15,000</td>
<td>High</td>
<td>Two courses for volunteer firefighters: Standards for Survival (S-130) &amp; Wildland Fire Behavior (S-190)</td>
</tr>
<tr>
<td>Countywide</td>
<td>Wildland Fire PPE &amp; Hand Tools</td>
<td>County</td>
<td>$20,000 PPE</td>
<td>High</td>
<td>Personal Protective Equipment &amp; Fire Shelters plus hand tools</td>
</tr>
<tr>
<td>Countywide</td>
<td>Wildfire Prevention Workshop</td>
<td>GFC/County</td>
<td>$1,500</td>
<td>Medium</td>
<td>1 wildfire prevention/Firewise Communities workshop</td>
</tr>
<tr>
<td>Countywide</td>
<td>Dry Hydrants</td>
<td>County</td>
<td>$15,000</td>
<td>Medium</td>
<td>Install 10 dry hydrants in strategic locations of county</td>
</tr>
<tr>
<td>Countywide</td>
<td>(2) 2,500 Gallon Water Tankers</td>
<td>County</td>
<td>$200,000</td>
<td>High</td>
<td>Two water tankers to improve water availability for firefighting in rural areas of the county</td>
</tr>
</tbody>
</table>

**NOTE:** The Action Plan summarizes a recommended course of action for implementation of this Community Wildfire Protection Plan. Some projects can be implemented at little or no added cost, however, the County or assigned agency will be able to implement most projects only if grant funding is available.
GRANT FUNDING AND MITIGATION ASSISTANCE

- Community Protection Grant: U.S.F.S. sponsored prescribed fire program. Communities with "at-risk" properties that lie within three miles of a national forest or Bureau of Land Management tracts may apply with the Georgia Forestry Commission to have their land prescribe burned free-of-charge.

- FEMA Mitigation Policy MRR-2-08-01: through GEMA – Hazard Mitigation Grant Program (HMSP) and Pre-Disaster Mitigation Program (PDM).
  1. To provide technical and financial assistance to local governments to assist in the implementation of long term, cost effective hazard mitigation accomplishments.
  2. This policy addresses wildfire mitigation for the purpose of reducing the threat to all-risk structures through creating defensible space, structural protection through the application of ignition resistant construction and limited hazardous fuel reduction to protect life and property.
  3. With a complete and registered plan (addendum to the State Plan) counties can apply for pre-mitigation funding. They will also be eligible for HMGP funding if the county is declared under a wildfire disaster.

- FEMA – Assistance to Firefighters Grant Program
  1. Assistance to Firefighters Grants (AFG). The purpose of AFG's is to award one-year grants directly to fire departments and emergency medical services (EMS) organizations of a state to enhance their abilities with respect to fire and related hazards.
  2. Fire Prevention and Safety Grants. The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. Emphasis of the program is on prevention of fire-related injuries to children.
  3. Staffing for Adequate Fire and Emergency Response (SAFER). The purpose of SAFER is to award grants directly to volunteer, combination and career fire departments to help the departments increase their cadre of firefighters (enhance their ability for 24-hour response).

- GFC Helping Hands Program. The Georgia Forestry Commission’s Helping Hands program assists rural fire departments and industrial forestry cooperators with the purchasing of personal protective equipment (PPE) for wildland firefighting and related safety items at a reduced price. Applicants serving communities with populations of less than 10,000 may also qualify for "Volunteer Fire Assistance" grants leading to additional cost reductions.
• Georgia Forestry Commission: Plowing and prescribed burning assistance can be obtained from
the GFC as a low-cost option for mitigation efforts.

• Individual Homeowners:
  1. The elimination of hazardous conditions around structures must ultimately be the
     responsibility of the community and the homeowner. They will bear the cost and reap
     the benefit from properly implemented mitigation efforts.
  2. GEMA: Pre-Disaster Mitigation Grant Program

ASSESSMENT OF ACCOMPLISHMENTS

To accurately assess progress and effectiveness of the action plan, Stewart County will implement the
following:

• An annual wildfire risk assessment (of “communities-at-risk”) will be conducted to reassess
  wildfire hazards and prioritize needed actions.

• Mitigation efforts that are recurring (such as mowing, burning or clearing of defensible space)
  will be incorporated into a renewal of the original CWPP action plan.

• Mitigation efforts that could not be funded in the requested year will be incorporated into the
  annual renewal of the original CWPP action plan.

• Continuing education and outreach programs will be conducted and assessed for effectiveness.
  Workshops will be evaluated based upon attendance and post surveys that are distributed by
  mail following the workshops.

• The CWPP Core Committee will continue a year-to-year focus on the wildland/urban interface
  fire challenges in the County. The Committee will annually update this CWPP, summarizing
  mitigation projects initiated and completed, progress for ongoing actions, funds received, funds
  expended and in-kind services utilized. Recommendations will be incorporated into the CWPP
  Action Plan.

• An evaluation of individual mitigation efforts by county residents on their own property (e.g.,
  defensible space).
DEFINITIONS

Community-At-Risk – A group of two or more structures whose proximity to forested or wildland area places homes and residents at some degree of risk.

Critical Facilities – Buildings, structures or other parts of the community infrastructure that require special protection from an approaching wildfire.

CWPP – The Community Wildfire Protection Plan

Defensible Space – The immediate landscaped area around a structure (usually a minimum of 30 ft.) kept “lean, clean and green” to prevent an approaching wildfire from igniting the structure.

Dry Hydrant - A non-pressurized pipe system permanently installed in existing lakes, ponds and streams that provides a suction supply of water to a fire department tank truck.

FEMA – The Federal Emergency Management Agency whose mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

Firewise Communities Program – A national initiative whose purpose is the reduction of structural losses from wildland fires.

Firewise Communities/USA – A national recognition program for communities that take action to protect themselves from wildland fire.

Fuels – All combustible materials within the wildland/urban interface or internix including, but not limited to, vegetation and structures.

Fuel Modification – Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.

Hazard & Wildfire Risk Assessment – An evaluation to determine an area’s (community’s) potential to be impacted by an approaching wildland fire.

Healthy Forests Initiative - Launched in August 2002 by President Bush (following passage of the Healthy Forests Restoration Act by Congress) with the intent to reduce the risks severe wildfires pose to people, communities, and the environment.

Home Ignition Zone (Structure Ignition Zone) - Treatment area for wildfire protection. The “zone” includes the structure(s) and their immediate surroundings from 0-200 ft.

Mitigation – An action that moderates the severity of a fire hazard or risk.
National Fire Plan – National initiative, passed by Congress in the year 2000, following a landmark wildland fire season, with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future.

National Fire Protection Association (NFPA) - An international nonprofit organization established in 1896, whose mission is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education.

Southern Group of State Foresters – Organization whose members are the agency heads of the forestry agencies of the 13 southern states, Puerto Rico and the Virgin Islands.

Stakeholders – Individuals, groups, organizations, businesses or others who have an interest in wildland fire protection and may wish to review and/or contribute to the CWPP content.

Wildfire or Wildland Fire – An unplanned and uncontrolled fire spreading through vegetative fuels.

Wildland/Urban Interface - The presence of structures in locations in which the authority having jurisdiction (AHJ) determines that topographical features, vegetation, fuel types, local weather conditions and prevailing winds result in the potential for ignition of the structures within the area from flames and firebrands from a wildland fire (NFPA 1144, 2008 edition).

Sources of Information

Publications/Brochures/Websites

- FIREWISE Communities materials can be ordered at www.firewise.org
- Examples of successful wildfire mitigation programs can be viewed at the website for National Database of State and Local wildfire Hazard Mitigation Programs sponsored by the U.S. Forest Service and the Southern Group of State Foresters www.wildfireprograms.com
- Information about a variety of interface issues (including wildfire) can be found at the USFS website for Interface South: wwwinterfacesouth.org
- Information on codes and standards for emergency services including wildfire can be found at www.nfpa.org
- Information on FEMA Assistance to Firefighters Grants (AFG) can be found at www.firegrantsupport.com
- Information on National Fire Plan grants can be found at http://www.federalgrantswire.com/national-fire-plan-rural-fire-assistance.html
ATTACHMENTS

1. Wrightsville Wildfire Hazard Assessment Scoresheet
2. Red Hill Wildfire Hazard Assessment Scoresheet
3. Rag Town Wildfire Hazard Assessment Scoresheet
4. Omaha Wildfire Hazard Assessment Scoresheet
5. Georgia Homes and Outbuildings Damaged or Destroyed by Wildfires (1999-2010)
Appendix B- Growth and Development Trends/Community Information

B.1. Stewart County Comprehensive Plan

Purpose

The primary purpose of this report is to lay the foundation for the update of Stewart County’s Comprehensive Plan. In particular, it provides a comprehensive review of the issues and opportunities that will affect the future growth of the community. This analysis is based on an analysis and inventory of existing conditions, land use patterns, public policies, and planned improvements. This report will meet the intent of the “Standards and Procedures for Local Comprehensive Planning” as established by the Georgia Department of Community Affairs (DCA) on May 1, 2005. Preparation of a Comprehensive Plan in accordance with these standards is an essential requirement in maintaining Stewart County’s status as a Qualified Local Government.

Organization:
Section I: Introduction, Purpose, Scope, and Methodology and Schedule

The primary purpose of this report is to lay the foundation for the update of Stewart County’s Comprehensive Plan. In particular, it provides a comprehensive review of the issues and opportunities that will affect the future growth of the community. In its coverage of the four components required by DCA, this report is written in an executive summary-like fashion so that citizens and decision makers can quickly review the essential elements and major findings of this planning effort. Most of the detailed findings of this assessment are included in a “Technical Addendum.” A digital copy of this “Technical Addendum” is provided on compact disc attached to the back of this report.

Section II: Issues and Opportunities: Outline the Issues and Opportunities that Stewart County, Richland, and Lumpkin face.

Section III: Analysis of Existing Development Patterns: Defines and outlines existing patterns.
Existing Land Use: Defines and outlines existing land use
Areas Requiring Special Attention: Outlines specific areas that must be focused on specifically.

Recommended Character Areas: Outlines the character areas.

Location:
The county is approximately 40 miles from the City of Columbus and roughly 13 miles east of the Alabama State Line. According to the U.S. Census Bureau, the county has a total area of 1,200 km² (463 mi²). 1,188 km² (459 mi²) of it is land and 12 km² (5 mi²) of it (0.98%) is water. Adjacent Counties Chattahoochee County (north), Webster County (east), Randolph County (south), Randolph County (southwest), Barbour County, Alabama (west), and Russell County, Alabama (northwest)

Area History:
Stewart County was formed on December 23, 1830; it was named for General Daniel Stewart an officer in the Revolutionary War and War of 1812, and grandfather of President Theodore Roosevelt. The county consists of two cities, Lumpkin and Richland. County total area is 458.7 square miles. The City of Lumpkin, the county seat, was incorporated March 30, 1829. The city was named in honor of Wilson Lumpkin, a two-term governor of Georgia, U.S. Congressman and Senator. He was a leading advocate of state rights and "Indian Removal." The Woodland, Mississippian, and Creek Indians were all once inhabitants of Stewart County. In addition, two of the six largest Indian mounds in Georgia are located in the County. Lumpkin is located in the center of the county. U.S. Highway 280, Georgia State Routes 1,27, and 39 intersect the county. The City of Richland sits on the eastern-most side of the county, on the border with Webster county. The incorporated area is roughly 1500 by 2000 ft.², dragging along Route 27. The courthouse in Stewart County was constructed in 1896 and burned in 1922. The
courthouse was rebuilt in 1923 and is listed on the National Register of Historic Places.

Providence Canyon Conservation Park, located in Lumpkin, is a collection of canyons and gullies. The largest of these is "Grandfather Canyon," which is a half mile long, 300 feet wide and 150 feet deep. The 1,061-acre park also has the largest natural collection of the rare "Plumleaf Azalea" in the world.

Lumpkin is the home of the Bedingfield Inn, which is a two-story inn built in 1835 by Bryan Bedingfield, and today is one of the great house museums in the South. The conservation and revitalization of the inn was one of the first rural preservation successes in Georgia. Also, the Singer Company, the oldest hardware store in Georgia, is located in Lumpkin. The store opened in 1838. Stewart County is a rural county with an agricultural base and is listed a Tier I county in the Governor’s One Georgia Program. The county is approximately 40 miles from the City of Columbus and roughly 13 miles east of the Alabama State Line. Stewart County experiences long, hot, humid summers with relatively mild, short winters. Its annual rainfall is 55 inches with July being its wettest month and October it’s driest. The highest average temperature is 91 degrees in July and the lowest is 45 degrees in January.

B.2. Statistics and Tables from Stewart County Comprehensive Plan

Table 1: Total Population 1980-2000

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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</thead>
<tbody>
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<td>Stewart County</td>
<td>5,896</td>
<td>5,775</td>
<td>5,654</td>
<td>5,453</td>
<td>5,225</td>
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<td>City of Lumpkin</td>
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<td>1,293</td>
<td>1,250</td>
<td>1,310</td>
<td>1,369</td>
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<td>City of Richland</td>
<td>1,802</td>
<td>1,735</td>
<td>1,668</td>
<td>1,731</td>
<td>1,794</td>
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Table 2: Population Projections 2000-2010
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<th></th>
<th>2005</th>
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<th>2008</th>
<th>2009</th>
<th>2010</th>
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<tr>
<td>Stewart County</td>
<td>5,091</td>
<td>5,059</td>
<td>5,027</td>
<td>4,995</td>
<td>4,963</td>
<td>4,930</td>
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<td>City of Lumpkin</td>
<td>1,378</td>
<td>1,380</td>
<td>1,382</td>
<td>1,384</td>
<td>1,385</td>
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<td>City of Richland</td>
<td>1,792</td>
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<td>1,791</td>
<td>1,791</td>
<td>1,790</td>
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Table 3: Percent Population by Age, Stewart county 1980-2025

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<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 0 to 4</td>
<td>7.34%</td>
<td>7.01%</td>
<td>6.65%</td>
<td>6.55%</td>
<td>6.44%</td>
<td>6.17%</td>
<td>5.90%</td>
<td>5.60%</td>
<td>5.27%</td>
<td>4.92%</td>
</tr>
<tr>
<td>Age 5 to 13</td>
<td>16.32%</td>
<td>16.00%</td>
<td>15.65%</td>
<td>14.95%</td>
<td>14.19%</td>
<td>13.57%</td>
<td>12.92%</td>
<td>12.20%</td>
<td>11.46%</td>
<td>10.66%</td>
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<tr>
<td>Age 14 to 17</td>
<td>9.60%</td>
<td>7.36%</td>
<td>5.02%</td>
<td>4.66%</td>
<td>4.27%</td>
<td>2.73%</td>
<td>1.08%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
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<td>Age 18 to 20</td>
<td>7.34%</td>
<td>4.74%</td>
<td>4.14%</td>
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<td>3.90%</td>
<td>3.50%</td>
<td>3.06%</td>
<td>2.58%</td>
<td>2.08%</td>
<td>1.55%</td>
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<td>Age 21 to 24</td>
<td>5.92%</td>
<td>5.99%</td>
<td>6.05%</td>
<td>5.13%</td>
<td>4.13%</td>
<td>3.61%</td>
<td>3.06%</td>
<td>2.47%</td>
<td>1.84%</td>
<td>1.17%</td>
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<tr>
<td>Age 25 to 34</td>
<td>12.30%</td>
<td>13.07%</td>
<td>13.88%</td>
<td>12.86%</td>
<td>11.75%</td>
<td>11.59%</td>
<td>11.42%</td>
<td>11.24%</td>
<td>11.05%</td>
<td>10.84%</td>
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<tr>
<td>Age 30 to 34</td>
<td>8.89%</td>
<td>10.77%</td>
<td>12.73%</td>
<td>13.13%</td>
<td>13.54%</td>
<td>14.89%</td>
<td>16.33%</td>
<td>17.84%</td>
<td>19.49%</td>
<td>21.25%</td>
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<tr>
<td>Age 35 to 44</td>
<td>9.41%</td>
<td>9.47%</td>
<td>9.53%</td>
<td>11.53%</td>
<td>13.67%</td>
<td>14.91%</td>
<td>16.23%</td>
<td>17.61%</td>
<td>19.12%</td>
<td>20.73%</td>
</tr>
<tr>
<td>Age 45 to 54</td>
<td>10.77%</td>
<td>9.96%</td>
<td>9.11%</td>
<td>9.35%</td>
<td>9.60%</td>
<td>9.25%</td>
<td>8.90%</td>
<td>8.51%</td>
<td>8.09%</td>
<td>7.65%</td>
</tr>
<tr>
<td>Age 55 to 64</td>
<td>14.13%</td>
<td>15.65%</td>
<td>17.23%</td>
<td>17.86%</td>
<td>18.53%</td>
<td>19.80%</td>
<td>21.16%</td>
<td>22.60%</td>
<td>24.15%</td>
<td>25.82%</td>
</tr>
<tr>
<td>Age 65 &amp; Over</td>
<td>7.34%</td>
<td>7.01%</td>
<td>6.65%</td>
<td>6.55%</td>
<td>6.44%</td>
<td>6.17%</td>
<td>5.90%</td>
<td>5.60%</td>
<td>5.27%</td>
<td>4.92%</td>
</tr>
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</table>

