

# Echols County, Georgia



## Hazard Mitigation Plan 2019-2024

This Plan produced for the Echols County Board of Commissioners  
by the Southern Georgia Regional Commission  
through funding provided by the Federal Emergency Management Agency  
and the Georgia Emergency Management Agency

*To be effective from March 18, 2019 to March 18 2024, pending adoption*

# Table of Contents

Chapter 1: Introduction to the Planning Process.....	1
Section I. Purpose and Need, Authority and Statement of Problem .....	1
Section II. Local Methodology, Plan Update Process, and Participants .....	3
Section III. Plan Review, Analysis, and Revision .....	6
Section IV. Organization of the Plan .....	6
Section V. Local Hazard, Risk, and Vulnerability (HRV) Summary, Local Mitigation Goals, and Objectives .....	7
Section VI. Multi-Jurisdictional Special Considerations .....	8
Section VII. Adoption, Implementation, Monitoring, and Evaluation.....	8
Section VIII. Community Data.....	10
Chapter 2: Local Natural Hazard, Risk, And Vulnerability (HRV) Summary .....	13
Section I. Hurricanes/Tropical Storms.....	14
Section II. Floods.....	18
Section III. Tornadoes .....	22
Section IV. Wildfires .....	26
Section V. Thunderstorms/Lightning .....	30
Section VI. Extreme Heat .....	35
Section VII. Drought .....	39
Chapter 3: Local Technological Hazard, Risk, and Vulnerability (HRV) Summary.....	43
Section I. Hazardous Materials Release .....	43
Section II. Public Health Emergency.....	46
Chapter 4: Local Natural Hazard Mitigation Goals and Objectives .....	49
Overall Community Mitigation Goals, Policies, and Values Narrative.....	50
Section I. Hurricanes/Tropical Storms.....	52
Section II. Floods.....	56
Section III. Tornadoes .....	63
Section IV. Wildfires .....	69
Section V. Thunderstorms and Lightning.....	81
Section VI. Extreme Heat .....	84
Section VII. Drought .....	86
Chapter 5. Local Technological Hazard Mitigation Goals and Objectives.....	88
Overall Community Mitigation Goals, Policies, and Values Narrative.....	88
Section I. Hazardous Materials Release .....	88
Section II. Public Health Emergency.....	92
Chapter 6: Executing The Plan .....	95
Section I. Implementation of the Action Plan.....	95
Section II. Evaluation and Monitoring .....	98
Section III. Plan Update and Maintenance .....	98
Chapter 7: Conclusion .....	100
References .....	101
Appendices .....	102

# Chapter 1: Introduction to the Planning Process

Summary of changes:

Table 1.1 provides a brief description of each section in this chapter and a summary of changes that have been made.

<b>CHAPTER 1 Section</b>	<b>Updates to Section</b>
<b>I. Purpose, Need, Authority, and Statement of Problem</b>	<ul style="list-style-type: none"> <li>• Language updated to reflect that this was an update to the existing plan</li> </ul>
<b>II. Local Methodology, Plan Update Process, and Participants</b>	<ul style="list-style-type: none"> <li>• Planning Committee reviewed each section and updated as necessary</li> </ul>
<b>III. Plan Review, Analysis, and Revision</b>	<ul style="list-style-type: none"> <li>• Planning Committee reviewed each section</li> <li>• Updates made using national, state, and local data</li> </ul>
<b>IV. Organization of Plan</b>	<ul style="list-style-type: none"> <li>• Consistent with original plan</li> </ul>
<b>V. Local Hazard, Risk and Vulnerability (HRV) Summary, Local Mitigation Goals, and Objectives</b>	<ul style="list-style-type: none"> <li>• Updates made using national, state, and local data</li> </ul>
<b>VI. Multi-Jurisdictional Special Considerations</b>	<ul style="list-style-type: none"> <li>• No major changes from original plan</li> </ul>
<b>VII. Adoption, Implementation, Monitoring, and Evaluation</b>	<ul style="list-style-type: none"> <li>• Evaluation method revised and updated.</li> </ul>
<b>VIII. Community Data</b>	<ul style="list-style-type: none"> <li>• Updates made using most recent available national, state, and local data</li> </ul>

Table 1.1: Overview of updates to Chapter 1: Introduction to the Planning Process

## Section I. Purpose and Need, Authority and Statement of Problem

This document is the official plan update to the previous Echols County Pre-Disaster Mitigation Plan Update, as approved by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA), which took effect on March 18, 2014 and expires on March 18, 2019.

The purpose of this document is to provide an overview of the hazards that may impact Echols County and to outline the community’s plans to mitigate the potential loss of life and damages to property and the economy that could occur with these events. Hazard Mitigation is a means to address and proactively reduce the potential damage that may be caused by natural or man-made disasters.

This Plan is a direct result of research and a planning and public involvement process undertaken by the local government officials and citizens of Echols County after they formed the Echols County Hazard Mitigation Plan Update Committee (hereafter known as the HMPUC). This Plan

is the result of their commitment to reduce the risks of natural hazards and the effects of those natural hazards to their communities. There are no incorporated cities located in Echols County.

Authority for the development of this Plan was given by the Echols County Commission as a result of their execution of the Grantee-Subgrantee Agreement for the Echols County Hazard Mitigation Grant Program (HMGP) Planning Project within Echols County, through their participation in the planning project.

In order to initiate an outreach program to neighboring communities, governments, local and regional agencies, and to agencies authorized to regulate development, business, and the public, two Public Hearing Notices were published in the legal organ of the local newspaper. In addition, e-mail lists of stakeholders were kept updated and those on them were informed of meetings through e-mails, letters, and/or telephone calls. Surrounding county EMA Directors were notified of the plan update, via phone calls, and invited to participate in the process. Additionally, several area county Hazard Mitigation Plans were being updated at the same time and an active meeting list was maintained for scheduling purposes. However, no representatives from neighboring counties attended any of the meetings.

Planning Division staff from the Southern Georgia Regional Commission, which represents eighteen counties in the region (including Echols County), attended the Echols County meetings. They participated in all aspects of the planning process and provided a regional perspective in the formation of the Echols County Hazard Mitigation Plan. Revisions to the plan desired by the HMPUC were incorporated into the draft of the plan by SGRC staff while preparing the plan documents, using notes from meetings and phone calls collected during the plan update process. Although ample opportunity was given for public comments (via widely advertised public hearings and all meetings being open to the public), no comments on the plan were submitted by members of the public.

Through the above efforts, the Echols County Hazard Mitigation Plan was updated, including a comprehensive range of Mitigation Goals, Objectives, and Action Steps (see Chapter 4) which will assist the local governments in emphasizing a more direct approach to Hazard Mitigation. The long-term goal is to reduce potential natural disaster losses to life, property, and the economy through Hazard Mitigation efforts.

## Section II. Local Methodology, Plan Update Process, and Participants

### A. Overview

This Hazard Mitigation Plan Update encompasses the jurisdictions of Echols County, located in Southern Georgia. The Southern Georgia Regional Commission provided technical assistance. A local Hazard Mitigation Plan Update Committee (Echols County HMPUC) was formed, and a year-long planning effort was undertaken, the final product of which was a Plan Update containing updated Mitigation Goals, Objectives, and Action Steps to reduce or eliminate the potential for loss of life and damage to property and the economy caused by natural disasters (see Chapter 4).