Table 4: Population by Age, Lumpkin 1980-2020
## City of Lumpkin: Population by Age

<table>
<thead>
<tr>
<th>Category</th>
<th>1980</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>1,335</td>
<td>1,369</td>
<td>1,386</td>
<td>1,403</td>
</tr>
<tr>
<td>0 – 4 Years Old</td>
<td>89</td>
<td>98</td>
<td>103</td>
<td>107</td>
</tr>
<tr>
<td>5 – 13 Years Old</td>
<td>188</td>
<td>224</td>
<td>242</td>
<td>260</td>
</tr>
<tr>
<td>14 – 17 Years Old</td>
<td>131</td>
<td>53</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>18 – 20 Years Old</td>
<td>61</td>
<td>46</td>
<td>39</td>
<td>31</td>
</tr>
<tr>
<td>21 – 24 Years Old</td>
<td>90</td>
<td>55</td>
<td>38</td>
<td>20</td>
</tr>
<tr>
<td>25 – 34 Years Old</td>
<td>132</td>
<td>184</td>
<td>210</td>
<td>236</td>
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<tr>
<td>35 – 44 Years Old</td>
<td>133</td>
<td>191</td>
<td>220</td>
<td>249</td>
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<tr>
<td>45 – 54 Years Old</td>
<td>131</td>
<td>164</td>
<td>181</td>
<td>197</td>
</tr>
<tr>
<td>55 – 64 Years Old</td>
<td>148</td>
<td>128</td>
<td>118</td>
<td>108</td>
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<tr>
<td>65 and over</td>
<td>232</td>
<td>226</td>
<td>223</td>
<td>220</td>
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## Table 5: Population by Age, Richland 1980-2025

### Population by age, City of Richland 1980-2025

<table>
<thead>
<tr>
<th>Category</th>
<th>1980</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>1,802</td>
<td>1,794</td>
<td>1,790</td>
<td>1,786</td>
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<tr>
<td>0 – 4 Years Old</td>
<td>141</td>
<td>126</td>
<td>119</td>
<td>111</td>
</tr>
<tr>
<td>5 – 13 Years Old</td>
<td>290</td>
<td>221</td>
<td>187</td>
<td>152</td>
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<tr>
<td>14 – 17 Years Old</td>
<td>164</td>
<td>85</td>
<td>46</td>
<td>6</td>
</tr>
<tr>
<td>18 – 20 Years Old</td>
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<td>71</td>
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<td>41</td>
</tr>
<tr>
<td>21 – 24 Years Old</td>
<td>96</td>
<td>76</td>
<td>66</td>
<td>56</td>
</tr>
<tr>
<td>Category</td>
<td>2000</td>
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<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Total Population</td>
<td>6,058</td>
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<td>Black or African American alone</td>
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<td>American Indian and Alaska Native alone</td>
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</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>9</td>
<td>9</td>
<td>9</td>
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<tr>
<td>Persons of Hispanic origin</td>
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<td>80</td>
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<tr>
<td>Other Races</td>
<td>49</td>
<td>72</td>
<td>95</td>
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</table>

Source: U.S. Bureau of Census

Race and Ethnic Origin City of Lumpkin 1980-2025
<table>
<thead>
<tr>
<th>Category</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>1,369</td>
<td>1,386</td>
<td>1,403</td>
</tr>
<tr>
<td>White alone</td>
<td>395</td>
<td>353</td>
<td>311</td>
</tr>
<tr>
<td>Black or African American alone</td>
<td>964</td>
<td>1,020</td>
<td>1,075</td>
</tr>
<tr>
<td>Persons of Hispanic origin</td>
<td>9</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>American Indian and Alaska Native alone</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>other race</td>
<td>6</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>
## Table 8
### Race and Ethnic Origin City of Richland 1980-2025

<table>
<thead>
<tr>
<th>Category</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>1,794</td>
<td>1,790</td>
<td>1,786</td>
</tr>
<tr>
<td>White alone</td>
<td>645</td>
<td>587</td>
<td>528</td>
</tr>
<tr>
<td>Black or African American</td>
<td>1,122</td>
<td>1,166</td>
<td>1,209</td>
</tr>
<tr>
<td>alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persons of Hispanic origin</td>
<td>49</td>
<td>62</td>
<td>74</td>
</tr>
<tr>
<td>American Indian and Alaska</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Native alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Other race</td>
<td>25</td>
<td>38</td>
<td>50</td>
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</table>

## Table 9: Average Household Income

### Average Household Income Stewart County, City of Lumpkin and Richland, Georgia 1990 - 2025

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stewart County</td>
<td>$21,499</td>
<td>$43,452</td>
</tr>
<tr>
<td>Lumpkin</td>
<td>$22,599</td>
<td>$38,313</td>
</tr>
<tr>
<td>Richland</td>
<td>$23,148</td>
<td>$39,411</td>
</tr>
<tr>
<td>Georgia</td>
<td>$33,259</td>
<td>$42,158</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of the Census, Lower Chattahoochee RDC Staff, 2005

## Table 10: Per Capita Income

### Per Capita Income Stewart County and the State of Georgia 1980 - 2025

<table>
<thead>
<tr>
<th></th>
<th>1980</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stewart County</td>
<td>$3,507</td>
<td>$16,071</td>
<td>$22,353</td>
<td>$28,635</td>
</tr>
<tr>
<td>Lumpkin</td>
<td>$4,029</td>
<td>$16,146</td>
<td>$22,205</td>
<td>$28,263</td>
</tr>
<tr>
<td>Richland</td>
<td>$3,809</td>
<td>$14,127</td>
<td>$19,286</td>
<td>$24,445</td>
</tr>
<tr>
<td>Georgia</td>
<td>$15,353</td>
<td>$25,433</td>
<td>$28,549</td>
<td>$31,767</td>
</tr>
</tbody>
</table>
B.3. Community Information from the Comprehensive Plan

Stewart County was formed on December 23, 1830; it was named for General Daniel Stewart an officer in the Revolutionary War and War of 1812, and grandfather of President Theodore Roosevelt. The county consists of two cities, Lumpkin and Richland. County total area is 458.7 square miles.

The City of Lumpkin, the county seat, was incorporated March 30, 1829. The city was named in honor of Wilson Lumpkin, a two-term governor of Georgia, U.S. Congressman and Senator. He was a leading advocate of state rights and "Indian Removal." The Woodland, Mississippian, and Creek Indians were all once inhabitants of Stewart County. In addition, two of the six largest Indian mounds in Georgia are located in the County.

Lumpkin is located in the center of the county. U.S. Highway 280, Georgia State Routes 1, 27, and 39 intersect the county. The City of Richland sits on the eastern-most side of the county, on the border with Webster county. The incorporated area is roughly 1500 by 2000 ft.², dragging along Route 27. The courthouse in Stewart County was constructed in 1896 and burned in 1922. The courthouse was rebuilt in 1923 and is listed on the National Register of Historic Places.

Providence Canyon Conservation Park, located in Lumpkin is a collection of canyons and gullies. The largest of these is "Grandfather Canyon," which is a half mile long, 300 feet wide and 150 feet deep. The 1,061-acre park also has the largest natural collection of the rare "Plumleaf Azalea" in the world.

Lumpkin is the home of the Bedingfield Inn, which is a two-story inn built in 1835 by Bryan Bedingfield, and today is one of the great house museums in the South. The conservation and revitalization of the inn was one of the first rural preservation successes in Georgia. Also, the
Singer Company, the oldest hardware store in Georgia, is located in Lumpkin. The store opened in 1838. Stewart County is a rural county with an agricultural base and is listed a Tier I county in the Governor’s One Georgia Program. The county is approximately 40 miles from the City of Columbus and roughly 13 miles east of the Alabama State Line. Stewart County experiences long, hot, humid summers with relatively mild, short winters. Its annual rainfall is 55 inches with July being its wettest month and October it’s driest. The highest average temperature is 91 degrees in July and the lowest is 45 degrees in January.

According to the 2000 census (SF 1), the total population for Stewart County was 6,058, of which 37.1% of the residents were white and 61.5% were black. Hispanics, who can be identified as either white or black in the Census data, made up 1.5% of the county’s population. Statewide, 65.1% of residents were white, 28.7% were black, and 5.3% were Hispanic. In Stewart County, 24.9% of county’s residents were age 18 years or younger and 18.5% were age 65 or older. In 2000, Stewart County had 0.2 physicians and 6.0 Hospital beds per 1,000 population. That is significantly low compared to the states ratio of 1.9 physicians and an average of 3.1 beds per 1,000 population.

The 2005 Georgia Bureau of Investigation Crime Statistics for Stewart County totals 58 for the entire County. Violent crimes totaled 7 and property/non-violent crimes were 51. In 2000, 2697 of the adult population in the county was registered to vote. Of those registered voters, 1950 voted in the 2000 general election. Statewide, in 2000, 64.1% of eligible Georgians were registered to vote. Of those registered, 69.6% voted in the general election that year. In the year 2004, the average weekly wage for all the employment sectors in the county was $426. This amount was less than the statewide average of $622. In Stewart County, 40% of the
population is employed. In 2000, the largest number of jobs were in education, health and social services. Private sector and services are the largest employment sector providing 62.2% of the jobs. The other predominant employment sectors are government and goods-producing.

(http://explorer.dol.state.ga.us/mis/profiles/counties/Stewart.pdf) The largest source of income in both 1990 and 2000 was wages or salary. Retirement income was the second largest source of income in 2000. In 1990, Social Security was the second largest source of income. The top five employers in Stewart County in 1999 were Farmers State Bank, Four County Health Care, Redman Homes, Inc., Singer Hardware Co Inc., and the Stewart Webster Hospital.

As of the latest data found, in 2006, Stewart County’s unemployment rate was higher than the states’ rate, averaging 6.7%. (www.bls.gov/lau/). The state of Georgia averaged an unemployment rate of 4.6% and nationwide the unemployment rate for the same period averaged at 4.6%.

The county per capita personal income in 1999 was $16,071, for Lumpkin it is $16,146 and for Richland it is $14,127, as compared with $27,324 for Georgia, and $28,546 for the United States. Stewart County’s median household income in 1999 was $24,789. This amount was less than the state’s median household income of $42,433. Nationally, the median household income for that same year was $41,994. (Census SF 3)

During 1999, 17.2% of the county’s families lived below the poverty level, compared with Georgia’s rate of 9.9% and the national rate of 9.0%. In addition, 30.4% of the children under the age of 18 lived below the poverty level in Stewart County. Nationally, 16.1% of the population under the age of 18 lived under the poverty level. (US Census DP-3)
According to the 2000 Census reports 12.0% of Stewart County’s households were headed by females with children under 18 years of age, compared to 9.0% statewide. Total households with children under 18 comprised 27.7% of all households in the county and 35.0% of those in the state. Between 1996 and 2000, Stewart County school system reported an average high school dropout rate of 11.4%, for students in grades 9 to 12. Statewide, this rate was 6.8% for the same time period.
**Appendix C- Other Planning Documents**

C.1. Stewart County Local Emergency Operations Plan- PREFACE

This Emergency Operations Plan (EOP) describes the management and coordination of resources and personnel during periods of major emergency. This comprehensive local emergency operations plan is developed to ensure mitigation and preparedness, appropriate response and timely recovery from natural and manmade hazards which may affect residents of Stewart County. This plan supersedes the Emergency Operations Plan dated from old eLEOP. It incorporates guidance from the Georgia Emergency Management Agency (GEMA) as well as lessons learned from disasters and emergencies that have threatened Stewart County. The Plan will be updated at the latest, every four years. The plan:

- Defines emergency response in compliance with the State-mandated Emergency Operations Plan process.
- Establishes emergency response policies that provide Departments and Agencies with guidance for the coordination and direction of municipal plans and procedures.
- Provides a basis for unified training and response exercises.

**The plan consists of the following components:**

- The Basic Plan describes the structure and processes comprising a county approach to incident management designed to integrate the efforts of municipal governments, the private sector, and non-governmental organizations. The Basic Plan includes the: purpose, situation, assumptions, concept of operations, organization, assignment of responsibilities, administration, logistics, planning and operational activities.

- Appendices provide other relevant supporting information, including terms, definitions, and authorities.

- Emergency Support Function Annexes detail the missions, policies, structures, and responsibilities of County agencies for coordinating resource and programmatic support to municipalities during Incidents of Critical Significance.

- Support Annexes prescribe guidance and describe functional processes and administrative requirements necessary to ensure efficient and effective implementation of incident management objectives.
• Incident Annexes address contingency or hazard situations requiring specialized application of the EOP. The Incident Annexes describe the missions, policies, responsibilities, and coordination processes that govern the interaction of public and private entities engaged in incident management and emergency response operations across a spectrum of potential hazards. Due to security precautions and changing nature of their operational procedures, these Annexes, their supporting plans, and operational supplements are published separately.

The following is a summary of the 15 Emergency Support Functions:

1. *Transportation:* Support and assist municipal, county, private sector, and voluntary organizations requiring transportation for an actual or potential Incident of Critical Significance.

2. *Communications:* Ensures the provision of communications support to municipal, county, and private-sector response efforts during an Incident of Critical Significance.

3. *Public Works and Engineering:* Coordinates and organizes the capabilities and resources of the municipal and county governments to facilitate the delivery of services, technical assistance, engineering expertise, construction management, and other support to prevent, prepare for, respond to, and/or recover from an Incident of Critical Significance.

4. *Firefighting:* Enable the detection and suppression of wild-land, rural, and urban fires resulting from, or occurring coincidently with an Incident of Critical Significance.

5. *Emergency Management Services:* Responsible for supporting overall activities of the County Government for County incident management.

6. *Mass Care, Housing and Human Services:* Supports County-wide, municipal, and non-governmental organization efforts to address non-medical mass care, housing, and human services needs of individuals and/or families impacted by Incidents of Critical Significance.

7. *Resource Support:* Supports volunteer services, County agencies, and municipal governments tracking, providing, and/or requiring resource support before, during, and/or after Incidents of Critical Significance.

8. *Public Health and Medical Services:* Provide the mechanism for coordinated County assistance to supplement municipal resources in response to public health and medical care.
needs (to include veterinary and/or animal health issues when appropriate) for potential or actual Incidents of Critical Significance and/or during a developing potential health and medical situation.

9. **Search and Rescue**: Rapidly deploy components of the National US Response System to provide specialized life-saving assistance to municipal authorities during an Incident of Critical Significance.

10. **Hazardous Materials**: Coordinate County support in response to an actual or potential discharge and/or uncontrolled release of oil or hazardous materials during Incidents of Critical Significance.

11. **Agriculture and Natural Resources**: supports County and authorities and other agency efforts to address: Provision of nutrition assistance; control and eradication of an outbreak of a highly contagious or economically devastating animal/zoonotic disease; assurance of food safety and food security and; protection of natural and cultural resources and historic properties.

12. **Energy**: Restore damaged energy systems and components during a potential of actual Incident of Critical Significance.

13. **Public Safety and Security Services**: Integrates County public safety and security capabilities and resources to support the full range of incident management activities associated with potential or actual Incidents of Critical Significance.

14. **Long Term Recovery and Mitigation**: Provides a framework for County Government support to municipal governments, nongovernmental organizations, and the private sector designed to enable community recovery from the long-term consequences of an Incident of Critical Significance.

15. **External Affairs**: Ensures that sufficient County assets are deployed to the field during a potential or actual Incident of Critical Significance to provide accurate, coordinated, and timely information to affected audiences, including governments, media, the private sector and the populace.
Appendix D- Worksheet Used in Planning Process

D.1. Completed GEMA Worksheets

Worksheet #1- Identify the Hazard
Worksheet#2- Profile Hazard Events
Worksheet#3a- Inventory of Assets
Worksheet#3b- Inventory of Assets: see printouts from GEMA
Critical Facility Inventory Map By ITOS
GEMA Worksheet #1 Identify the Hazard

Task A. List the hazards that may occur.

1. Research newspapers and other historical records
2. Review existing plans and reports.
3. Talk to the experts in your community, state, or region.
4. Gather information on Internet Websites.
5. Next to the hazard list below, put a check mark in the Task A boxes beside all hazards that may occur in your community or state.

Date: ____________________
Task ________________

Use this space to record information you find for each of the Hazards you will be researching. Attach additional pages as necessary.

<table>
<thead>
<tr>
<th>Hazard or Event Description</th>
<th>Source of Information</th>
<th>Map Available for this Hazard?</th>
<th>Scale of Map</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalance</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Costal Erosion</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Costal Storm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dam Failure</td>
<td>X  X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drought</td>
<td>X  X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earthquake</td>
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</tr>
<tr>
<td>Expansive Soils</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extreme Heat</td>
<td>X  X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flood</td>
<td>X  X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hailstorm</td>
<td>X  X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hurricane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Slide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe Winter Storm</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tornado</td>
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<tr>
<td>Tsunami</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Volcano</td>
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<tr>
<td>Windstorm</td>
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</tr>
<tr>
<td>Hazard Material</td>
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<td>Radiological</td>
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<tr>
<td>Other_Thundestorm/Winds</td>
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<td></td>
</tr>
<tr>
<td>Other_Civil Disturbance</td>
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</tr>
<tr>
<td>Other_Terrorism</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: **Bolded** hazards are addressed in this How-to Guide.
Hazard or Event Description
141 Events were reported in Stewart County, Georgia between 01/01/1950 and 03/31/2012
(High Wind limited to speed greater than 0 knots);
Mag: Magnitude PrD: Property Damage
Dth: Deaths CrD: Crop Damage
Inj: Injuries

### Drought

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
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<td>1-County</td>
<td>2/1/2000</td>
<td>12:00 AM</td>
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<td>0</td>
<td>0</td>
</tr>
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<td>2-County</td>
<td>4/1/2000</td>
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<td>0</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>306.7 M</td>
</tr>
<tr>
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<td>0</td>
</tr>
<tr>
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<td>10/1/2000</td>
<td>12:00 AM</td>
<td>Drought</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7-County</td>
<td>4/1/2002</td>
<td>12:00 AM</td>
<td>Dry</td>
<td>N/A</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>8-County</td>
<td>8/1/2002</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9-County</td>
<td>3/1/2004</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10-County</td>
<td>05/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
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<td>09/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
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<td>10/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>13-County</td>
<td>11/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
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<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>14-County</td>
<td>12/01/2007</td>
<td>12:00 AM</td>
<td>Drought</td>
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<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>15-County</td>
<td>09/01/2011</td>
<td>12:00 AM</td>
<td>Drought</td>
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<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>16-County</td>
<td>09/01/2011</td>
<td>12:00 AM</td>
<td>Drought</td>
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<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
</tr>
<tr>
<td>17-County</td>
<td>12/1/2011-12/1/2012</td>
<td>12:00 AM</td>
<td>Drought</td>
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<td>0</td>
<td>0</td>
<td>0.00K</td>
<td>0.00K</td>
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</tbody>
</table>

**TOTALS:** 0 0 0 306.720 M

### Tornadoes

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-County</td>
<td>12/5/1954</td>
<td>1440</td>
<td>Tornado</td>
<td>F2</td>
<td>1</td>
<td>20</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>2-County</td>
<td>12/5/1954</td>
<td>1530</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>3-County</td>
<td>12/5/1954</td>
<td>1600</td>
<td>Tornado</td>
<td>F2</td>
<td>0</td>
<td>0</td>
<td>250 K</td>
<td>0</td>
</tr>
<tr>
<td>4-County</td>
<td>4/9/1961</td>
<td>1040</td>
<td>Tornado</td>
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### Tornadoes

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<th>Time</th>
<th>Type</th>
<th>Magnitude</th>
<th>Deaths</th>
<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
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<tr>
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<td>3/18/1981</td>
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**TOTALS:** 1 20 1,225K 5 K

### Floods

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<th>Injuries</th>
<th>Property Damage</th>
<th>Crop Damage</th>
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<tr>
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<td>Flash Flood</td>
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**TOTALS:** 0 0 53 K 8 K

### Hurricane/ Tropical Storm

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<td>Time</td>
<td>Type</td>
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<td>Tstm Winds</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0.5K</td>
<td>OK</td>
</tr>
<tr>
<td>26 Omaha</td>
<td>4/15/1999</td>
<td>6:40 AM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>1K</td>
<td>OK</td>
</tr>
<tr>
<td>27 Louvale</td>
<td>4/15/1999</td>
<td>6:55 AM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>5K</td>
<td>OK</td>
</tr>
<tr>
<td>28 Louvale</td>
<td>5/13/1999</td>
<td>5:15 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>0 OK</td>
<td>OK</td>
</tr>
<tr>
<td>29 Lumpkin</td>
<td>6/14/2000</td>
<td>8:00 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>3K</td>
<td>OK</td>
</tr>
<tr>
<td>Location</td>
<td>Date</td>
<td>Time</td>
<td>Event Type</td>
<td>Wind Speed</td>
<td>Dk</td>
<td>Hail</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>----------</td>
<td>------------------</td>
<td>------------</td>
<td>----</td>
<td>------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>6/25/2000</td>
<td>5:55 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>2K</td>
<td></td>
</tr>
<tr>
<td>Richland</td>
<td>12/16/2000</td>
<td>2:00 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>3K</td>
<td></td>
</tr>
<tr>
<td>Louvale</td>
<td>1/19/2001</td>
<td>12:00 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>1K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>11/25/2001</td>
<td>2:30 AM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>1K</td>
<td></td>
</tr>
<tr>
<td>Troutman</td>
<td>1/19/2002</td>
<td>3:52 PM</td>
<td>Tstm Wind/hail</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>0K</td>
<td></td>
</tr>
<tr>
<td>Omaha</td>
<td>1/19/2002</td>
<td>4:30 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>3K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>5/11/2002</td>
<td>7:35 PM</td>
<td>Tstm Wind</td>
<td>0 kts.</td>
<td>0</td>
<td>0</td>
<td>2K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>7/16/2004</td>
<td>7:39 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>5K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>3/27/2005</td>
<td>1:00 AM</td>
<td>Tstm Wind</td>
<td>57 kts.</td>
<td>0</td>
<td>0</td>
<td>50K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>3/27/2005</td>
<td>6:06 AM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>1K</td>
<td></td>
</tr>
<tr>
<td>Brooklyn</td>
<td>7/6/2005</td>
<td>5:15 PM</td>
<td>Tstm Wind</td>
<td>35 kts.</td>
<td>0</td>
<td>0</td>
<td>1K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>5/10/2006</td>
<td>5:22 PM</td>
<td>Tstm Wind</td>
<td>39 kts.</td>
<td>0</td>
<td>0</td>
<td>1K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>3/1/2007</td>
<td>3:55 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>1K</td>
<td></td>
</tr>
<tr>
<td>Richland</td>
<td>8/17/2007</td>
<td>6:30 PM</td>
<td>Tstm Wind</td>
<td>52 kts.</td>
<td>0</td>
<td>0</td>
<td>5K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>3/28/2009</td>
<td>8:30 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>2K</td>
<td></td>
</tr>
<tr>
<td>Omaha</td>
<td>4/13/2009</td>
<td>6:00 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>2K</td>
<td></td>
</tr>
<tr>
<td>Beatrice</td>
<td>3/26/2011</td>
<td>6:58 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>2K</td>
<td></td>
</tr>
<tr>
<td>Florence</td>
<td>4/4/2011</td>
<td>11:22 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>5K</td>
<td></td>
</tr>
<tr>
<td>Lumpkin</td>
<td>6/14/2012</td>
<td>4:22 PM</td>
<td>Tstm Wind</td>
<td>50 kts.</td>
<td>0</td>
<td>0</td>
<td>1.5K</td>
<td></td>
</tr>
</tbody>
</table>

**Totals:** 0 0 104K 0K

*Source: [http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms](http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms)*

*Note: The Storm Events Database Contains data from the following sources:*
- All weather events from 1993-1997, as entered into Storm Data
- All weather events from 1996-current, as entered into Storm Data
- Plus Additional Data from Storm Prediction center, Including Tornadoes, Thunderstorm Winds, Hail*
GEMA Worksheet #2  Profile Hazard Events  Step 2

County:  Date:

How Bad Can It Get?

Task A. Obtain or create a base map.

GEMA will be providing you with a base map, USGS topos and DOQQ as part of our deliverables to local government for the planning process. Additionally, we will be providing you with detailed hazard layer coverages. These data layers originate from state or nationwide coverage or datasets. Therefore, it is important for local government to assess what you already have at the local level. It is important for you at the local level to have an idea of what existing maps you have available for the planning process. Some important things to think about:

What maps do we already have in the county that would be relevant to the planning process? Have other local plans used maps or mapping technology where there is specific data that is also needed in my local plan?
What digital maps do we have?
Do we have any Geographic Information System (GIS) data, map themes or layers or databases here at the local level (or regional) that we can use?
If we do have any GIS data, where is it located at, and who is our local expert?
Are there any ongoing GIS or mapping initiatives at the local level in other planning or mapping efforts? If so, what are they, and what are the timetables for completion?
Are there mapping needs that have been identified at the local level in the past? If so, what are they and when were they identified?
Of the existing maps, GIS data and other digital mapping information, what confidence do we have at the local level that it is accurate data?
Please answer the above questions on a separate sheet of paper and attach to this worksheet.

It is important to realize that those counties that already have GIS and digital mapping, (ie: parcel level data, GPS fire hydrants, etc) higher levels of spatial accuracy and detail will exist for some data layers at the local level. However, for this planning process, that level of detail will not be needed on all layers in the overall mapping and analysis.

You can use existing maps from:

- Road Maps
- USGS topographic maps or Digital Orthophoto Quarter Quads (DOQQ)
- Topographic and/or planimetric maps from other agencies
- Aerial topographic and/or planimetric maps
- Field Surveys
- GIS software CADD software Digitized paper map

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Avalanche</strong></td>
</tr>
<tr>
<td>Coastal Storm / Coastal Erosion</td>
</tr>
<tr>
<td>Get a copy of your FIRM. _____________</td>
</tr>
<tr>
<td>Verify that the FIRM is up-to-date and complete.</td>
</tr>
<tr>
<td>Determine the annual rate of coastal erosion.</td>
</tr>
<tr>
<td>Find your design wind speed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer the boundaries of your coastal storm hazard areas onto your base map.</td>
</tr>
<tr>
<td>Transfer the BFEs onto your base map.</td>
</tr>
<tr>
<td>Record the erosion rates on your base map: ____________</td>
</tr>
<tr>
<td>Record the design wind speed here and on your base map: ____________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dam Failure</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record your PGA: ____________</td>
</tr>
<tr>
<td>If you have more than one PGA print, download or order your PGA map.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drought</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record your PGA: ____________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Earthquake</strong></td>
</tr>
<tr>
<td>Locate your planning area on the map.</td>
</tr>
<tr>
<td>Determine your PGA.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record your PGA: ____________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expansive Soils</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record your PGA: ____________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extreme Heat</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record your PGA: ____________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flood</strong></td>
</tr>
<tr>
<td>Get a copy of your FIRM. _____________</td>
</tr>
<tr>
<td>Verify the FIRM is up-to-date and complete.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer the boundaries from your firm onto your base map (floodway, 100-yr flood, 500-yr flood).</td>
</tr>
<tr>
<td>Transfer the BFEs onto your base map.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hailstorm</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark the areas susceptible to landslides onto your base map.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hurricane</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark the areas susceptible to landslides onto your base map.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land Subsidence</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark the areas susceptible to landslides onto your base map.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task B. Obtain a hazard event profile.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Landslide</strong></td>
</tr>
<tr>
<td>Map location of previous landslides.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task C. Record your hazard event profile information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark the areas susceptible to landslides onto your base map.</td>
</tr>
<tr>
<td>Map the topography.</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Map the geology.</td>
</tr>
<tr>
<td>Identify thee high-hazard areas on your map.</td>
</tr>
</tbody>
</table>

**Severe Winter Storm**

**Tornado**
1. Find your design wind speed.
   ____________________________

   Record your design wind speed: ________
2. If you have more than one design wind speed, print, download or copy your design wind speed zones, copy the boundary of your design wind speed zones on your base map, then record the design wind speed zones on your base map.

**Tsunami**

**Wildfire**
Map the fuel models located within the urban-wildland interface areas. ________________
Map the topography. ________________
Determine your critical fire weather frequency. ________________________
Determine your fire hazard severity. __________

**Other**
Map the hazard. __________________________

Draw the boundaries of your wildfire hazard areas onto your base map.

Record hazard event info on your base map.
GEMA Worksheet #3a  Inventory of Assets


Stewart County

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Type of Structure (Occupancy Class)</th>
<th># in Community or State</th>
<th># in Hazard Area</th>
<th>% in Hazard Area</th>
<th>$ in Community or State</th>
<th>$ in Hazard Area</th>
<th>% in Hazard Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>1300</td>
<td>1300</td>
<td>100.000%</td>
<td>$20,547,027</td>
<td>$20,547,027</td>
<td>100.000%</td>
</tr>
<tr>
<td>Commercial</td>
<td>56</td>
<td>56</td>
<td>100.000%</td>
<td>$40,393,900</td>
<td>$40,393,900</td>
<td>100.000%</td>
</tr>
<tr>
<td>Industrial</td>
<td>2</td>
<td>2</td>
<td>100.000%</td>
<td>$227,855</td>
<td>$227,855</td>
<td>100.000%</td>
</tr>
<tr>
<td>Agricultural</td>
<td>1023</td>
<td>1023</td>
<td>100.000%</td>
<td>$17,409,300</td>
<td>$17,409,300</td>
<td>100.000%</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>54</td>
<td>54</td>
<td>100.000%</td>
<td>$2,958,497</td>
<td>$2,958,497</td>
<td>100.000%</td>
</tr>
<tr>
<td>Government</td>
<td>17</td>
<td>17</td>
<td>100.000%</td>
<td>$3,338,983</td>
<td>$3,338,983</td>
<td>100.000%</td>
</tr>
<tr>
<td>Education</td>
<td>4</td>
<td>4</td>
<td>100.000%</td>
<td>$10,295,494</td>
<td>$10,295,494</td>
<td>100.000%</td>
</tr>
<tr>
<td>Utilities</td>
<td>8</td>
<td>8</td>
<td>100.000%</td>
<td>$16,962,728</td>
<td>$16,962,728</td>
<td>100.000%</td>
</tr>
<tr>
<td>Total</td>
<td>2464</td>
<td>2464</td>
<td>100.000%</td>
<td>$112,133,784</td>
<td>$112,133,784</td>
<td>100.000%</td>
</tr>
</tbody>
</table>

Task B. Determine whether (and where) you want to collect additional inventory data.