Potential members of the Echols County HMPUC were contacted by telephone or by letter/e-mail concerning their participation on the Committee. Southern Georgia Regional Commission (SGRC) staff provided technical assistance to the Echols County HMPUC. The Echols County HMPUC was comprised of representatives from Echols County and also included representatives from other groups and individuals, as shown below, who attended meetings and/or conducted research:

<b>Organization</b>	<b>Title</b>	<b>Name</b>
GEMA	Planner	Shelby Meyers
Echols County Board of Education	Superintendent	Lance Heard
Echols County Commission	County Commissioner	Conrad Zeigler
Echols County EMA	Director	Jack Carter
Echols County Extension Office	Secretary	Faye Pearson
Echols County Extension Office	County Coordinator	Justin Shealey
Echols County Health Department	Nurse Manager	Rachel Rogers
Echols County Probate Court	Judge	Carlos L. Rodgers Jr.
Echols County Road Department	Superintendent	Daryl Kinsey
Echols County Sheriff's Office	Sheriff	Randy Carson
Echols County Sheriff's Office	Chief Deputy	Blake Stokes
Echols County Tax Commissioner's Office	Tax Commissioner	Myrna Turner
Georgia Forestry Commission	Ranger	Christopher Shuler
Georgia Forestry Commission	Ranger	Kenneth Mason Terrell
South Health District	EP Director	Karen Craft
South Health District	Risk Communicator	Amy Swails
Superior Court	Clerk	Nora L. Rogers
Valdosta State University	Student Nurse	Kristin Dixon
SGRC	Planner	Loretta Hylton
SGRC	Planner	Ariel Godwin

The Committee held the following meetings, the sign-in sheets of which are included in Appendix E:

- Kick-off public hearing – Dec. 6, 2017
- First workshop – Jan. 23, 2018
- Second workshop – Feb. 27, 2018
- Third workshop – May 1, 2018
- Final public hearing – March 7, 2019

Building upon the previous Plan, each chapter was reviewed chronologically with updated hazard, risk, and vulnerability data, as well as previous accomplishments of mitigation strategy efforts.

Open discussion was permitted at all public meetings for suggestions and/or comments regarding the plan update. Also, during general question and answer periods, comments (if any) were noted by the Southern Georgia Regional Commission staff and incorporated into the plan as appropriate.

Copies of the previous Plan were made available at each meeting, while relevant chapters and sections under discussion were photocopied and distributed to those in attendance for comments. Outside of the formal meetings, parts of the plan were e-mailed to certain individuals who were unable to attend the meetings, and their comments were sought. Copies of the previous Plan and the draft Plan Update document were also available on the Southern Georgia Regional Commission website and from the local EMA office and county government offices.

For the plan update, the Hazard Mitigation Plan Update Committee (HMPUC) used the prior Hazard Mitigation Plan as a basis, reviewing all chapters and sections and updating them as appropriate using national, state, and local data sources. The HMPUC reviewed the individual parts of the prior plan (with an emphasis on the hazards, goals, objectives, and action steps), and updated these elements through open discussion in which updates were noted by SGRC staff, who then used notes from the workshops to create the new Hazard Mitigation Plan document. The Wildfire section was updated using the Georgia Forestry Commission's "Community Wildfire Protection Plan" (see Appendix C). The CWPP was consulted to ensure consistency between the CWPP and HMP, and all action items from the CWPP that were still relevant were included as action steps in the HMP. Land use descriptions, information about zoning, and information about community services were updated using the current joint Comprehensive Plan for the County. Other documents used were the local Emergency Operations Plan, the previous Hazard Mitigation Plan, the State of Georgia Hazard Mitigation Plan, and information from the National Climatic Data Center (NCDC). The State Hazard mitigation plan was consulted to ensure the HMP would be consistent with this plan, and data from the NCDC were used to create the Hazard Frequency Table and associated information regarding each hazard, which can be found in Chapter 2. The County does not have a Flood Mitigation Assistance Plan, but does have a Flood Insurance Study.

## **B. Public Comment and Participation**

The publication of a Public Notice in the legal organ is considered the legal method of notifying the public and inviting them to meetings.

The public was invited to attend and comment during two public hearings. The "kick-off" public hearing was held at the beginning of the planning process and was advertised in the local newspaper (meeting advertisements and sign-in sheets are provided in Appendix E). A second and final public hearing was held near the end of the planning process, before the final plan adoption but after FEMA approval, on March 7, 2019, and was advertised in the local newspaper (see Appendix E). Citizens, including staff and members of the HMPUC, were present (see Appendix E). There were no substantive comments other than those complimentary of the planning process itself. Therefore, there was no need to consider or add public comments **[this will be updated once the 2<sup>nd</sup> hearing has been held]**.

In addition, an e-mail list of stakeholders was kept up to date, including all the attendees who wrote their e-mail address on the sign-in sheet at each meeting, as well as any other interested parties. Further reminders of meetings were provided as needed through telephone calls and in-person communication.

### **C. Mission and Vision Statements**

The HMPUC decided on the following Mission Statement and Vision Statement in the original plan and re-confirmed them in this update to help guide them through the planning process.

**Echols County**  
**Hazard Mitigation Plan Update Committee**  
**Mission Statement**

**This committee’s mission is to make Echols County, and their citizens, residences, and businesses less vulnerable to the effects of natural hazards. This will be accomplished through the effective administration of Hazard Mitigation Programs, hazard risk assessments, wise floodplain management, and a coordinated approach to mitigation policy through state, regional, and local planning activities.**

**Echols County**  
**Hazard Mitigation Plan Update Committee**  
**Vision Statement**

**This committee’s vision is to institutionalize a local Hazard Mitigation ethic through leadership, professionalism, and excellence, thus leading the way to a safe, sustainable way of life for Echols County.**

Due to Echols County being such a close-knit community, the Echols County HMPUC chose not to break into subcommittees, but to address issues as a whole group. Various members of this group had direct knowledge relating to local infrastructure and agencies, emergency planning, hazard planning, and the operations of major departments and emergency services. Through their efforts, this Plan was developed.

The HMPUC was responsible for identifying natural hazard events and completing a profile, vulnerability assessment, potential loss estimation (see Chapter 2, Appendix A, and Appendix D), and updating the Georgia Mitigation Information System (GMIS) Critical Facilities Inventory (see Appendix F). They were also responsible for reviewing and updating the Mitigation Goals, Objectives, and Action Steps (see Chapter 4), among other responsibilities.

### **Section III. Plan Review, Analysis, and Revision**

As mentioned above, the prior Hazard Mitigation Plan was used as a basis for the plan update. The Hazard Mitigation Plan Update Committee (HMPUC) reviewed all chapters and sections of the prior plan and updated them as appropriate, using national, state, and local sources. Other documents consulted included:

- The Community Wildfire Protection Plan (see Appendix C)
- The current Comprehensive Plan, which includes the five-year Community Work Program
- The Local Emergency Operations Plan
- The current State of Georgia Hazard Mitigation Strategy
- The local Service Delivery Strategy
- Data from the National Climatic Data Center (NCDC).
- Echols County Flood Insurance Study

Echols County does not have a flood mitigation assistance plan.

After organizing resources, an update of the risk assessment was performed. New forms, worksheets, and data (included in the Appendix) were also completed. Afterward, the Mitigation Goals, Objectives, and Action Steps were reviewed to determine if they were to remain the same or be added to, modified, or removed.

All chapters of this Plan have been updated to reflect the new material. See the tables at the beginnings of the chapters for further information regarding which items were changed and updated.