<table>
<thead>
<tr>
<th>Question</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know where the greatest damages may occur in your area?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
GEMA Worksheet #3a  Inventory of Assets


City of Lumpkin

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Type of Structure (Occupancy Class)</th>
<th># in Community or State</th>
<th># in Hazard Area</th>
<th>% in Hazard Area</th>
<th>$ in Community or State</th>
<th>$ in Hazard Area</th>
<th>% in Hazard Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>744</td>
<td>744</td>
<td>100.00%</td>
<td>$14,756,992</td>
<td>$14,756,992</td>
<td>100.00%</td>
</tr>
<tr>
<td>Commercial</td>
<td>118</td>
<td>118</td>
<td>100.00%</td>
<td>$2,554,240</td>
<td>$2,554,240</td>
<td>100.00%</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>$0</td>
<td>$0</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>$0</td>
<td>$0</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>18</td>
<td>18</td>
<td>100.00%</td>
<td>$2,045,685</td>
<td>$2,045,685</td>
<td>100.00%</td>
</tr>
<tr>
<td>Government</td>
<td>15</td>
<td>15</td>
<td>100.00%</td>
<td>$2,774,764</td>
<td>$2,774,764</td>
<td>100.00%</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>1</td>
<td>100.00%</td>
<td>$501,118</td>
<td>$501,118</td>
<td>100.00%</td>
</tr>
<tr>
<td>Utilities</td>
<td>5</td>
<td>5</td>
<td>100.00%</td>
<td>$1,453,965</td>
<td>$1,453,965</td>
<td>100.00%</td>
</tr>
<tr>
<td>Total</td>
<td>901</td>
<td>901</td>
<td>100.00%</td>
<td>$24,086,764</td>
<td>$24,086,764</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Task B. Determine whether (and where) you want to collect additional inventory data.

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know where the greatest damages may occur in your area?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7. Is additional data needed to justify the expenditure of community or state funds for</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
GEMA Worksheet #3a Inventory of Assets


City of Richland

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Richland</th>
<th>Number of Structures</th>
<th>Value of Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># in Community or State</td>
<td># in Hazard Area</td>
</tr>
<tr>
<td>Residential</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Commercial</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Industrial</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Agricultural</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Government</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Education</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Utilities</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>1306</td>
<td>1306</td>
</tr>
</tbody>
</table>

Task B. Determine whether (and where) you want to collect additional inventory data.

<table>
<thead>
<tr>
<th>1. Do you know where the greatest damages may occur in your area?</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?  X

7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?  X

GEMA Worksheet #3a  Inventory of Assets

Hazard: Flood

Stewart County

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Stewart County</th>
<th>Number of Structures</th>
<th>Value of Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># in Community or State</td>
<td># in Hazard Area</td>
</tr>
<tr>
<td>Residential</td>
<td>1300</td>
<td>1300</td>
</tr>
<tr>
<td>Commercial</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Industrial</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Agricultural</td>
<td>1023</td>
<td>1023</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Government</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Education</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Utilities</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>2464</td>
<td>2464</td>
</tr>
</tbody>
</table>

Task B. Determine whether (and where) you want to collect additional inventory data.

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know where the greatest damages may occur in your area?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5. Is there enough data to determine whether certain areas of historic, environmental,</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
political, or cultural significance are vulnerable to potential hazards?

6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence? X

7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives? X

GEMA Worksheet #3a

Inventory of Assets

Hazard: Flood

City of Lumpkin

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Type of Structure (Occupancy Class)</th>
<th># in Community or State</th>
<th># in Hazard Area</th>
<th>% in Hazard Area</th>
<th>$ in Community or State</th>
<th>$ in Hazard Area</th>
<th>% in Hazard Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>744</td>
<td>744</td>
<td>100.000%</td>
<td>$14,756,992</td>
<td>$14,756,992</td>
<td>100.000%</td>
</tr>
<tr>
<td>Commercial</td>
<td>118</td>
<td>118</td>
<td>100.000%</td>
<td>$2,554,240</td>
<td>$2,554,240</td>
<td>100.000%</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>#DIV/0!</td>
<td>$0</td>
<td>#DIV/0!</td>
<td>$0</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>#DIV/0!</td>
<td>$0</td>
<td>#DIV/0!</td>
<td>$0</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>18</td>
<td>18</td>
<td>100.000%</td>
<td>$2,045,685</td>
<td>$2,045,685</td>
<td>100.000%</td>
</tr>
<tr>
<td>Government</td>
<td>15</td>
<td>15</td>
<td>100.000%</td>
<td>$2,774,764</td>
<td>$2,774,764</td>
<td>100.000%</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>1</td>
<td>100.000%</td>
<td>$501,118</td>
<td>$501,118</td>
<td>100.000%</td>
</tr>
<tr>
<td>Utilities</td>
<td>5</td>
<td>5</td>
<td>100.000%</td>
<td>$1,453,965</td>
<td>$1,453,965</td>
<td>100.000%</td>
</tr>
<tr>
<td>Total</td>
<td>901</td>
<td>901</td>
<td>100.000%</td>
<td>$24,086,764</td>
<td>$24,086,764</td>
<td>100.000%</td>
</tr>
</tbody>
</table>

Task B. Determine whether (and where) you want to collect additional inventory data.

<table>
<thead>
<tr>
<th>1. Do you know where the greatest damages may occur in your area?</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>4. Is there enough data to determine whether significant elements of the community are</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>
vulnerable to potential hazards?

5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? X

6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence? X

7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives? X

---

**GEMA Worksheet #3a Inventory of Assets**

**Hazard: Flood**
City of Richland

**Task A.** Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Type of Structure (Occupancy Class)</th>
<th>Number of Structures</th>
<th>Value of Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># in Community or State</td>
<td># in Hazard Area</td>
</tr>
<tr>
<td>Residential</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Commercial</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Industrial</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Agricultural</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Government</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Education</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Utilities</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>1306</td>
<td>1306</td>
</tr>
</tbody>
</table>

**Task B.** Determine whether (and where) you want to collect additional inventory data.

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know where the greatest damages may occur in your area?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?  

5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?  

6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?  

7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?  

---

**GEMA Worksheet #3a**  
**Inventory of Assets**

**Hazard:** Wildfire

**Stewart County**

**Task A.** Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Stewart County</th>
<th>Number of Structures</th>
<th>Value of Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># in Community or State</td>
<td># in Hazard Area</td>
</tr>
<tr>
<td>Residential</td>
<td>1300</td>
<td>1300</td>
</tr>
<tr>
<td>Commercial</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Industrial</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Agricultural</td>
<td>1023</td>
<td>1023</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Government</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Education</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Utilities</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>2464</td>
<td>2464</td>
</tr>
</tbody>
</table>

**Task B.** Determine whether (and where) you want to collect additional inventory data.

1. Do you know where the greatest damages may occur in your area?  

2. Do you know whether your critical facilities will be operational after a hazard event?  

3. Is there enough data to determine which assets are subject to the greatest potential damages?  

---

D18
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?  

5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?  

6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?  

7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?  

GEMA Worksheet #3a  

Inventory of Assets  

Hazard: Wildfire  

City of Lumpkin  

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.  

<table>
<thead>
<tr>
<th>Type of Structure (Occupancy Class)</th>
<th>Number of Structures</th>
<th>Value of Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># in Community or State</td>
<td># in Hazard Area</td>
</tr>
<tr>
<td>Residential</td>
<td>744</td>
<td>744</td>
</tr>
<tr>
<td>Commercial</td>
<td>118</td>
<td>118</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Government</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Utilities</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>901</td>
<td>901</td>
</tr>
</tbody>
</table>

Task B. Determine whether (and where) you want to collect additional inventory data.  

<table>
<thead>
<tr>
<th>1. Do you know where the greatest damages may occur in your area?</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards? X

5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? X

6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence? X

7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives? X

GEMA Worksheet #3a Inventory of Assets

Hazard: Wildfire

City of Richland

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

<table>
<thead>
<tr>
<th>Richland</th>
<th>Number of Structures</th>
<th>Value of Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># in Community or State</td>
<td># in Hazard Area</td>
</tr>
<tr>
<td>Residential</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Commercial</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Industrial</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Agricultural</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Religious/Non-profit</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Government</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Education</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Utilities</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>1306</td>
<td>1306</td>
</tr>
</tbody>
</table>
Task B. Determine whether (and where) you want to collect additional inventory data.

<table>
<thead>
<tr>
<th>Question</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know where the greatest damages may occur in your area?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2. Do you know whether your critical facilities will be operational after a hazard event?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3. Is there enough data to determine which assets are subject to the greatest potential damages?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Worksheet #3b - Inventory of Assets: printouts from GEMA Critical Facility Inventory Map

Reporting for Wind Hazard Countywide in Stewart County
All Hazard Scores Greater Than Zero

Reporting Wind Hazard By Jurisdiction
Grouped by Hazard Score
The Wind Hazard Scores are based on the 2000 International Building Code, figure 1609 contours showing 3 second gust wind speeds with a 50 year return interval. The Northwest portion of the state scored an additional point for the 250 mph community tornado shelter design zone according to FEMA publications.

<table>
<thead>
<tr>
<th>Score</th>
<th>Original Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>&gt; 120 mph</td>
<td>3 second gust greater than 120 mph</td>
</tr>
<tr>
<td>4</td>
<td>110 to 119 mph</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>100 to 109 mph</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>90 to 99 mph (or ZONE IV)</td>
<td>This score is also given to an area with Zone IV of the &quot;Design Wind Speed Map for Community Shelters,&quot; representing an area exposed to 250 mph winds. This area is the Northwestern corner of the state.</td>
</tr>
<tr>
<td>1</td>
<td>&lt; 90 mph</td>
<td></td>
</tr>
</tbody>
</table>
**Reporting for Wind Hazard Countywide**

**All Hazard Scores Greater than Zero**

**NOTE:** Only completed facilities will be reported

<table>
<thead>
<tr>
<th>Government Jurisdiction</th>
<th>Type</th>
<th>Name or Structure Description</th>
<th>Essential Facility</th>
<th>Transportation System</th>
<th>Lifeline System</th>
<th>High Potential Loss</th>
<th>Haz Mat Facility</th>
<th>Important Facility</th>
<th>Vulnerable Population</th>
<th>Economic Assets</th>
<th>Special Considerations</th>
<th>Historic Considerations</th>
<th>Size of Bldg. (sq. ft.)</th>
<th>Replace Value ($)</th>
<th>Replace Value Year</th>
<th>Contents Value ($)</th>
<th>Contents Value Year</th>
<th>Functional Value ($)</th>
<th>Displace Cost ($ per day)</th>
<th>Occupancy</th>
<th>Hazard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stewart County</td>
<td>Courthouse</td>
<td>Stewart County Courthouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15920</td>
<td>1,592,000</td>
<td>2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Richland city</td>
<td>City Hall</td>
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### Reporting for Wind Hazard Countywide

**All Hazard Scores Greater than Zero**

#### NOTE:

Only completed facilities will be reported.

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## Reporting for Wind Hazard Countywide
### All Hazard Scores Greater than Zero

**NOTE:** Only completed facilities will be reported

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## Reporting for Wind Hazard Countywide
### All Hazard Scores Greater than Zero

**NOTE:** Only completed facilities will be reported.

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| Grand Totals | 720,570 | $66,778,560 | $2,024,100 | $0 | $371,826 | 300 |

- Pre-Disaster Mitigation
- Fiscal Year: 2009
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA
**Reporting for Wind Hazard by Jurisdiction Grouped by Hazard Score**

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## Reporting for Wind Hazard Countywide
### All Hazard Scores Greater than Zero

**NOTE:** Only completed facilities will be reported.

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<th>Contents Value ($)</th>
<th>Contents Value Year</th>
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## Reporting for Wind Hazard Countywide
### All Hazard Scores Greater than Zero

**NOTE:** Only completed facilities will be reported.

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### Reporting for Wind Hazard Countywide

**All Hazard Scores Greater than Zero**

**NOTE:** Only completed facilities will be reported

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<th>Type</th>
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<th>Size of Bldg. (sq. ft.)</th>
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<th>Replace Value Year</th>
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<th>Contents Value Year</th>
<th>Functional Value ($)</th>
<th>Displace Cost ($ per day)</th>
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**Totals for Stewart County, Hazard Score = 2**

| Grand Totals | 720,570 | $66,778,560 | $2,024,100 | $0 | $371,826 | 300 |

- Pre-Disaster Mitigation
- Fiscal Year: 2009
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA
Worksheet #3b - Inventory of Assets: printouts from GEMA Critical Facility Inventory Map

Reporting for Flood Hazard Countywide in Stewart County
All Hazard Scores Greater Than Zero

Reporting Flood Hazard By Jurisdiction
Grouped by Hazard Score

Flood Hazard Scores

The flood hazard scores are derived from the FEMA Q3 “Zone” values. The Q3 layer is derived from the FEMA paper flood insurance rate maps. Although the resolution is 1:24,000, which has an allowable error of 40 feet, FEMA recommends using 250 feet as the potential error. This layer cannot be used for a legal flood determination.

### Reporting for Flood Hazard Countywide
All Hazard Scores Greater than Zero

**NOTE:** Only completed facilities will be reported

<table>
<thead>
<tr>
<th>Government Jurisdiction</th>
<th>Type</th>
<th>Name or Structure Description</th>
<th>Size of Bldg. (sq. ft.)</th>
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# Reporting for Flood Hazard Countywide

**All Hazard Scores Greater than Zero**

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<td>Stewart County Other</td>
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- Pre-Disaster Mitigation
- Fiscal Year: 2009
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA

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## Reporting for Flood Hazard by Jurisdiction

**Grouped by Hazard Score**

**NOTE:** Only completed facilities will be reported

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## Reporting for Flood Hazard by Jurisdiction
### Grouped by Hazard Score

**NOTE:** Only completed facilities will be reported

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### Reporting for Flood Hazard by Jurisdiction

**Grouped by Hazard Score**

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### Reporting for Flood Hazard by Jurisdiction
**Grouped by Hazard Score**

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- Pre-Disaster Mitigation
- Fiscal Year: 2009
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA
Worksheet #3b - Inventory of Assets: printouts from GEMA Critical Facility Inventory Map

Reporting for Wildfire Hazard Countywide in Stewart County
All Hazard Scores Greater Than Zero

Reporting Wildfire Hazard By Jurisdiction
Grouped by Hazard Score

Wildfire Risk Scores

The Wildfire Risk Layer was based on the USDA Forest Service, RMRS Fire Sciences Laboratory “Wildland Fire Risk to Flammable Structures, V 1.0” map. Although this data was not intended for use at a detail greater than state-wide analysis, it has been included as the best available data on wildfire risk. The scores are based on the risk value from the original layer. The horizontal positional accuracy is unknown for this layer.