### **Section IV. Organization of the Plan**

This Plan focuses on seven natural hazards chosen by the HMPUC that may affect and cause damage to Echols County. Chapter 2, Chapter 4, and Appendix A are each subdivided into Sections I through VII; these sections reflect the 7 natural hazards that were chosen. The natural hazards are as follows (in order of priority):

1. Hurricanes/Tropical Storms
2. Floods
3. Tornadoes
4. Wildfires
5. Thunderstorms/Lightning
6. Extreme Heat
7. Drought

Other hazards, such as Avalanche, Coastal Erosion, Coastal Storm, Dam Failure, Earthquake, Expansive Soils, Extreme Heat, Land Slide, SLOSH (Sea, Lake and Overland Surges from Hurricanes), Tsunami, and Volcano, were examined and determined not to be of sufficient



significance in the community to warrant their inclusion in the present Hazard Mitigation Planning effort, based on past history and available data.

This Plan also contains a HAZUS report (see Appendix G), a comprehensive range of Mitigation Goals, Objectives, and Action Steps (Chapter 4), and information on implementation, monitoring, and plan update and maintenance (see Chapter 6), as well as other FEMA-required items and materials (included in various Chapters, Sections and Appendices).

Throughout the effective time period of this Plan, the County Commissioners will assign staff, as appropriate, to implement the comprehensive range of Mitigation Goals, Objectives, and Action Steps and other pertinent items that are contained in this Plan.

The Echols County Hazard Mitigation Plan exists in one bound volume appended with various papers and documents, as well as a PDF document that is available on the SGRC website. The planning efforts of Echols County is intended to be an ongoing process and the Plan is to be amended as appropriate.

This Plan was prepared for:  
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Copies of the Plan are on file and may be examined at the County government offices, the County Emergency Management Agency, the Southern Georgia Regional Commission office (as well as the SGRC website, [www.sgrc.us](http://www.sgrc.us)), and the Georgia Emergency Management and Homeland Security Agency (GEMHSA).

## **Section V. Local Hazard, Risk, and Vulnerability (HRV) Summary, Local Mitigation Goals, and Objectives**

The HMPUC determined that the hazards established in the previous plan were still the most significant threats to the community, and their order of priority remains unchanged. A Hazard, Risk, and Vulnerability (HRV) Assessment has been formulated through a variety of information obtained during the planning process. Information has been obtained from online databases, published sources, and personal accounts regarding hazards, their history in the community, and when and where they were active. This summary is provided in Chapter 2.

The vulnerability of the community to natural hazards is also summarized in the Hazard Frequency Table (see Appendix D), and the Inventory of Assets and number of people exposed to each hazard is evaluated in GEMA Worksheet 3A (see Appendix A). Critical Facilities and Critical Infrastructure are also examined as to the present value and potential losses from natural hazards (see Appendix F).

A description that identifies and analyses a comprehensive range of Mitigation Goals, Objectives, and Action Steps to reduce the effects of each hazard (based on risk assessment findings, with identifiable comprehensive ranges for each jurisdiction) is included in Chapter 4, Sections I-VII. In Chapter 6, Section I, there is a description related to prioritization of these Mitigation Goals, Objectives, and Action Steps through the use of cost/benefit analysis, STAPLEE (Social, Technical, Administrative, Political, Legal, Economic and Environmental), and other criteria. Also in Chapter 6, there are sections on Implementing the Action Plan (see Section I), Evaluation, Monitoring, Updating (see Section II), and Plan Update and Maintenance (see Section III).

## **Section VI. Multi-Jurisdictional Special Considerations**

According to the U.S. Census Bureau, the county has a total area of 415 square miles. The county contains a notable swamp, Whitehead Bay. The western half of Echols County is located in the Alapaha River sub-basin of the Suwannee River basin. The eastern half of the county, from well east of Statenville to just west of Fargo, is located in the Upper Suwannee River sub-basin of the same Suwannee River basin.

As such, certain services, including emergency services, may have large distances to cover when responding to an event, which may negatively influence emergency response times and strain resources. Echols County has no incorporated cities.

Of the 3 Fire Department properties in Echols County, all are staffed by volunteers.

The following are the ISO Classes of the fire district in Echols County.

<b>Station</b>	<b>ISO Class</b>
Echols County Fire Department	Class 6
Howell Station	Class 6
Chapple Station	Class 6

## **Section VII. Adoption, Implementation, Monitoring, and Evaluation**

After all plan development workshops were concluded, the draft plan was submitted to all local governments for their review. The draft plan was then submitted to GEMA and FEMA for their review and approval. After their approval, and any recommended changes, a second and final public hearing was held on March 7, 2019 in order to provide a further opportunity for public comment and review. After this final public hearing, resolutions adopting the plan were passed by the local governments on **[insert date here once the plan is adopted]** adopting the Plan Update. Copies of the public hearing advertisements and resolutions are available in Appendix E.

The comprehensive range of Mitigation Goals, Objectives, and Action Steps (see Chapter 4), which contains items related to all local governments, will be implemented as soon as possible and/or as funds become available to do so.

All sections of the Plan will be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals Objectives and Action Steps will be reported to the public through appropriate means (TV, website, social media, local newspapers, County Commission meetings, etc.).

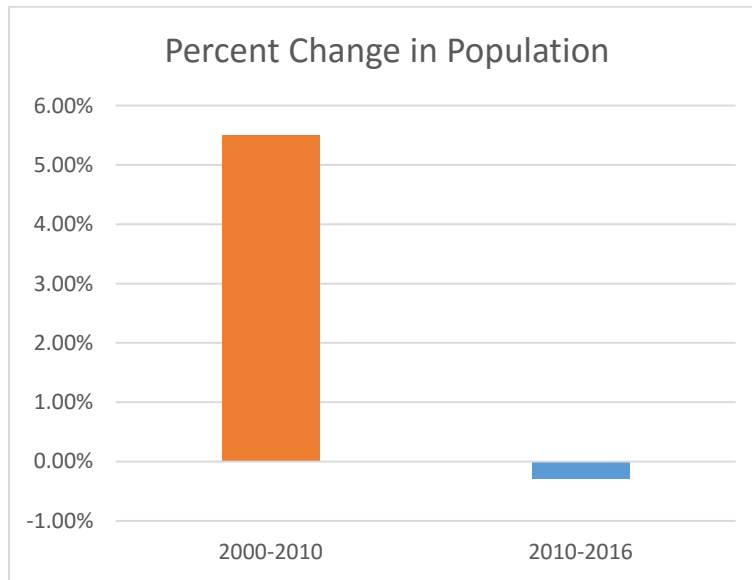
The method that the County EMA will use to monitor the plan will be to conduct quarterly telephone interviews with the various local governments and area agencies in order to chart their plan progress. Also, throughout the year, a series of informal meetings will be held in which various aspects of the plan are discussed. In addition, annual evaluations of the plan will take place on or near the anniversary of the date of Plan adoption. The annual evaluation will assess which of the goals, objectives, and action steps have been achieved; whether those goals, objectives, and action steps still address current and expected conditions; whether the nature or magnitude of risks has changed; whether current resources are appropriate for implementing the plan; and whether agencies and other parties have participates as originally proposed.

During this annual evaluation, problems (if any) with completing the action steps will be discussed, methods of resolving those problems (if any) will be formulated, the action steps will be updated (if necessary), and new actions steps will be developed (if necessary) in response to new problems that have developed throughout the year. If any changes or updates are needed to the other sections of the plan itself, these will also be discussed and noted. Critical Facilities and infrastructure changes and updates will also be discussed at this time and then added to the online GEMA database as required. New hazards in the area (if any) will be discussed and planned for and an assessment made as to whether community needs dictate additions to the materials of the plan.