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**Reporting for Wildfire Hazard Countywide**  
**All Hazard Scores Greater than Zero**

**NOTE:** Only completed facilities will be reported

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D38
### Reporting for Wildfire Hazard Countywide

#### All Hazard Scores Greater than Zero

**NOTE:** Only completed facilities will be reported.

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### Reporting for Wildfire Hazard Countywide

**All Hazard Scores Greater than Zero**

**NOTE:** Only completed facilities will be reported

| Government Jurisdiction | Type          | Name or Structure Description                  | Essential Facility | Transportation System | Lifeline System | High Potential Loss | Haz Mat Facility | Important Facility | Vulnerable Population | Economic Assets | Special Considerations | Historic Considerations | Other | Size of Bldg. (sq. ft.) | Replace Value ($) | Replace Value Year | Contents Value ($) | Contents Value Year | Functional Value ($) | Displace Cost ($ per day) | Occupancy | Hazard Score |
|-------------------------|---------------|------------------------------------------------|-------------------|-----------------------|-----------------|-------------------|-----------------|-------------------|-----------------------|-----------------|------------------------|------------------------|-------|---------------------|------------------|---------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Lumpkin city            | Other         | Farmers State Bank-Lumpkin                       |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 4326                | $432,600          | 2013                |                 |                     |                    | 1                   |
| Stewart County          | County Jail   | Stewart Detention Facility                      |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 22000               | $22,000,000       | 2013                |                 |                     |                    | 1                   |
| Stewart County          | Water System  | Omaha water system                              |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 50000               | $58,800           | 2013                |                 |                     |                    | 1                   |
| Lumpkin city            | Fire Station  | Lumpkin Fire Department/EMS                     |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 4400                | $440,000          | 2013                |                 |                     |                    | 1                   |
| Lumpkin city            | City Hall     | Lumpkin City Hall                               |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 3312                | $331,200          | 2013                |                 |                     |                    | 1                   |
| Stewart County          | Water System  | brooklyn well # 1                                |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 250                 | $640,000          | 2013                | $490,600         | 2,007               |                     | 1                   |
| Stewart County          | Water System  | "Brooklyn well # 2"                              |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 250                 | $600,000          | 2013                |                 |                     |                    | 1                   |
| Stewart County          | Water System  | Brooklyn well # 3                                |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 250                 | $500,000          | 2013                | $148,000         | 2,007               |                     | 1                   |
| Stewart County          | Water System  | Randall's Crossing Well                          |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 600                 | $10,000           | 2013                | $600,000         | 2,007               |                     | 1                   |
| Stewart County          | Transfer Station | City of Lumpkin Natural Gas System |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 300                 | $1,000            | 2013                | $225,000         |                     |                     | 1                   |
| Lumpkin city            | Water System  | City of Lumpkin Florence St. Tank               |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 1535                | $132,960          | 2013                |                 |                     |                    | 1                   |
| Lumpkin city            | Water System  | City of Lumpkin                                  |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 500                 | $2,000            | 2013                | $225,000         |                     |                     | 1                   |
| Totals for Stewart County |                |                                                  |                   |                       |                 |                   |                 |                   |                       |                 |                        |                        |       | 689,326             | $64,168,560       | 2013                | $2,024,100       |                     |                    |                     | 300                |                     | 1                   |
### Reporting for Wildfire Hazard Countywide
#### All Hazard Scores Greater than Zero

**NOTE:** Only completed facilities will be reported

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- Pre-Disaster Mitigation
- Fiscal Year: 2009
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA
## Reporting for Wildfire Hazard by Jurisdiction
### Grouped by Hazard Score

**NOTE:** Only completed facilities will be reported

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## Reporting for Wildfire Hazard by Jurisdiction
### Grouped by Hazard Score

**NOTE:** Only completed facilities will be reported

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### Reporting for Wildfire Hazard by Jurisdiction
#### Grouped by Hazard Score

**NOTE:** Only completed facilities will be reported

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## Reporting for Wildfire Hazard by Jurisdiction
### Grouped by Hazard Score

**NOTE:** Only completed facilities will be reported

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<th>Government Jurisdiction</th>
<th>Type</th>
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<th>Size of Bldg. (sq. ft.)</th>
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<th>Replace Value Year</th>
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- Pre-Disaster Mitigation
- Fiscal Year: 2009
- For more information call Pre-Disaster Mitigation at 1-800-TRY-GEMA
### Worksheet #4  Evaluate Alternative Mitigation Actions

#### Goal #1: Protect the public health and safety

#### Objective 1: Provide educational programs and activities for the community to promote severe weather awareness

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<th>T (Technical)</th>
<th>A (Administrative)</th>
<th>P (Political)</th>
<th>L (Legal)</th>
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<td>+</td>
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</tr>
<tr>
<td>Cost of Action</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
<tr>
<td>Consistent with Community Goals</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
<tr>
<td>Consistent with Federal Laws</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Continue scheduling training classes for the volunteer fire fighters through GA Public Safety Training Center (GPSTC)

Utilize the Stewart County "Commissioner Times" to disseminate hazard mitigation information to the general public

D46
| Utilize the Stewart County Website to disseminate hazard mitigation information to the general public | + | + | + | N/A | + | + | + | N/A | + | N/A | + | + | N/A | N/A | N/A | N/A | + | + |
| Utilize public information outlets such as newspapers to disseminate hazard mitigation information to the general public by providing the media with information | + | + | + | N/A | + | + | + | N/A | + | N/A | + | + | + | N/A | N/A | N/A | + | + |
| Provide public with hazard mitigation information through severe weather awareness forms displayed in Courthouse and other public places | + | + | + | N/A | + | + | + | + | N/A | + | N/A | + | + | + | N/A | N/A | N/A | + | + |
Worksheet #4  Evaluate Alternative Mitigation Actions

Goal #2: Institutionalize mitigation

Objective 1: Improve the comprehensive mitigation strategy

<table>
<thead>
<tr>
<th>STAPLEE Criteria</th>
<th>S (Social)</th>
<th>T (Technical)</th>
<th>A (Administrative)</th>
<th>P (Political)</th>
<th>L (Legal)</th>
<th>E (Economic)</th>
<th>E (Environmental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish a May/June date for formal annual review of mitigation strategy implementation</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
<tr>
<td>Update Local Emergency Operations Plan (LEOP) for Stewart County</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Worksheet #4  Evaluate Alternative Mitigation Actions

Goal #2:  Institutionalize mitigation

Objective 2: Prevent losses of vital public records

<table>
<thead>
<tr>
<th>STAPLEE Criteria</th>
<th>S (Social)</th>
<th>T (Technical)</th>
<th>A (Administrative)</th>
<th>P (Political)</th>
<th>L (Legal)</th>
<th>E (Economic)</th>
<th>E (Environmental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local government and constitutional officers adopt policy of (1) duplicating existing, essential records, (2) duplicating essential records annually thereafter, and (3) designating a secure, off-site depository for essential public records</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>+</td>
<td>+</td>
</tr>
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</table>

D50
Worksheet #4  Evaluate Alternative Mitigation Actions

<table>
<thead>
<tr>
<th>STAPLEE Criteria</th>
<th>S (Social)</th>
<th>T (Technical)</th>
<th>A (Administrative)</th>
<th>P (Political)</th>
<th>L (Legal)</th>
<th>E (Economic)</th>
<th>E (Environmental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue good communication and coordination between emergency services</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Maintain good working relationship with surrounding counties and their emergency services</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Goal #2: Institutionalize mitigation
Objective 3: Increase coordination between local public departments and between the public and private sectors in pre-disaster planning.
| Advise Anderson Construction and Graham Timber about fire plans for their businesses | N/A | N/A | + | + | N/A | + | N/A | N/A | + | + | N/A | N/A | N/A | + | + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | |
**Worksheet #4   Evaluate Alternative Mitigation Actions**

**Goal #3:** Provide immediate warning to the public in the event of severe weather or onset of a natural hazard  

**Objective 1:** Inform public in advance through public warnings  

<table>
<thead>
<tr>
<th>STAPLEE Criteria</th>
<th>S (Social)</th>
<th>T (Technical)</th>
<th>A (Administrative)</th>
<th>P (Political)</th>
<th>L (Legal)</th>
<th>E (Economic)</th>
<th>E (Environmental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct monthly tests of the outdoor emergency warning siren system located in Lumpkin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
<tr>
<td>Through a grant, acquire a second weather siren for the part of the county with the majority of the population, and later a third siren for the remainder of the county</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
<tr>
<td>Monitor for and participate in the weekly test of the NOAA tone alert radio</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Worksheet #4  Evaluate Alternative Mitigation Actions

Goal #4: Respond effectively to and recover from severe weather events________________

Objective 1: Coordinate training for members of the Counties EMA office on natural hazards________________

<table>
<thead>
<tr>
<th>Considerations for Alternative Actions</th>
<th>STAPLEE Criteria</th>
<th>S (Social)</th>
<th>T (Technical)</th>
<th>A (Administrative)</th>
<th>P (Political)</th>
<th>L (Legal)</th>
<th>E (Economic)</th>
<th>E (Environmental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify funding sources in order to send members of Stewart Co. EMA to training classes</td>
<td>N/A + + + N/A + + + N/A + N/A + N/A + + + N/A + N/A + N/A + + + N/A + +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promote participation in the National Weather Services yearly tornado drill in critical facilities (School campus, Senior Center, DFCS)</td>
<td>+ + + + N/A + + + N/A + N/A + N/A + + + N/A + N/A + N/A + + + N/A + +</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Consistently with Federal Laws

D55
<table>
<thead>
<tr>
<th>Task</th>
<th>Month</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support the fire drills in the critical facilities (Schools monthly, Senior Center annually, Bagby State Park annually, Head Start annually)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continue to distribute NOAA tone alert radios to city and county employees in key positions for their homes</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>+</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Request an experienced emergency response professional or team to perform a detailed, post disaster assessment of preparations and response after a disaster event</td>
<td>N/A</td>
<td>N/A</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D56
# Worksheet #4  Evaluate Alternative Mitigation Actions

**Goal #5:** Respond promptly, appropriately and efficiently in the event of a natural or man-made hazard when shelters are required.

**Objective 1:** Increase the capability of the employees of the Department of Family and Children Services (DFCS). These DFCS employees have been trained in basic shelter operations.

<table>
<thead>
<tr>
<th>STAPLEE Criteria</th>
<th>S (Social)</th>
<th>T (Technical)</th>
<th>A (Administrative)</th>
<th>P (Political)</th>
<th>L (Legal)</th>
<th>E (Economic)</th>
<th>E (Environmental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule and perform simulation course</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N/A</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
### Prioritization of overall goals and actions

<table>
<thead>
<tr>
<th>Alternative Actions</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request GEMA to provide an experienced emergency response professional or team of professionals to perform a detailed, post-disaster assessment of disaster preparations and response as soon as possible after a disaster event</td>
<td>Difficulty varied upon situation, broad acceptance, $2,500 as needed, GEMA</td>
</tr>
<tr>
<td>Conduct monthly tests of the outdoor emergency warning siren system in Lumpkin</td>
<td>Difficulty minimal, broad acceptance, $20 per monthly, Local Government</td>
</tr>
<tr>
<td>Continue good communication and coordination between emergency services</td>
<td>Difficulty minimal, broad acceptance, Nominal, $300 staff time, Department Operating Budget</td>
</tr>
<tr>
<td>Maintain good working relationship with surrounding counties and their emergency services</td>
<td>Difficulty minimal, broad acceptance, Nominal, $300 staff time, Department Operating Budget</td>
</tr>
<tr>
<td>Through a grant, acquire a second weather siren for the part of the county with the majority of the population, and later a third siren for the remainder of the county</td>
<td>Difficulty minimal, broad acceptance, $25,000 per siren, GEMA/FEMA/NOAA/USDA/DCA/Stewart County</td>
</tr>
<tr>
<td>Continue scheduling training classes for the volunteer fire fighters through GA Public Safety Training Center (GPSTC)</td>
<td>Difficulty minimal, broad acceptance, Free with exception of staff time, GA Public Safety Training Center (GPSTC)</td>
</tr>
<tr>
<td>Promote participation in the National Weather Service yearly tornado drill in critical facilities (School campus, Senior Center, DFCS)</td>
<td>Difficulty minimal, broad acceptance, $5,000, Department Operating Budget</td>
</tr>
<tr>
<td>Support the fire drills in the critical facilities (Schools monthly, Senior Center annually, Bagby State Park annually, Head Start annually)</td>
<td>Difficulty minimal, broad acceptance, $1,000, Department Operating Budget</td>
</tr>
<tr>
<td>Utilize public information outlets such as newspapers to disseminate hazard</td>
<td>Difficulty minimal, broad acceptance, $100 per year, Local Government</td>
</tr>
<tr>
<td>Task</td>
<td>Difficulty</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Utilize the Stewart County “Commissioner Times” to disseminate hazard mitigation information to the general public</td>
<td>No difficulty</td>
</tr>
<tr>
<td>Provide public with hazard mitigation information through severe weather awareness forms displayed in Courthouse and other public places</td>
<td>No difficulty</td>
</tr>
<tr>
<td>Utilize the Stewart County Website to disseminate hazard mitigation information to the general public</td>
<td>No difficulty</td>
</tr>
<tr>
<td>Identify funding sources in order to send members of Stewart Co. EMA to training classes</td>
<td>No difficulty</td>
</tr>
<tr>
<td>Monitor for and participate in the weekly test of the NOAA tone alert radio</td>
<td>No difficulty</td>
</tr>
<tr>
<td>Continue to distribute NOAA tone alert radios to city and county employees in key positions for their homes</td>
<td>Not difficult</td>
</tr>
<tr>
<td>Schedule and perform simulation course</td>
<td>Not difficult</td>
</tr>
<tr>
<td>Advise Anderson Construction and Graham Timber about fire plans for their businesses</td>
<td>Difficulty minimal</td>
</tr>
<tr>
<td>Establish a May/June date for formal annual review of mitigation strategy implementation</td>
<td>Difficulty minimal</td>
</tr>
<tr>
<td>Update the Local Emergency Operations Plan (LEOP) for Stewart County</td>
<td>Possibility of slight difficulty</td>
</tr>
<tr>
<td>Local government and constitutional officers adopt policy of (1) duplicating existing, essential records, (2) duplicating essential records</td>
<td>Medium difficulty</td>
</tr>
</tbody>
</table>
annually thereafter, and (3) designating a secure, off-site depository for essential public records

D.2. Blank GEMA Worksheets

There are no blank GEMA worksheets.

D.3. Other Local Worksheet

Prioritization by Responsible Organization

CITY AND COUNTY OFFICIALS
POLICIES/PROCEDURES
Action Step 1  Update the Local Emergency Operations Plan (LEOP) for Stewart County (OVERALL)

<table>
<thead>
<tr>
<th>Category:</th>
<th>Preparedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>County and city departments</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>2014-2016</td>
</tr>
<tr>
<td>Cost:</td>
<td>$5,000</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Dept. Operating Budget</td>
</tr>
</tbody>
</table>

Action Step 2  Local government and constitutional officers adopt policy of (1) duplicating existing, essential records, (2) duplicating essential records annually thereafter, and (3) designating a secure, off-site depository for essential public records (OVERALL)

<table>
<thead>
<tr>
<th>Category:</th>
<th>Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Local Governments</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Chief Appointed Officials</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>2014-2016, annually</td>
</tr>
<tr>
<td>Cost:</td>
<td>$10,000</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Local Government</td>
</tr>
</tbody>
</table>

Action Step 3  Through building code standards, require mobile homes to be tied down and withstand a 75 mph wind load (THUNDERSTORM)

<table>
<thead>
<tr>
<th>Category:</th>
<th>Property Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Local Government</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>City Council/County Comm.</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>Daily</td>
</tr>
<tr>
<td>Costs:</td>
<td>staff time</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Dept. Operating Budget</td>
</tr>
</tbody>
</table>
Action Step 5  Develop Flood Damage Prevention Ordinance and complete other requirements for participation in the NFIP for the City of Richland (FLOOD)
Category: Prevention
Responsible Org: City of Richland
Coordinating Org: City of Richland
Jurisdiction: Richland
Timeline: 2014
Cost: $500 staff time and materials
Funding Source: Local Government

EQUIPMENT
Action Step 1  Continue to distribute NOAA tone alert radios to city and county employees in key positions for their homes (OVERALL)
Category: Prevention
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Cost: No cost
Funding Source: FEMA/GEMA

Action Step 2  Encourage the general public to purchase additional weather radios (THUNDERSTORM)
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: $500 for staff time and copies
Funding Source: Citizens

PUBLIC AWARENESS
Action Step 1  Utilize the Stewart County “Commissioner Times” to disseminate hazard mitigation information to the general public (OVERALL)
Category: Public Education and Awareness
Responsible Org: Stewart Co. Commissioners Office
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co.
Timeline: Ongoing
Cost: $500/issue (copies + staff time)
Funding Source: Local Government

Action Step 2  Utilize the Stewart County Website to disseminate hazard mitigation information to the general public (OVERALL)
Category: Public Education and Awareness
Responsible Org: Stewart Co. Commissioners Office
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co.
Timeline: Ongoing
Cost: $100 in staff time
Funding Source: Local Government

Action Step 3 Utilize public information outlets such as newspapers to disseminate hazard mitigation information to the general public by providing the media with information (OVERALL)
Category: Public Education and Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Cost: $100/year
Funding Source: Local Government

Action Step 4 Provide public with hazard mitigation information through severe weather awareness forms displayed in Courthouse and other public places (OVERALL)
Category: Public Education, Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Costs: $100 (copies + staff time)
Funding Source: Dept. Operating Budget

Action Step 5 Alert citizens to the presence of lightning through weather radios, and other broadcasts (THUNDERSTORM)
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: Nominal, $250 staff time
Funding Source: Citizens

Action Step 6 Inform the public that staying inside a house or car, and not using electrical appliances during a thunderstorm can reduce the risk of lightning strikes (THUNDERSTORM)
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: $500 for staff time and copies
Funding Source: Citizens

EMA
**POST DISASTER**

Action Step 3  Request GEMA to provide an experienced emergency response professional or team of professionals to perform a detailed, post-disaster assessment of disaster preparations and response as soon as possible after a disaster event (OVERALL)

<table>
<thead>
<tr>
<th>Category</th>
<th>Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Regional All Hazards Council</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>As needed</td>
</tr>
<tr>
<td>Cost:</td>
<td>$2,500</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>GEMA</td>
</tr>
</tbody>
</table>

**POLICIES/PROCEDURES**

Action Step 1  Create procedure to call off-duty employees at the scene of the disaster event (TORNADO)

<table>
<thead>
<tr>
<th>Category</th>
<th>Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>2014</td>
</tr>
<tr>
<td>Cost:</td>
<td>$50 for staff time</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Dept. Operating Budget</td>
</tr>
</tbody>
</table>

Action Step 2  Formulate policies for conservation of water during times of water shortage and drought (DROUGHT)

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>Stewart Co. EMA</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>As needed</td>
</tr>
<tr>
<td>Costs:</td>
<td>Nominal, $200 staff time</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Dept. Operating Budget</td>
</tr>
</tbody>
</table>

Action Step 3  Formal designation by EMA Director (TECHNOLOGICAL)

<table>
<thead>
<tr>
<th>Category</th>
<th>Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. Fire Department</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>City Council/County Comm.</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>2014</td>
</tr>
<tr>
<td>Costs:</td>
<td>None</td>
</tr>
<tr>
<td>Funding Source:</td>
<td>Local</td>
</tr>
</tbody>
</table>

Action Step 4  Analyze land uses for the purpose of identifying and securing an area (TECHNOLOGICAL)

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Org:</td>
<td>Stewart Co. EMA Director</td>
</tr>
<tr>
<td>Coordinating Org:</td>
<td>City and Cnty. Fire, EMS, Law Enforcement</td>
</tr>
<tr>
<td>Jurisdiction:</td>
<td>Stewart Co., Lumpkin, Richland</td>
</tr>
<tr>
<td>Timeline:</td>
<td>2014</td>
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</tbody>
</table>
Costs: Nominal, $100 staff time
Funding Source: Local

Action Step 5 Develop an evacuation plan for locations with high concentration of people (TECHNOLOGICAL)

Category: Protection
Responsible Org: Stewart Co. EMA Director
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Cost: $500 for staff time

COORDINATION MEETINGS

Action Step 1 Continue good communication and coordination between emergency services (OVERALL)

Category: Emergency Services
Responsible Org: City and County Law (Police, Sheriff), Fire Dept., Public Works, EMS
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budgets

Action Step 2 Maintain good working relationship with surrounding counties and their emergency services (OVERALL)

Category: Emergency Services
Responsible Org: Emergency Service providing agencies (local and state), City and County governments
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budgets

Action Step 3 Incorporate costs for membership into EMA budget (TECHNOLOGICAL)

Category: Prevention
Responsible Org: Stewart Co. Fire Department
Coordinating Org: City Council/County Comm.
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Costs: $200
Funding Source: Local

Action Step 4 Network with emergency personnel staff on All Hazards Council

Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: Negligible, $100 staff time
Funding Source: Local

Action Step 5
Attend the information meetings and training sessions (NUCLEAR POWER PLANT)

Category: Preparedness, Training
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: yearly
Costs: Nominal, $100 travel
Funding Source: Department Operating Budget

EQUIPMENT
Action Step 1
Conduct monthly tests of the outdoor emergency warning siren system in Lumpkin (OVERALL)

Category: Equipment
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Cost: $20/month staff time
Funding Source: Local Government

Action Step 2
Monitor for and participate in the weekly test of the NOAA tone alert radio (OVERALL)

Category: Equipment
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Cost: $10/week
Funding Source: Local Government

Action Step 3
Continue to distribute NOAA tone alert radios to city and county employees in key positions for their homes (OVERALL)

Category: Prevention
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Cost: No cost
Funding Source: FEMA/GEMA

Action Step 4
Work with FEMA to create digital flood insurance rate maps with base flood elevation for all of the unmapped Stewart County (scheduled for 2009) (FLOOD)

Category: Prevention
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart County, Richland
TRAINING
Action Step 1  Continue scheduling training classes for the volunteer fire fighters through GA
Public Safety Training Center (GPSTC) (OVERALL)
Category:  Training
Responsible Org:  Stewart Co. Fire Dept.
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin, Richland
Timeline:  Ongoing
Cost:  Free for staff except staff time
Funding Source:  GPSTC

Action Step 2  Promote regular tornado drills at high occupancy locations such as the school, Court House, the
Doctor’s Office, daycare facilities, hospitals, and industries (TORNADO)
Category:  Public Education/Awareness
Responsible Org:  Stewart Co. EMA
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin, Richland
Timeline:  Annually
Costs:  Nominal, $200 staff time
Funding Source:  Dept. Operations Budget

Action Step 3  Participate in all Hazards Council educational programs and training exercises
(TECHNOLOGICAL)
Category:  Emergency Services
Responsible Org:  Stewart Co. EMA
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin, Richland
Timeline:  Annually
Costs:  $500 travel and fees
Funding Source:  Dept. Operating Budget

PURCHASES/PETITIONS
Action Step 1  Through a grant, acquire weather sirens for the portion of the county with the
majority of the population, and later a third siren for the reminder of the county (OVERALL)
Category:  Emergency Services
Responsible Org:  Stewart Co. EMA
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin
Timeline:  2014-2016
Costs:  $25,000 per siren
Funding Source:  GEMA/FEMA/NOAA/USDA/DCA/Stewart County

Action Step 2  Identify funding sources in order to send members of Stewart Co. EMA to training
classes (OVERALL)
Category: Training
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Cost: $1,000/year
Funding Source: GEMA/FEMA/USDA/DCA

Action Step 3 Develop grant application for pager system for emergency personnel notifying them of impending weather warnings (TORNADO)
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014-2016
Costs: $20,000
Funding Source: GEMA/FEMA/USDA/DCA

Action Step 4 Be in contact with emergency personnel staff at state and federal level to find funding sources (TECHNOLOGICAL)
Category: Emergency Services
Responsible Org: Stewart Co. EMA Director
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: As Appropriate
Costs: Nominal, $200 staff time
Funding Source: Local

PUBLIC AWARENESS

Action Step 2 Encourage the general public to purchase additional weather radios (THUNDERSTORM)
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: $500 for staff time and copies
Funding Source: Citizens

Action Step 3 Alert citizens to the presence of lightning through weather radios, and other broadcasts (THUNDERSTORM)
Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: Nominal, $250 staff time
Funding Source: Citizens

Action Step 4 Inform the public that staying inside a house or car, and not using
electrical appliances during a thunderstorm can reduce the risk of lightning strikes (THUNDERSTORM)

Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: $500 for staff time and copies
Funding Source: Citizens

Action Step 5 Distribute tornado safety information in form of flyers, brochures, or public safety announcements (TORNADO)

Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: $500 for staff time and copies
Funding Source: Dept. Operating Budget

Action Step 6 Provide print media with “print ready” articles on tornado safety, present tornado awareness programming on local television station, and provide public service announcements to all local media (TORNADO)

Category: Public Education/Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Cost: $500 for staff time
Funding Source: Dept. Operating Budget

Action Step 7 Heighten the public awareness on actions the public and private sector can take to conserve water through public announcements (DROUGHT)

Category: Preparedness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: As needed
Costs: $500 for staff time and copies
Funding Source: Dept. Operating Budget

Action Step 8 Inform the public of location, extent, dangers, and of procedures to follow in the event of a release (TECHNOLOGICAL)

Category: Protection
Responsible Org: Stewart Co. EMA Director
Coordinating Org: City and Cnty. EMS, Law Enforcement
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Costs: $500 for staff time and copies
Funding Source: Local
Action Step 9  Publish information gathered at the Early County meetings in order to inform Stewart County residents (NUCLEAR POWER PLANT)

Category: Public Awareness
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: yearly
Costs: $500 for staff time and copies
Funding Source: Dept. Operating Budget

FIRE DEPARTMENT
POLICIES/PROCEDURES
Action Step 1  Get regular forecasts from the GFC’s fire weather system on fire danger ratings (WILDFIRE)

Category: Preparedness
Responsible Org: Stewart Co. Fire Department
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Regularly
Costs: Nominal, $200 staff time
Funding Source: Dept. Operating Budget

Action Step 2  Ban outdoor burning during the dry season (WILDFIRE)

Category: Prevention/Protection
Responsible Org: City and Cnty. Fire, Pub. Works and Utilities
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Seasonally
Costs: $500 for staff time and copies
Funding Source: Local

Action Step 3  Formal designation by EMA Director (TECHNOLOGICAL)

Category: Emergency Services
Responsible Org: Stewart Co. Fire Department
Coordinating Org: City Council/County Comm.
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Costs: None
Funding Source: Local

Action Step 4  Advise Anderson Construction and Graham Timber about fire plans for their businesses (OVERALL)

Category: Public Education, Awareness
Responsible Org: Stewart Co. Fire Dept.
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014-2016
Costs: $100 staff time
Funding Source: Dept. Operating Budget

COORDINATION MEETINGS
Action Step 1  Continue good communication and coordination between emergency services (OVERALL)
Category: Emergency Services
Responsible Org: City and County Law (Police, Sheriff), Fire Dept., Public Works, EMS
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budgets

Action Step 2  Maintain good working relationship with surrounding counties and their emergency services (OVERALL)
Category: Emergency Services
Responsible Org: Emergency Service providing agencies (local and state), City and County governments
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budgets

Action Step 3  Incorporate costs for membership into EMA budget (TECHNOLOGICAL)
Category: Prevention
Responsible Org: Stewart Co. Fire Department
Coordinating Org: City Council/County Comm.
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Costs: $200
Funding Source: Local

EQUIPMENT
Action Step 1  Assure that the Fire Department’s mobile power generators are in good working order (THUNDERSTORM)
Category: Prevention
Responsible Org: Stewart Co. Fire Department
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014-2016
Costs: Nominal, $70 staff time
Funding Source: Dept. Operating Budget

TRAINING
Action Step 1  Continue scheduling training classes for the volunteer fire fighters through GA Public Safety Training Center (GPSTC) (OVERALL)
Category:  Training
Responsible Org:  Stewart Co. Fire Dept.
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin, Richland
Timeline:  Ongoing
Cost:  Free for staff except staff time
Funding Source:  GPSTC

Action Step 2  Get more volunteer fire fighters certified and recertified through GA Public Safety Training Center (GPSTC) (WILDFIRE)
Category:  Training
Responsible Org:  Stewart Co. Fire Dept.
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin, Richland
Timeline:  Ongoing
Cost:  Free for staff except staff time
Funding Source:  GPSTC

PURCHASE/PETITIONS
Action Step 1  Through grant money, purchase new fire fighting equipment (WILDFIRE)
Category:  Emergency Services
Responsible Org:  Stewart Co. Fire Department
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin, Richland
Timeline:  2014-2016
Costs:  $48,000
Funding Source:  FEMA/GEA/DCA/ USDA

PUBLIC AWARENESS
Action Step 1  Send out information about wildfire danger and prevention measures (WILDFIRE)
Category:  Prevention/Protection
Responsible Org:  City and Cnty. Fire, Pub. Works and Utilities
Coordinating Org:  Stewart Co. EMA
Jurisdiction:  Stewart Co., Lumpkin, Richland
Timeline:  Seasonally
Costs:  $500 for staff time and copies
Funding Source:  Local

LAW ENFORCEMENT
Action Step 1  Continue good communication and coordination between emergency services (OVERALL)
Category:  Emergency Services
Responsible Org:  City and County Law (Police, Sheriff), Fire Dept., Public Works, EMS
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Ongoing
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budgets

Action Step 2 Continue with good working relationship with surrounding counties and their emergency services (OVERALL)
Category: Emergency Services
Responsible Org: Emergency Service providing agencies (local and state), City and County governments
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: Nominal, $300 staff time
Funding Source: Dept. Operating Budgets

PRE-DISASTER MITIGATION COMMITTEE
Action Step 1 Establish date for formal annual review of mitigation strategy implementation (OVERALL)
Category: Prevention
Responsible Org: Pre-Disaster Mitigation Executive Committee
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014, annually
Costs: $200 staff time
Funding Source: Departmental Operating Budget

PUBLIC SERVICES AND UTILITIES
Action Step 1 Make sure critical facilities and equipment are grounded (THUNDERSTORM)
Category: Prevention
Responsible Org: City and County Public Services
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014-2016
Costs: Nominal, $700 staff time
Funding Source: Local

Action Step 2 Install lightning rods on all critical facilities that are not equipped yet (THUNDERSTORM)
Category: Prevention
Responsible Org: Public Services
Coordinating Org: Department of Engineering
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014-2016
Cost: $500 per facility
Funding Source: Local
Action Step 3  Obtain and install power generators or other back-up Systems where needed (THUNDERSTORM)
Category: Prevention
Responsible Org: Public Services
Coordinating Org: Department of Engineering
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014-2016
Cost: $1,000 per facility
Funding Source: Local

Action Step 4  Petition GDOT to enlarge storm drainage pipes and construct new pipes in key locations under roads to avoid flooding of the roads (FLOOD)
Category: Prevention
Responsible Org: City and Cnty. Public Works
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Costs: $500,000
Funding Source: GDOT

Action Step 5  Send out information about wildfire danger and prevention measures (WILDFIRE)
Category: Prevention/Protection
Responsible Org: City and Cnty. Fire, Pub. Works and Utilities
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Seasonally
Costs: $500 for staff time and copies
Funding Source: Local

Action Step 6  Bann outdoor burning during the dry season (WILDFIRE)
Category: Prevention/Protection
Responsible Org: City and Cnty. Fire, Pub. Works and Utilities
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Seasonally
Costs: $500 for staff time and copies
Funding Source: Local

Action Step 7  Identify and remove weak, aging and diseased trees (THUNDERSTORM)
Category: Prevention
Responsible Org: City and Cnty. Public Services
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Seasonally
Costs: Nominal, $1,000 per tree
Funding Source: Local

Action Step 8  Maintain a stockpile of sandbags and appropriate materials on site for immediate application if needed (DAM FAILURE)
Category: Prevention
Responsible Org: City and Cnty. Public Works
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Costs: $4,000 for overtime and materials
Funding Source: Local Government

SCHOOL BOARD
Action Step 1  Promote participation in the National Weather Service yearly tornado drill in critical facilities (School campus, Senior Center, DFCS) (OVERALL)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Cost: $5,000
Funding Source: Dept. Operating Budgeted

Action Step 2  Support the fire drills in the critical facilities (Schools monthly, Senior Center annually, Bagby State Park annually, Head Start annually) (OVERALL)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. Fire Department
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Monthly/Annually
Costs: $1,000 staff time
Funding Source: Dept. Operating Budget