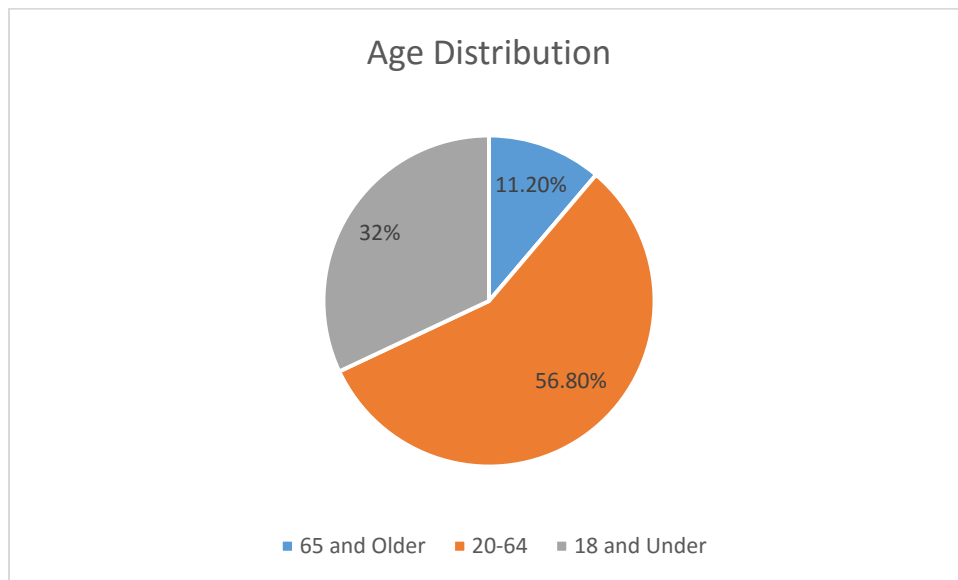
The major criteria to measure plan success will be the number of goals, objectives, and action steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

The Plan will be updated by the EMA Director and chosen representatives of all of the local governments every five years, as required by FEMA. All sections of this Plan will be updated at that time. The Plan update will be reviewed by all jurisdictions and relevant stakeholders. The requirements of this Hazard Mitigation Plan will be taken into consideration and incorporated into Comprehensive Plans, Capital Improvement Plans, Local Emergency Operations Plans, and all other such Plans, as appropriate. This updating process will be publicly advertised and public comment solicited and incorporated as necessary and as appropriate.

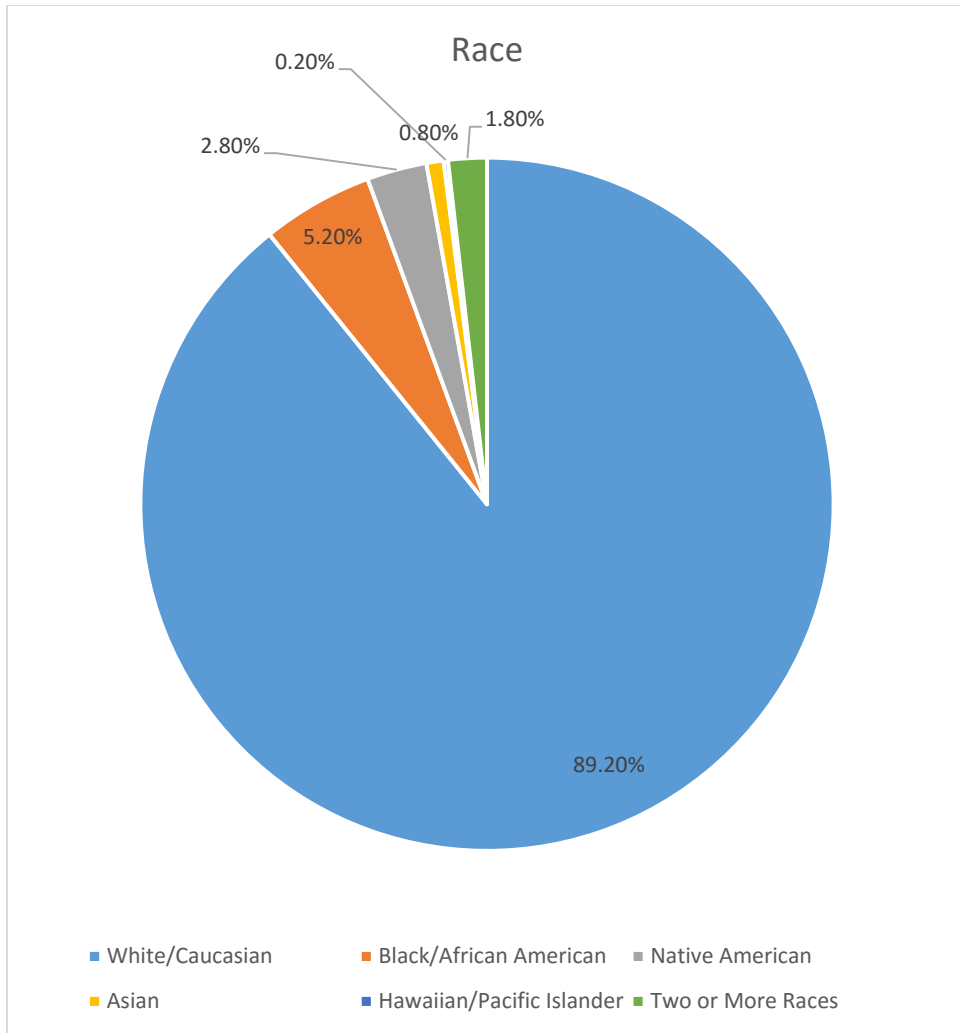
## Section VIII. Community Data



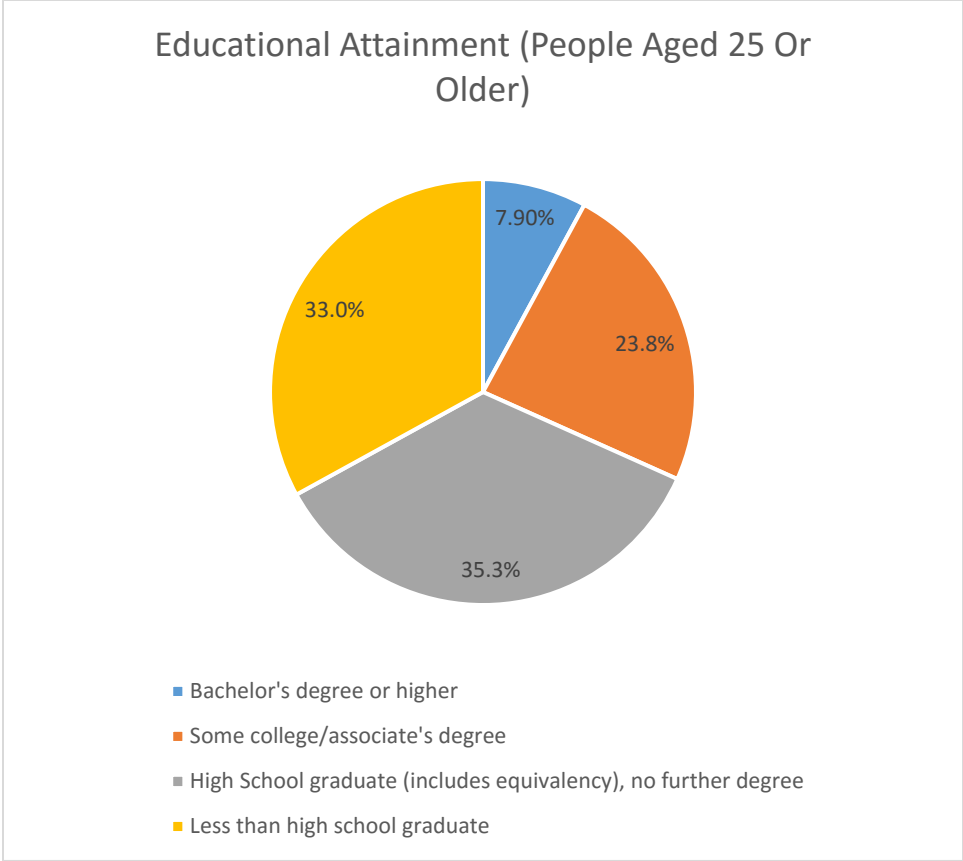
According to 2017 U.S. Census Bureau American Community Survey 5-year estimates (the most recent available), the population of Echols County is 3,936, a decrease of -0.3% since 2010. Echols County had an increase in population between 2000 and 2010 at 5.5%.