SENIOR CENTER
Action Step 1  Promote participation in the National Weather Service yearly tornado drill in critical facilities (School campus, Senior Center, DFCS) (OVERALL)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Cost: $5,000
Funding Source: Dept. Operating Budgeted

Action Step 2  Support the fire drills in the critical facilities (Schools monthly, Senior Center annually, Head Start annually) (OVERALL)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. Fire Department
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Monthly/Annually
Costs: $1,000 staff time
Funding Source: Dept. Operating Budget

AMERICAN RED CROSS
Action Step 1 Schedule and perform simulation course (OVERALL)
Category: Disaster Response
Responsible Org: American Red Cross
Coordinating Org: Stewart Co. DFCS
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014
Cost: $4.50 per student
Funding Source: Local Red Cross

Action Step 2 Encourage the American Red Cross to teach a Citizen’s Disaster Course on a frequent basis (THUNDERSTORM)
Category: Public Education/Awareness
Responsible Org: American Red Cross
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Costs: $2,000
Funding Source: American Red Cross

DFCS (DEPARTMENT OF FAMILY AND CHILDREN SERVICES)
Action Step 1 Promote participation in the National Weather Service yearly tornado drill in critical facilities (School campus, Senior Center, DFCS) (OVERALL)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Annually
Cost: $5,000
Funding Source: Dept. Operating Budgeted

Action Step 2 Support the fire drills in the critical facilities (Schools monthly, Senior Center annually, Head Start annually) (OVERALL)
Category: Prevention
Responsible Org: Stewart Co. Board of Education, DFCS, Senior Center
Coordinating Org: Stewart Co. Fire Department
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: Monthly/Annually
Costs: $1,000 staff time
Funding Source: Dept. Operating Budget

FEMA
Action Step 1 Through a grant, acquire a second weather siren for the part of the county with the majority of the population, and later a third siren for the reminder of the county (OVERALL)

- Category: Emergency Services
- Responsible Org: Stewart Co. EMA
- Coordinating Org: Stewart Co. EMA
- Jurisdiction: Stewart Co., Lumpkin
- Costs: $25,000 per siren
- Funding Source: GEMA/FEMA/NOAA/USDA/DCA/Stewart County

Action Step 2 Identify funding sources in order to send members of Stewart Co. EMA to training classes (OVERALL)

- Category: Training
- Responsible Org: Stewart Co. EMA
- Coordinating Org: Stewart Co. EMA
- Jurisdiction: Stewart Co.
- Timeline: Ongoing
- Cost: $1,000/year
- Funding Source: GEMA/FEMA/USDA/DCA/

Action Step 3 Continue to distribute NOAA tone alert radios to city and county employees in key positions for their homes (OVERALL)

- Category: Prevention
- Responsible Org: Stewart Co. EMA
- Coordinating Org: Stewart Co. EMA
- Jurisdiction: Stewart Co., Lumpkin, Richland
- Timeline: Ongoing
- Cost: No cost
- Funding Source: FEMA/GEMA

Action Step 4 Develop grant application for pager system for emergency personnel notifying them of impending weather warnings (TORNADO)

- Category: Emergency Services
- Responsible Org: Stewart Co. EMA
- Coordinating Org: Stewart Co. EMA
- Jurisdiction: Stewart Co., Lumpkin, Richland
- Costs: $20,000
- Funding Source: GEMA/FEMA/ USDA/DCA

Action Step 5 Work with FEMA to create digital flood insurance rate maps with base flood elevation for all of the unmapped Stewart County (scheduled for 2009) (FLOOD)

- Category: Prevention
- Responsible Org: Stewart Co. EMA
- Coordinating Org: Stewart Co. EMA
- Jurisdiction: Stewart County, Richland.
- Timeline: 2015
- Costs: $20,000
- Funding Source: FEMA
Action Step 6  Through grant money, purchase new fire fighting equipment (WILDFIRE)
  Category:  Emergency Services
  Responsible Org:  Stewart Co. Fire Department
  Coordinating Org:  Stewart Co. EMA
  Jurisdiction:  Stewart Co., Lumpkin, Richland
  Timeline:  2014-2016
  Costs:  $48,000
  Funding Source:  FEMA/GEMA/DCA/ USDA

Georgia DOT
Action Step 1  Petition GDOT to enlarge storm drainage pipes and construct new pipes in key locations under roads to avoid flooding of the roads (FLOOD)
  Category:  Prevention
  Responsible Org:  City and Cnty. Public Works
  Coordinating Org:  Stewart Co. EMA
  Jurisdiction:  Stewart Co., Lumpkin, Richland
  Timeline:  2014
  Costs:  $500,000
  Funding Source:  GDOT

GEMA/ All Hazards Council
Action Step 1  Through a grant, acquire a second weather siren for the part of the county with the majority of the population, and later a third siren for the reminder of the county (OVERALL)
  Category:  Emergency Services
  Responsible Org:  Stewart Co. EMA
  Coordinating Org:  Stewart Co. EMA
  Jurisdiction:  Stewart Co., Lumpkin
  Timeline:  2014-2016
  Costs:  $25,000 per siren
  Funding Source:  GEMA/FEMA/NOAA/USDA/DCA/Stewart County

Action Step 2  Identify funding sources in order to send members of Stewart Co. EMA to training classes (OVERALL)
  Category:  Training
  Responsible Org:  Stewart Co. EMA
  Coordinating Org:  Stewart Co. EMA
  Jurisdiction:  Stewart Co., Lumpkin, Richland
  Timeline:  Ongoing
  Cost:  $1,000/year
  Funding Source:  GEMA/FEMA/USDA/DCA/

Action Step 3  Continue to distribute NOAA tone alert radios to city and county employees in key positions for their homes (OVERALL)
  Category:  Prevention
  Responsible Org:  Stewart Co. EMA
  Coordinating Org:  Stewart Co. EMA
  Jurisdiction:  Stewart Co., Lumpkin, Richland
  Timeline:  Ongoing
Action Step 4  Request GEMA to provide an experienced emergency response professional or team to perform a detailed, post-disaster assessment of preparations and response as soon as possible after a disaster (OVERALL)
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Regional All Hazards Council
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: As needed
Cost: $2,500
Funding Source: GEMA

Action Step 5  Develop grant application for pager system for emergency personnel notifying them of impending weather warnings (TORNADO)
Category: Emergency Services
Responsible Org: Stewart Co. EMA
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2008-2009
Costs: $20,000
Funding Source: GEMA/FEMA/USDA/DCA

Action Step 6  Through grant money, purchase new fire fighting equipment (WILDFIRE)
Category: Emergency Services
Responsible Org: Stewart Co. Fire Department
Coordinating Org: Stewart Co. EMA
Jurisdiction: Stewart Co., Lumpkin, Richland
Timeline: 2014-2016
Costs: $48,000
Funding Source: FEMA/GEMA/DCA/USDA
Appendix E- Copies of Required Planning Documentation

E.1. Public Notices

E.2. Meeting Minutes

E.3. Sign-In Sheets

E.4 Local Proclamations

E.5. GEMA/FEMA Correspondence

E.6. Local Newspaper Coverage
E.1. Public Notices

First Public Hearing, Stewart County Pre-Disaster Mitigation Plan
Second Public Hearing, Stewart County Pre-Disaster Mitigation Plan
E.2. Meeting Minutes

Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Public Hearing 1
October 24, 2013, 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the hearing by welcoming and thanking the participants for their presence. Lance explained that the public is allowed to comment on the Pre-Disaster Mitigation Plan. The public noted several changes that need to be made on the Suggested Planning Team Members in Appendix E. There were no further comments from the public on the plan.

Meeting was adjourned at 11:00 A.M.

Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Public Hearing 2
July 15, 2014, 11:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the hearing by welcoming and thanking the participants for their presence. Lance explained that the public is allowed to comment on the Pre-Disaster Mitigation Plan. The public noted a change that needed to be made in the point of contacts portion on page five. There were no further comments from the public on the plan.

Meeting was adjourned at 12:00 P.M.
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Kick-Off Meeting
May 1, 2012 11:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. Alan Sloan, GEMA Representative, facilitated the meeting. Handouts were distributed to all members. Sloan guided the body through the handout and explaining the PDM Planning process. The committee discussed definitions of natural disasters. The committee also discussed the Labor Match sheet and the importance of the keeping track with the required 25% match. A monthly meeting date was scheduled for the third Thursday of each month.

Meeting was adjourned at 12:00 P.M. The next committee meeting was scheduled for Thursday, May 17, 2012 at 10:00 A.M.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 2
May 17, 2012 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to update the critical facilities list. The committee made several suggestions to add or delete critical facilities from the existing list. Lance discussed with the committee the County’s Mitigation goals outlined in Chapter 1. The committee made a couple of suggestions on improving the wording of the objectives within the goals. The committee also provided information on severe natural disasters that have occurred since the last plan was written. Updates and changes were made through Section 2.2.G. The following sections will be addresses at a later meeting.

Meeting was adjourned at 11:00 A.M. The next committee meeting was scheduled for Thursday, June 21, 2012 at 10:00 A.M.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 3
June 31, 2012 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The main order of business was to update the Action Steps for all Mitigation Goals outlined in Chapter 4. The committee determined whether each Action Step was ongoing, completed, modified, or deleted. The committee also made suggestions on the budget for several Action Steps. Updates and changes were made through Section 2.4.D. The following sections will be addressed at a later meeting.

Meeting was adjourned at 11:00 A.M. The next committee meeting was scheduled for Thursday, July 17, 2012 at 10:00 A.M.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 4
July 17, 2012 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to update starting at section 2.4.D. through section 3.4.G. The next task was updating the Action Steps for all Mitigation Goals outlined in Chapter 5. The committee determined whether each Action Step was ongoing, completed, modified, or deleted. The committee also made suggestions on the budget for several Action Steps. Updates and changes were made through the end of Chapter 5. The following sections will be addresses at a later meeting.

Meeting was adjourned at 11:00 A.M. The next committee meeting was scheduled for Thursday, August 23, 2012 at 10:00 A.M.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 5
August 23, 2012 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to review and edit all changes in Chapter 1. Chapter 1 edits were completed prior to the start of the meeting and the committee reviewed the edited document. The committee determined that the changes were correct and should be considered final. The following chapters will be addresses at a later meeting.

Meeting was adjourned at 11:00 A.M. The next committee meeting was scheduled for Thursday, September 20, 2012 at 10:00 A.M.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 6
September 20, 2012 11:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to review and edit changes in Chapter 2. Chapter 2 edits through page 24 were completed prior to the start of the meeting and the committee reviewed the edited document. The committee determined that the changes were correct and should be considered final. Additional changes were made to the Critical Facilities list. The remainder of Chapter 2 will be addressed at a later meeting.

Meeting was adjourned at 11:45 A.M. The next committee meeting will be scheduled next month.

[Signature]
Lance Renfrow, River Valley Regional Commission

[Signature]
Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 7
October 25, 2012 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business update sections of the plan. Sections 2.1.D, and 2.2.B – 2.3.B were marked for edits and updated.

Meeting was adjourned at 11:45 A.M. The next committee meeting will be scheduled next month.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 8
March 7, 2013 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to review and edit changes in Chapter 2. Chapter 2 from Section 2.3.C. through 2.5.B was completed prior to the start of the meeting and the committee reviewed the edited document. The committee determined that the changes were correct and should be considered final. Additional changes were made to the Critical Facilities list. The remainder of Chapter 2 will be addresses at a later meeting.

Meeting was adjourned at 11:45 A.M. The next committee meeting is scheduled for April 17, 2013.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 9
April 17, 2013 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to review and edit changes in Chapter 2. Chapter 2 from Section 2.5.C. through the end of the chapter was completed prior to the start of the meeting and the committee reviewed the edited document. The committee determined that the changes were correct and should be considered final. Additional changes were made to the Critical Facilities list. The beginning of Chapter 3 will be addressed at a later meeting.

Meeting was adjourned at 11:00 A.M. The next committee meeting is scheduled for May 23, 2013.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BCC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 10
May 23, 2013 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to review and edit changes in Chapter 3. Chapter 3 from Section 3.1.A. through Section 3.2.G. was completed prior to the start of the meeting and the committee reviewed the edited document. The committee determined that the changes were correct and should be considered final. Section 3.3. of Chapter 3 will be addresses at a later meeting.

Meeting was adjourned at 11:30 A.M. The next committee meeting is tentatively scheduled for late June of 2013.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 11
June 20, 2013 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to review and edit changes in Chapter 3. Chapter 3 from Section 3.3.4 through the first section in Chapter 4 was completed prior to the start of the meeting and the committee reviewed the edited document. The committee determined the final edits. Section 4.1 will be addressed at a later meeting.

Meeting was adjourned at 11:30 A.M. The next committee meeting is tentatively scheduled for late July of 2013.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BCC Chairman
Stewart County
Pre-Disaster Mitigation Plan Update

Minutes
Meeting 12
August 1, 2013 10:00 A.M.
Stewart County Court House

Lance Renfrow, Environmental Planner – River Valley Regional Commission, opened the meeting by welcoming and thanking the participants for their presence. The first order of business was to review and edit changes in Chapter 4. Chapter 4 from Section 4.1. through the end of Chapter 7 was completed prior to the start of the meeting and the committee reviewed the edited document. The end of Chapter 5 through Chapter 7 was given to the committee to review as homework. The RVRC will finalize the Appendices and maps prior to submitting a draft to GEMA.

Meeting was adjourned at 11:30 A.M.

Lance Renfrow, River Valley Regional Commission

Joe Lee Williams, BOC Chairman
### E. 3. Sign-In Sheets

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<tr>
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<td>Stewart County Fire District, EOC</td>
<td><a href="mailto:stewartcountyfiredistrict@gmail.com">stewartcountyfiredistrict@gmail.com</a></td>
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<tr>
<td>Diane Dobbins</td>
<td>Stewart County, 911 Center, EOC</td>
<td><a href="mailto:dobbs911center@gmail.com">dobbs911center@gmail.com</a></td>
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<td>Levi Wilkerson</td>
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Suggested Planning Team members

Greg Stewart
Fire Chief
229-838-9911

Edwina Turner
Stewart County Family Connection
229-838-4374 ext. 309

Diane Watkins (Superintendent of Education)
P.O. Box 547
Lumpkin, GA 31815
229-838-4329

Larry Jones (Sheriff)
P.O. Box 817
Lumpkin, GA 31815
229-838-4311

Phil Hite (Lumpkin City Admin.)
P.O. Box 278
Lumpkin, GA 31815
229-838-4333

John Stripling (Lumpkin Chief of Police)
P.o. Box 278
Lumpkin, GA 31815
229-838-4333

Charles Gibson (Lumpkin Mayor)
P.O. Box 287
Lumpkin, GA 31815
229-838-4333

Adolph McClendon (Richland Mayor)
390 Broad Street
Richland, GA 31825
229-887-3323

Ed Lynch
EMS Director
229-838-9911
E. 4. Local Proclamations
None

E.5. GEMA/FEMA Correspondence
None

E.6. Local Newspaper Coverage
None
Appendix F – Glossary of Terms

**Acquisition:** Local governments can acquire lands in high hazard areas through conservation easements, purchase of development rights, or outright purchase of property.

**Asset:** Any manmade or natural feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

**Base Flood Elevation (BFE):** Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The Base Flood Elevation is used as the standard for the National Flood Insurance Program.

**Base Flood:** Flood that has a 1 percent probability of being equaled or exceeded in any given year. Also known as the 100-year flood.

**Base Floodplain:** The floodplain that would be inundated by a one percent chance (100-year) flood.

**Basement:** Any floor level below grade.

**Building Code:** The regulations adopted by a local governing body setting forth standards for the construction, addition, modification, and repair of buildings and other structures for the purpose of protecting the health, safety, and general welfare of the public.

**Building:** A structure that is walled and roofed, principally above ground and permanently affixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

**Community Rating System (CRS):** A National Flood Insurance Program (NFIP) that provides incentives for NFIP communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of policyholders in these communities are reduced.