According to 2016 estimates, the age distribution in Echols County is 11.2% are 65 and over, 56.8% ages 20-64, and 32% under 18. Echols County's population is 52.5% female and 47.5% male. The total number of people aged 65 and older in Echols County increased by 1.6% from 2010 to 2016.



The population of Echols County is 89.2% White/Caucasian, 5.2% Black/African American, 2.8% American Indian or Alaska Native, 0.8% Asian, 0.2% Native Hawaiian/Pacific Islander, and 1.8% two or more races. 29.6% are of Hispanic/Latino ethnicity (of any race).



Among persons aged 25 or older, in Echols County, 33% have no high school diploma, 35.3% are high school graduates (includes equivalency) with no further education, 23.8% have some college or an associate’s degree, and 7.9% have a bachelor’s or higher degree.

As of 2016 US Census Bureau American Community Survey 5-year estimates (the most recent currently available), the median household income in Echols County is \$35,354.

The percentage of the population living below the federal poverty level is estimated at 30.2% for Echols County. For persons under 18, the percent living below the poverty level is estimated at 40.3% in Echols County.

In 2016, according to the Bureau of Labor Statistics, the annual average seasonally-adjusted unemployment rate for Echols County was 7.0%.

Source: U.S. Census Bureau ([www.census.gov](http://www.census.gov))

## Chapter 2: Local Natural Hazard, Risk, And Vulnerability (HRV) Summary

### Summary of changes:

During the plan update process, the HMPUC reviewed the hazards that may affect the community, and their priority. This updated plan includes the same seven natural hazards that were included in the previous plan, in the same order of priority. Table 2.1 provides a brief description of each section in this chapter and a summary of changes that have been made.

<b>Chapter 2 Section</b>	<b>Updates to Section</b>
I. Hurricanes/Tropical Storms	Updated data and information; edited for clarity
II. Floods	Updated data and information; edited for clarity
III. Tornadoes	Updated data and information; edited for clarity
IV. Wildfires	Updated data and information; edited for clarity
V. Thunderstorms/Lightning	Updated data and information; edited for clarity
VI. Extreme Heat	Updated data and information; edited for clarity
VII. Drought	Updated data and information; edited for clarity

Table 2.1: Overview of updates to Chapter 2

Flood and wildfire are the only hazards for which the level of risk varies geographically within the county; the remaining hazards constitute an equal threat to all geographic areas of the community. For more information, including hazard maps, see Appendix A.

Other hazards, such as Avalanche, Coastal Erosion, Coastal Storm, Dam Failure, Earthquake, Expansive Soils, Extreme Heat, Land Slide, SLOSH (Sea, Lake and Overland Surges from Hurricanes), Tsunami, and Volcano, were examined and determined not to be of sufficient significance in the community to warrant their inclusion in the present Hazard Mitigation Planning effort, based on past history and available data.

## **Section I. Hurricanes/Tropical Storms**

### **A. Identification of Hazard**

The threat of hurricanes/tropical storms has been chosen by the HMPUC as the most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events. For further information, see the HAZUS Report in Appendix G.

Hurricanes and tropical storms are both types of tropical cyclones. Tropical cyclones are the general term used for all circulating weather systems over tropical water.<sup>1</sup> Tropical cyclones are destructive and have the potential to cause great damage and loss of life. They are divided into four major types: Hurricanes, Tropical Storms, Tropical Disturbances, and Tropical Depressions.

A hurricane, also known as a typhoon, is defined by NOAA's National Hurricane Center (<http://www.nhc.noaa.gov/aboutgloss.shtml>) as a tropical cyclone in which the maximum sustained surface wind (using the U.S. 1-minute average) is 64 kt (74 mph or 119 km/hr) or more. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline.

A tropical storm is defined as tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 kt (39 mph or 63 km/hr) to 63 kt (73 mph or 118 km/hr).

A tropical disturbance is a discrete tropical weather system of apparently organized convection -- generally 100 to 300 nmi in diameter -- originating in the tropics or subtropics, having a nonfrontal migratory character, and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

A tropical depression is defined as tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) is 33 kt (38 mph or 62 km/hr) or less.

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time. The scale provides examples of the type of damage and impacts in the United States associated with winds of the indicated intensity. The following table shows the scale broken down by winds:

---

<sup>1</sup> A tropical cyclone is defined by NOAA as "a warm-core non-frontal synoptic-scale cyclone, originating over tropical or subtropical waters, with organized deep convection and a closed surface wind circulation about a well-defined center. Once formed, a tropical cyclone is maintained by the extraction of heat energy from the ocean at high temperature and heat export at the low temperatures of the upper troposphere. In this they differ from extratropical cyclones, which derive their energy from horizontal temperature contrasts in the atmosphere (baroclinic effects)." (<http://www.nhc.noaa.gov/aboutgloss.shtml>)



## SAFFIR-SIMPSON HURRICANE SCALE

(Source: NOAA <http://www.nhc.noaa.gov/aboutgloss.shtml>)

Category	Wind Speed	Damage
1	74 - 95	Very dangerous winds will produce some damage
2	96 - 110	Extremely dangerous winds will cause extensive damage
3	111 - 129	Devastating damage will occur
4	130 - 156	Catastrophic damage will occur
5	> 156	Catastrophic damage will occur

The official Atlantic hurricane season (which includes Gulf Coast and East Coast hurricanes) is June 1 through November 30, but hurricanes and tropical storms may also occur outside of those dates. Whether the hurricane/tropical storm is a short-term event or a long term event depends on many factors including category, strength, speed, and impact of other weather systems, including fronts and wind patterns.

Because of their location, Echols County is vulnerable to severe hurricanes/tropical storms forming in both the Atlantic Ocean and the Gulf of Mexico. Also due to location, hurricanes may degrade into tropical storms, tropical depressions, or tropical disturbances by the time they reach this area. These may or may not contain tornadoes or hail. In some cases, tropical storms, depressions, or disturbances may never reach hurricane strength before reaching the shore. The effects vary depending on the severity of the hurricane/tropical storm and the duration of the event.

### **B. Profile of Events, Frequency of Occurrences, Probability**

According to the NOAA Storm Events Database (see Appendix F), there are 2 reports of Tropical Storms occurring in Echols County between 01/01/1950 and 12/31/2017. The two reported were in 2004. Two others have occurred that are not listed in the NOAA database (namely, Tropical Storm Hermine on Sept. 1, 2016 and Tropical Storm Irma on Sept. 11, 2017).

The Historic Recurrence Interval is 17.00 years. This is a 5.88% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.2, the past 20-year frequency is 0.2, and the past 50-year frequency is 0.08 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, two Hurricane/Tropical Storm events have occurred. On Sept. 1, 2016, Tropical Storm Hermine caused 50-mph wind speeds, widespread power outages, downed power lines, impassable roads due to fallen trees, and damage to homes and other structures. On Sept. 11, 2017, Tropical Storm Irma caused 55-mph wind speeds and widespread power outages, downed power lines, impassable roads due to fallen trees, and damage to homes and other structures.

Although the most complete available data were used for this analysis, the possibility remains that other hurricane/tropical storm events may have occurred in the community that went unreported or underreported.

Almost all of Echols County has a wind hazard score of 2 (91-100 mph gust). A small portion of the southwestern corner of the County has a wind hazard score of 3 (101-110 mph gust). A map of the wind hazard scores and critical facilities is provided in Appendix A.

### **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County are equally vulnerable to hurricanes/tropical storms. Approximately half of the County (the northern half) has a wind hazard score of 2 (91-100 mph gust) and the other half (the southern half) has a wind hazard score of 3 (101-110 mph gust). A map of the wind hazard scores and critical facilities is provided in Appendix A.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. All 25 Critical Facilities are in areas with a wind hazard score of 2. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

### **E. Land Use and Development Trends**

The County has seen a slight decrease in population over the last few years.

Echols County does not have zoning regulations. The County has mandatory building and fire codes which are enforced by a building inspector. The County participates in comprehensive planning and in the required updates of the Service Delivery Strategy.

No other land use or development trends that relate to this hazard have been identified at this time.

### **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. Hurricane/tropical storm events are usually area-wide, but the impact may be more severe in places with higher population density due to more people being in danger, more people needing to be evacuated, more debris from damaged buildings, and other impacts associated with higher population density. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of strong winds and other hazards.

Echols County is a member of the National Flood Insurance Program. (Source: <https://www.fema.gov/cis/GA.html>) Echols County does not participate in the Community Rating System (CRS) program.

### **G. Overall HRV Summary of Events and Their Impact**

Hurricanes/tropical storms have the potential to cause damage at any place, at any time, throughout Echols County. They are usually preceded by some watch or warning well in advance. The cost of the damage and potential loss of life may be higher if the path of the hurricanes/tropical storms covers populated areas as opposed to more sparsely populated or unpopulated areas.

The Echols County HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## Section II. Floods

### A. Identification of Hazard

The threat of a flood has been chosen by the HMPUC as the second most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events. For further information, see the HAZUS Report in Appendix G.

Floods may occur at any time, in many cases without warning, and their effects can range from minor inconvenience to wholesale destruction. Floods are most often caused by heavy rains associated with thunderstorms, hurricanes, or tropical storms. Flooding can result from a rise in the level of a body of water such as a river or a lake, or from rain falling faster than it can be absorbed by the ground (especially under weather conditions that make soil less pervious, for example after a period of drought). Flooding frequently occurs in urban areas when a large amount of rain, above the capacity of the urban drainage system, falls on impervious surfaces such as streets, buildings, and parking lots. Flooding can also result from the failure of man-made structures such as levees and dams.

Flash floods are floods that occur in short time-spans, often so quickly that people are caught off-guard. Flash floods can occur as a result of any of the causes mentioned above, but are most often due to extremely heavy rainfall from thunderstorms. More information is available at the National Weather Service (<https://www.weather.gov/phi/FlashFloodingDefinition>).

According to the National Weather Service (<http://tadd.weather.gov/>), more deaths occur each year due to flooding than from any other thunderstorm-related hazard. The Centers for Disease Control and Prevention report that over half of all flood-related drownings occur when a vehicle is driven into hazardous flood water. The next highest percentage of flood-related deaths is due to walking into or near flood waters. People underestimate the force and power of water. Many of the deaths occur in automobiles as they are swept downstream. Of these drownings, many are preventable, but too many people continue to drive around the barriers that warn you the road is flooded. A mere 6 inches of fast-moving flood water can knock over an adult. It takes just 12 inches of rushing water to carry away a small car, while 2 feet of rushing water can carry away most vehicles. It is never safe to drive or walk into flood waters.

Flood zones, as defined by FEMA, are described in the table below.

#### **Flood Zone Designations and Descriptions**

Source: FEMA (<https://hazards.fema.gov/onlinelomc/ext/Help/loadInstructions>)

<b>Zone Designations</b>	<b>Zone Descriptions</b>
<b>A</b>	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.
<b>AH</b>	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the

	life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
<b>AO</b>	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
<b>A1-A30</b>	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).
<b>A99</b>	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.
<b>AE</b>	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
<b>AR</b>	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
<b>V</b>	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
<b>V1-V30</b>	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
<b>VE</b>	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
<b>B</b>	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
<b>C</b>	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.
<b>D</b>	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.
<b>X Shaded</b>	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
<b>X Unshaded</b>	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.

Echols County is vulnerable to the effects of flooding. Areas within flood zones are naturally more vulnerable. For more information, see the maps in Appendix A.

**B. Profile of Events, Frequency of Occurrences, Probability**

According to the NOAA Storm Events Database (see Appendix F), there are 4 reports of floods occurring in Echols County between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 17.00 years. This is a 5.88% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.1, the past 20-year frequency is 0.15, and the past 50-year frequency is 0.08 (see the Hazard Frequency Table in Appendix D).

No flood events have been recorded since the previous hazard mitigation plan was adopted. However, a major flooding event occurred on April 5, 2009 in the unincorporated community of Mayday. 25 homes were evacuated, and a road was closed due to a washout. Major flooding was reported on both sides of the Alapaha River. A house normally 10 feet above ground level had a water level 20 inches below the floor at that time. During this event, the Alapaha River reached the highest crest on record, 107.62 feet.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported.

### **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that those parts of Echols County that are in FEMA-determined flood zones (in the case of Echols County, all these zones are Flood Zone “A”) are vulnerable to this hazard.

An estimated 6.5% of the Residential property (87 of 1,344) in Echols County could be affected by this hazard, with a total value of \$2,841,583. Also, an estimated 31.4% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (245 of 780) in the community may be affected, with a total value of \$194,987,078. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor’s Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development’s 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, none of the 25 Critical Facilities and Infrastructure for Echols County are within flood zones, therefore it is predicted that no Critical Facilities are vulnerable to this hazard.

Many individuals do not have access to transportation and thus are susceptible to weather hazards. It is very important to notify these individuals through weather radios, radio stations, and other means so that they may seek shelter and/or make arrangements for transportation to shelter facilities. Therefore, a major consideration should be helping individuals, government, and non-profit organizations prepare for the pending flood hazard events.

The GMIS reports does not list any Repetitive Loss/NFIP properties in Echols County.

### **E. Land Use and Development Trends**

The County has seen a slight decrease in population over the last few years. Echols County does not have zoning regulations. The County does have mandatory building and fire codes which are enforced by a building inspector. The County participates in comprehensive planning and in the required updates of the Service Delivery Strategy.

No other land use or development trends that relate to this hazard have been identified at this time.

## **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. According to FEMA data, 15.0% of the total area of Echols County (40,345 acres) is within a flood zone (all in Zone A).

Echols County is a member of the National Flood Insurance Program (source: <https://www.fema.gov/cis/GA.html>). As of late 2017, Echols County is in compliance with NFIP requirements and intend to remain in compliance by enforcing flood plain ordinances which prohibit or severely limit development in floodplains. For example, the Echols County Water Resource Districts Ordinance establishes Groundwater Recharge Area Districts, River Corridor Protection Districts, and Wetlands Districts, with restrictions on construction and land uses within those districts.