**Community:** Community means any State or area or political subdivision thereof, or any Indian tribe or authorized tribal organization or Alaska Native village or authorized native organization, which has the authority to adopt and enforce floodplain management regulations for the areas within its jurisdiction.

**Computer-Aided Design and Drafting (CADD):** A computerized system enabling quick and accurate electronic 2-D and 3-D drawings, topographic mapping, site plans, and profile/cross-section drawings.

**Consequences:** The damages, injuries, and loss of life, property, environment, and business that can be quantified by some unit of measure, often in economic or financial terms.

**Contour:** A line of equal ground elevation on a topographic (contour) map.

**Critical Facility:** Facilities that are critical to the health and welfare of the population and that are especially important during and following hazard events. Critical facilities include shelters, police and fire stations, schools, childcare centers, senior citizen centers, hospitals, disability centers, vehicle and equipment storage facilities, emergency operations centers, and city hall. The term also includes buildings or locations that, if damaged, would create secondary disasters, such as hazardous materials facilities, vulnerable facilities, day care centers, nursing homes, and housing likely to contain occupants who are not very mobile. Other critical city infrastructure such as telephone exchanges and water treatment plants are referred to as lifelines. See Lifelines.

**Debris:** The scattered remains of assets broken or destroyed in a hazard event. Debris caused by a wind or water hazard event can cause additional damage to other assets.

**Declaration:** The President’s decision that a major disaster qualifies for federal assistance under the Stafford Act.
**Designated Floodway:** The channel of a stream and that portion of the adjoining floodplain designated by a regulatory agency to be kept free of further development to provide for unobstructed passage of flood flows.

**Development:** Any man-made change to real estate.

**Disaster Mitigation Act Of 2000 (DMA 2000):** DMA 2000 (public Law 106-390) is the latest legislation to improve the planning process. It was signed into law on October 10, 2000. This new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.

**Duration:** How long a hazard event lasts.

**Earthquake:** A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth’s tectonic plates.

**Elevation:** The placement of a structure above flood level to minimize or prevent flood damages.

**Emergency Operations Center (EOC):** A facility that houses communications equipment that is used to coordinate the response to a disaster or emergency.

**Emergency Operations Plan (EOP):** Sets forth actions to be taken by State or local governments for response to emergencies or major disasters.

**Emergency Response Plan:** A document that contains information on the actions that may be taken by a governmental jurisdiction to protect people and property before, during, and after a disaster.

**Emergency:** Any hurricane, tornado, storm, flood, high water, wind driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, drought, fire, explosion, or other catastrophe in any part of the United States which requires federal emergency assistance to supplement State and local efforts to save lives and protect property, public health and safety, or to avert or lessen the threat of a disaster. Defined in Title V of Public Law 93-288, Section 102(1).

**Extent:** The size of an area affected by a hazard or hazard event.

**Fault:** A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth’s crust, in which adjacent surfaces are differentially displaced parallel to the plane of fracture.

**Federal Emergency Management Agency (FEMA):** The independent agency created in 1978 to provide a single point of accountability for all Federal activities related to disaster mitigation and emergency preparedness, response and recovery.

**FIPS:** Stands for Federal Information Processing Standards. Under the Information Technology Management Reform Act (Public Law 104-106), the Secretary of Commerce approves standards and guidelines that are developed by the National Institute of Standards and Technology (NIST) for Federal computer systems. These standards and guidelines are issued by NIST as Federal Information Processing Standards (FIPS) for use government-wide. NIST develops FIPS when there are compelling Federal government requirements such as for security and interoperability and there are no acceptable industry standards or solutions.

**Fire Potential Index (FPI):** Developed by United States Geological Survey (USGS) and United States Forest Service (USFS) to assess and map fire hazard potential over broad areas. Based on such geographic information, national policy makers and on-the-ground fire managers established priorities for prevention activities in the defined area to reduce the risk of managed and wildfire ignition and spread. Prediction of fire hazard shortens the time between fire ignition and initial attack by enabling fire managers to pre-allocate and stage suppression forces to high fire risk areas.

**Flash Flood:** A flood event occurring with little or no warning where water levels rise at an extremely fast rate.
**Flood**: A general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land.

**Flood Disaster Assistance**: Flood disaster assistance includes development of comprehensive preparedness and recovery plans, program capabilities, and organization of Federal agencies and of State and local governments to mitigate the adverse effects of disastrous floods. It may include maximum hazard reduction, avoidance, and mitigation measures, as well policies, procedures, and eligibility criteria for Federal grant or loan assistance to State and local governments, private organizations, or individuals as the result of the major disaster.

**Flood Elevation**: Elevation of the water surface above an established datum, e.g. National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988, or Mean Sea Level.

**Flood Hazard Area**: The area shown to be inundated by a flood of a given magnitude on a map.

**Flood Insurance Rate Map (FIRM)**: Map of a community, prepared by the Federal Emergency Management Agency, which shows both the special flood hazard areas and the risk premium zones applicable to the community.

**Flood Insurance Study (FIS)**: A study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.

**Flood Mitigation Assistance Program (FMA)**: A planning and project implementation grant program funded by the National Flood Insurance Program. Provides pre-disaster grants to State and local governments for both planning and implementation of mitigation strategies. Grant funds are made available from NFIP insurance premiums, and therefore are only available to communities participating in the NFIP.

**Flood of Record**: The highest known flood level for the area, as recorded in historical documents.

**Floodplain**: Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.

**Floodproofing**: Protective measures added to or incorporated in a building to prevent or minimize flood damage. Dry floodproofing measures are designed to keep water from entering a building. Wet floodproofing measures minimize damage to a structure and its contents from water that is allowed into a building.

**Floodway**: The stream channel and that portion of the adjacent floodplain which must remain open to permit conveyance of the base flood. Floodwaters are generally the swiftest and deepest in the floodway. The floodway should remain clear of buildings and impediments to the flow of water.

**Frequency**: A measure of how often events of a particular magnitude are expected to occur. Frequency describes how often a hazard of a specific magnitude, duration, and/or extent typically occurs, on average. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average, and would have a 1 percent chance (its probability) of happening in any given year. The reliability of this information varies depending on the kind of hazard being considered.

**Fujita Scale of Tornado Intensity**: Rates tornadoes with numeric values from F0 to F5 based on tornado wind speed and damage sustained. An F0 indicates minimal damage such as broken tree limbs or signs, while an F5 indicates severe damage sustained.

**Functional Downtime**: The average time (in days) during which a function (business or service) is unable to provide its services due to a hazard event.

**Geographic Area Impacted**: The physical area in which the effects of the hazard are experienced.
Geographic Information System (GIS): A computer software application that relates physical features on the earth to a database to be used for mapping and analysis.

Georgia Water Resources Board (GWRB): The State agency responsible for administration of the National Flood Insurance Program, and the dam safety program.

Ground Motion: The vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter, but soft soils can further amplify ground motions.

Hazard Event: A specific occurrence of a particular type of hazard.

Hazard Identification: The process of defining and describing a hazard, including its physical characteristics, magnitude and severity, probability and frequency, causative factors, and locations or areas affected.

Hazard Mitigation Grant Program (HMGP): Authorized under Section 404 of the Stafford Act; a FEMA disaster assistance grant program that funds mitigation projects in conformance with post-disaster mitigation plans required under Section 409 of the Stafford Act. The program is available only after a Presidential disaster declaration.

Hazard Mitigation Plan: The plan resulting from a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards present in society that includes the actions needed to minimize future vulnerability to hazards. Section 409 of the Stafford Act requires the identification and evaluation of mitigation opportunities, and that all repairs are made to applicable codes and standards, as condition for receiving Federal disaster assistance. Enacted to encourage identification and mitigation of hazards at all levels of government.

Hazard Mitigation: Sustained actions taken to reduce or eliminate long-term risk to human life and property from natural and technological hazards and their effects. Note that this emphasis on long-term risk distinguishes mitigation from actions geared primarily to emergency preparedness and short-term recovery.

Hazard Profile: A description of the physical characteristics of hazards and a determination of various descriptors including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.

Hazard: A source of potential danger or adverse condition. An event or physical condition that has the potential to cause fatalities, injuries, property and infrastructure damage, agriculture loss, damage to the environment, interruption of business, or other types of harm or loss. Hazards, as defined in this study, will include naturally occurring events such as floods, dam failures, levee failures, tornadoes, high winds, hailstorms, lightning, winter storms, extreme heat, drought, expansive soils, urban fires, wildfires that strike populated areas, and earthquakes. A natural event is a hazard when it has the potential to harm people or property. For purposes of this study, hazardous materials events are also included.

HAZUS (Hazards U.S.): A GIS-based nationally standardized earthquake loss estimation tool developed by FEMA.

Hydrology: The science of dealing with the waters of the earth. A flood discharge is developed by a hydrologic study.

Infrastructure: The public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area’s transportation system such as airports, heliports; highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots, and waterways, canals, locks, and regional dams.
Insurance Service Office, Inc. (ISO): An insurance organization that administers several programs that rate a community’s hazard mitigation activities.

Intensity: A measure of the effects of a hazard event at a particular place.

Lifelines: Transportation and utility systems that are essential to the function of a region and to the well being of its inhabitants. Transportation systems include highways, air, rail, and waterways, ports, and harbors. Utility systems include electric power, gas and liquid fuels, telecommunications, water, and wastewater.

Liquefaction: The phenomenon that occurs when ground shaking causes loose soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength.

Lowest Floor: Under the NFIP, the lowest floor of the lowest enclosed area (including basement) of a structure.

Magnitude: A measure of the strength of a hazard event. The magnitude (also referred to as severity) of a given hazard event is usually determined using technical measures specific to the hazard.

Mitigation Plan: A systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in the state and includes a description of actions to minimize future vulnerability to hazards.

Mitigation: Sustained action taken to reduce or eliminate the long-term risk to human life and property from natural and technological hazards and their effects. Note that this emphasis on long-term risk distinguishes mitigation from actions geared primarily to emergency preparedness and short-term recovery (Burby, 1998).

National Flood Insurance Program (NFIP): A federal program created by Congress in 1968 that provides the availability of flood insurance to communities in exchange for the adoption and enforcement of a minimum floodplain management ordinance specified in 44 CFR §60.3. The ordinance regulates new and substantially damaged or improved development in identified flood hazard areas.

National Weather Service (NWS): Prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to Federal and state entities in preparing weather and flood warning plans.

One Hundred (100)-Year Flood: The flood elevation that has a one percent chance of being equaled or exceeded in any given year. It is also known as the base flood.

Permeability: The property of soil or rock that allows water to pass through it.

Planning for Post-Disaster Reconstruction: The process of planning (preferably prior to an actual disaster) those steps the community will take to implement long-term reconstruction with one of the primary goals being to reduce or minimize its vulnerability to future disasters. These measures can include a wide variety of land-use planning tools, such as acquisition, design review, zoning, and subdivision review procedures. It can also involve coordination with other types of plans and agencies but is distinct from planning for emergency operations, such as restoration of utility services and basic infrastructure.

Planning: The act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.

Preparedness: Activities to ensure that people are ready for a disaster and respond to it effectively. Preparedness requires figuring out what will be done if essential services break down, developing a plan for contingencies, and practicing the plan.

Probability: A statistical measure of the likelihood that a hazard event will occur.
**Project Impact:** A program that encourages business, government agencies and the public to work together to build disaster-resistant communities.

**Reconstruction:** The long-term process of rebuilding the community’s destroyed or damaged buildings, public facilities, or other structures.

**Recovery:** The process of restoring normal public or utility services following a disaster, perhaps starting during but extending beyond the emergency period to that point when the vast majority of such services, including electricity, water, communications, and public transportation have resumed normal operations. Recovery activities necessary to rebuild after a disaster include rebuilding homes, businesses and public facilities, clearing debris, repairing roads and bridges, and restoring water, sewer and other essential services. Short-term recovery does not include the reconstruction of the built environment, although reconstruction may commence during this period.

**Recurrence Interval:** The time between hazard events of similar size in a given location. It is based on the probability that the given event will be equaled or exceeded in any given year.

**Regulatory Power:** Local jurisdictions have the authority to regulate certain activities in their jurisdiction. With respect to mitigation planning, the focus is on such things as regulating land use development and construction through zoning, subdivision regulations, design standards, and floodplain regulations.

**Relocation:** The moving of a structure from a flood area to a new location, normally to one where there is no threat of flooding.

**Replacement Value:** The cost of rebuilding a structure. This is usually expressed in terms of cost per square foot, and reflects the present-day cost of labor and materials to construct a building of a particular size, type and quality.

**Response:** The actions taken during an event to address immediate life and safety needs and minimize further damage to properties.

**Retrofitting:** Modifications to a building or other structure to reduce its susceptibility to damage by a hazard.

**Richter Scale:** A numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935.

**Risk Assessment:** A process or method for evaluating risk associated with a specific hazard and defined in terms of probability and frequency of occurrence, magnitude and severity, exposure and consequences. Also defined as: The process of measuring the potential loss of life, personal property, housing, public facilities, equipment, and infrastructure; lost jobs, business earnings, and lost revenues, as well as indirect losses caused by interruption of business and production; and the public cost of planning, preparedness, mitigation, response, and recovery. (Burby, 1998).

**Risk:** The estimated impact that a hazard would have on people, services, facilities, and structures in a community: the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

**Runoff:** That portion of precipitation that is not intercepted by vegetation, absorbed by land surface, or evaporated, and thus flows overland into a depression, stream, lake, or ocean (runoff, called immediate subsurface runoff, also takes place in the upper layers of soil).

**Scale:** A proportion used in determining a dimensional relationship; the ratio of the distance between two points on a map and the actual distance between the two points on the earth’s surface.

**Seismicity:** Describes the likelihood of an area being subject to earthquakes.
**Special Flood Hazard Area (SFHA):** An area within a floodplain having a 1 percent or greater chance of flood occurrence in any given year (100- year floodplain); represented on Flood Insurance Rate Maps by darkly shaded areas with zone designations that include the letter A or V.

**Stafford Act:** The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-107 was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and its programs.

**Stormwater Management:** Efforts to reduce the impact of stormwater or snowmelt runoff on flooding and water quality.

**Stream:** A body of water flowing in a natural surface channel. Flow may be continuous or only during wet periods. Streams that flow only during wet periods are termed intermittent streams.

**Structure:** Something constructed. (see also Building)

**Substantial Damage:** Damage of any origin sustained by a structure in a Special Flood Hazard Area whereby the cost of restoring the structure to its before-damaged condition would equal or exceeds 50 percent of the market value of the structure before the damage.

**Surface Faulting:** The differential movement of two sides of a fracture. In other words, the location where the ground breaks apart. The length, width, and displacement of the ground characterize surface faults.

**Tectonic Plate:** Rigid, thin segments of the earth’s lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that cause seismic activity.

**Topographic:** Characterizes maps that show natural features and indicate the physical shape of the land using contour lines. These maps may also include man-made features.

**Tornado:** A violently rotating column of air extending from a thunderstorm to the ground.

**Variance:** Variance means a grant of relief by a community from the terms of a floodplain management regulation.

**Vulnerability Assessment:** The extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address impacts of hazard events on the existing and future built environment.

**Vulnerability:** Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset’s construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power. If an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.

**Water Table:** The uppermost zone of water saturation in the ground.

**Watercourse:** A natural or artificial channel in which a flow of water occurs either continually or intermittently.

**Watershed:** An area that drains to a single point. In a natural basin, this is the area contributing flow to a given place or stream.

**Wetlands:** Areas that are inundated or saturated at a frequency and for a duration sufficient to support a prevalence of vegetative or aquatic life requiring saturated or seasonally saturated soil conditions for growth and reproduction.

**Wildfire:** An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.
**Zone**: A geographical area shown on a Flood Insurance Rate Map (FIRM) that reflects the severity or type of flooding in the area.

**Zoning Ordinance**: An ordinance under the State or local government’s police power that divides an area into districts and, within each district, regulates the use of land and buildings, height and bulk of buildings or other structures, and the density of population.