Echols County does not participate in the FEMA Community Rating System (CRS) program because it is not an eligible community, as of October 2017 (source: [https://www.fema.gov/media-library-data/1503240360683-30b35cc754f462fe2c15d857519a71ec/20\\_crs\\_508\\_oct2017.pdf](https://www.fema.gov/media-library-data/1503240360683-30b35cc754f462fe2c15d857519a71ec/20_crs_508_oct2017.pdf)).

## **G. Overall HRV Summary of Events and Their Impact**

Floods have the potential to cause damage at any place, at any time, throughout Echols County and especially in flood-prone areas. Floods can happen quickly and residents may not have time to evade floodwaters. The cost of the damage and potential loss of life may be higher if the event strikes populated areas as opposed to more sparsely populated or unpopulated areas.

The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## Section III. Tornadoes

### A. Identification of Hazard

The threat of tornadoes has been chosen by the HMPUC as the third most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events. For further information, see the HAZUS Report in Appendix G.

A tornado is defined by NOAA (<http://www.nssl.noaa.gov/education/svrwx101/tornadoes/>) as a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground. Because wind is invisible, it is hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust and debris. Tornadoes are the most violent of all atmospheric storms.

About 1,200 tornadoes hit the U.S. yearly. A tornado watch is issued when weather conditions are favorable for tornadoes. During a tornado watch, residents are advised to watch and prepare for severe weather and stay tuned to NOAA Weather Radio to know when warnings are issued. A tornado warning is issued when a tornado has been reported by spotters or indicated by radar and there is a serious threat to life and property to those in the path of the tornado. When a tornado warning is issued, residents must act immediately to find safe shelter. A warning can cover parts of counties or several counties in the path of danger.

The Enhanced Fujita Scale, implemented by the National Weather Service in 2007, is used to assign a tornado a rating based on estimated wind speeds and related damage. The wind speeds associated with the EF ratings are shown in the table below. Because of the difficulty of measuring wind speeds inside a tornado, wind speeds are estimated based on the type of damage that occurs; more information is available on the NOAA website at <http://www.spc.noaa.gov/faq/tornado/ef-scale.html>.

#### **ENHANCED FUJITA WIND DAMAGE SCALE**

(Source: <http://www.spc.noaa.gov/faq/tornado/ef-scale.html>)

<b>EF Number</b>	<b>3-Second Gust</b>	<b>Damage</b>
EF-0	65 to 85 mph	Light damage. Some damage chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
EF-1	86 to 110 mph	Moderate Damage. The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
EF-2	111 to 135 mph	Significant Damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; high rise windows broken and blown in; light-object missiles generated.



EF-3	136 to 165 mph	Severe Damage. Roofs and walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
EF-4	166 to 200 mph	Devastating, damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
EF-5	Over 200 mph	Incredible, damage. Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 m (109 yards); trees debarked; steel reinforced concrete structures badly damaged.

Tornadoes may occur at any time of year, although the peak “tornado season” for the Southern Plains is during May into early June. Tornadoes can occur due to inclement weather conditions, as a result of a passing front, or as part of thunderstorm or hurricane/tropical storm events. Tornadoes can occur at any time of the day or night, but according to NOAA (<http://www.nssl.noaa.gov/education/svrwx101/tornadoes/>), most tornadoes occur between 4:00 and 9:00 p.m. The path and severity of a tornado cannot be determined in advance. The best defense is to heed tornado warnings and seek appropriate shelter when a tornado has been sighted in the area or when conditions conducive to a tornado are present.

Echols County is vulnerable to the effects of tornadoes. According to NOAA (<https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology>), an average of 30 tornadoes occur per month in Georgia.

**B. Profile of Events, Frequency of Occurrences, Probability**

According to the NOAA Storm Events Database (see Appendix F), there are 4 reports of tornadoes occurring in Echols County between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 17.00 years. This is a 5.88% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.0, the past 20-year frequency is 0.1, and the past 50-year frequency is 0.08 (see the Hazard Frequency Table in Appendix D). The most severe tornado on record has been an F-1, in 1993, and there have also been 3 F-0 tornadoes recorded.

No tornado events have been recorded since the previous hazard mitigation plan was adopted. However, tornadoes have historically affected the community. On Nov. 6, 2002, a tornado caused trees to be blown down along the County’s main transportation route (Highway 94) and produced a 200 yard wide debris field. Earlier, on March 31, 1993, a tornado destroyed a large building on the north side of Statesville on U.S. Highway 129. A church and about 50 homes and trailers were also damaged from the tornado.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported.

**C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County is equally vulnerable to this hazard.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

#### **E. Land Use and Development Trends**

Typically, mobile/manufactured homes are most vulnerable to tornado damage. According to 2016 Census Bureau estimates, 45.7% of occupied housing units in Echols County are mobile homes (650 mobile homes, containing an estimated 1,840 people based on the average household size of 2.83 persons per household in the County).

The County has seen a slight decrease in population over the last few years. Echols County does not have zoning regulations. The County participates in comprehensive planning and in the required updates of the Service Delivery Strategy. No other land use or development trends that relate to this hazard have been identified at this time.

#### **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. Tornadoes tend to follow a straight path regardless of natural features or political boundaries. However, the impact may be more severe in places with higher population density due to more people being in danger, more people needing to be evacuated, more debris from damaged buildings, and other impacts associated with higher population density. The community of Statenville (unincorporated) is the largest community in Echols County.

#### **G. Overall HRV Summary of Events and Their Impact**

Tornadoes have the potential to cause damage at any place, at any time, throughout Echols County. They can form quickly and residents may not have time to find adequate shelter, or else adequate shelter facilities may not be available. The cost of the damage and potential loss of life may be

higher if the event strikes populated areas as opposed to more sparsely populated or unpopulated areas, or if the event strikes areas with a large number of mobile homes.

The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## **Section IV. Wildfires**

### **A. Identification of Hazard**

The threat of wildfire has been chosen by the HMPUC as the fourth most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center and Georgia Forestry Commission (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events.

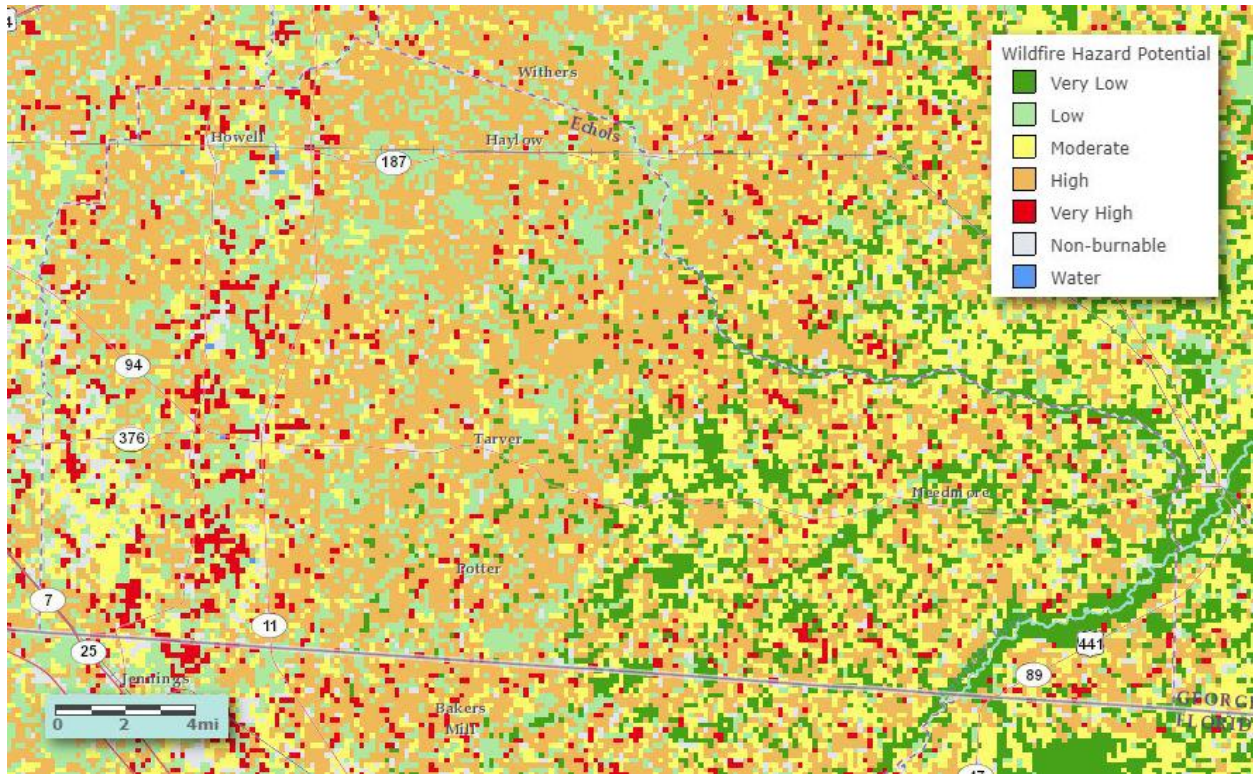
Much of southern Georgia is covered by forests, and fires play an important role in the health of forest ecosystems by breaking down organic matter into soil nutrients and helping seeds to germinate (source: NASA, [https://earthobservatory.nasa.gov/Features/GlobalFire/fire\\_2.php](https://earthobservatory.nasa.gov/Features/GlobalFire/fire_2.php)). When naturally occurring wildfires are suppressed, combustible fuel (such as dead leaves and branches) accumulates in the forest. This increases the risk of larger, more destructive fire events in the future. Controlled, prescribed fires lower the risk of larger fire events and are beneficial to forest health (source: USDA, <https://www.fs.usda.gov/detail/dbnf/home/?cid=stelprdb5281464>).

Low humidity, lack of recent precipitation (or drought conditions), wind speed, and temperature are a combination of weather conditions that favor the kindling and spread of wildfires. A high fuel load (i.e. the accumulation of dead vegetation), in combination with the above, also provides for the kindling and spread of wildfires. Most of Echols County is forested with commercial and free-growing pine trees and other trees. These trees can and do catch fire frequently in both small and large fire events.

According to NASA (<https://earthobservatory.nasa.gov/IOTD/view.php?id=89757>), an estimated 84 percent of wildfires are caused by humans. Some common ways that people start fires include discarding cigarettes, leaving campfires unattended, and losing control of prescribed burns or crop fires. Sparks from railroads and power lines, as well as arson, also routinely cause wildfires.

When a residential area, whether it be a single home or an entire subdivision, is adjacent to an area containing vegetative fuels, such as a forest or other wooded area, this is referred to as a Wildland-Urban Interface area (WUI). These are the areas at greatest risk for property damage due to Wildfire.

Echols County is vulnerable to the effects of wildfires. The USDA Forest Service assigns areas a Wildfire Hazard Potential (WHP) score of Very Low, Low, Moderate, High, or Very High. As the map below shows, much of Echols County is scored High, with some areas scored Very High as well as some areas rated Low or Moderate and very few areas rated Non-burnable.



Data Source: USDA Forest Service and Fire Modeling Institute  
<https://www.arcgis.com/home/item.html?id=f291ac4840984de5a0cf842d8d7a0973>

## **B. Profile of Events, Frequency of Occurrences, Probability**

According to Georgia Forestry Commission data (see Appendix F), there are 2,712 reports of wildfires occurring in Echols County between 01/01/1967 and 12/31/2017. The Historic Recurrence Interval is 0.02 years. This is a 5.424.00% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 16.8, the past 20-year frequency is 30.6, and the past 50-year frequency is 54.24 (see the Hazard Frequency Table in Appendix D). The most destructive event on record was in May 1985, when 1,724 acres burned.

Since the previous Hazard Mitigation Plan was completed, approximately 84 wildfire events have occurred. A total of 928 acres were burned. These events have caused hazardous conditions such as reduced visibility on roadways due to smoke.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported.

## **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County is equally vulnerable to this hazard.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial,

Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor’s Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development’s 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

### **E. Land Use and Development Trends**

The County has seen a slight decrease in population over the last few years.

Echols County does not have zoning regulations. The County has mandatory building and fire codes which are enforced by a building inspector. The County participates in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

No other land use or development trends that relate to this hazard have been identified at this time.

### **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. Wildfires may happen at any place at any time, but are more likely in forested areas. Echols County has many areas rated “High” and “Very High” for Wildfire Hazard Potential. The impact of a wildfire would be more severe in places with higher population density due to more people being in danger and more potential for destruction of homes and other buildings. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of wildfires and other hazards.

The Echols County Fire Department has 3 volunteer fire stations and are staffed by volunteer forces.

The ISO classes of the fire stations in Echols County are as follows:

<b>Station</b>	<b>ISO Class</b>
Echols County Main Fire Department- Statenville	Class 6
Howell Station Fire Department	Class 6
Chapple Station Fire Department	Class 6

### **G. Overall HRV Summary of Events and Their Impact**

Wildfires have the potential to cause damage at any place, at any time, throughout Echols County. They can spread quickly and residents may not have time to evacuate. The cost of the damage and potential loss of life may be higher if the event strikes populated areas as opposed to more sparsely populated or unpopulated areas.

The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## **Section V. Thunderstorms/Lightning**

### **A. Identification of Hazard**

The threat of thunderstorms and lightning has been chosen by the HMPUC as the fifth most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events.

Thunderstorms and wind have the potential to be destructive and may occur at any time. Thunderstorms may develop quickly in Echols County due to inclement weather conditions, a passing front, or hurricane/tropical storm events. Wind events may occur on their own, due to inclement weather, as a result of a passing front, or as part of thunderstorm or hurricane/tropical storm events.

Thunderstorms are one of the most common weather products of our atmosphere and should not be underestimated. They can cause serious injury, substantial property damage, and even death. Dangers associated with thunderstorms include lightning, hail, heavy rain, flooding, and strong winds. Wind speeds in a thunderstorm can exceed 100 mph and can be as damaging as a tornado. Lightning associated with these events may be one of the leading causes of wildfire in Echols County. Lightning can also occur even if it is not raining.

### **NOAA Types of Thunderstorms:**

#### **THE SINGLE CELL STORM:**

Single cell thunderstorms usually last from 20 to 30 minutes. A true single cell storm is actually quite rare because often the gust front of one cell triggers the growth of another.

Most single cell storms are not usually severe. However, it is possible for a single cell storm to produce a brief severe weather event. When this happens, it is called a pulse severe storm. Their updrafts and downdrafts are slightly stronger, and typically produce hail that barely reaches severe limits and/or brief [microbursts](#) (a strong downdraft of air that hits the ground and spreads out). Brief heavy rainfall and occasionally a weak tornado are possible. Though pulse severe storms tend to form in more unstable environments than a non-severe single cell storm, they are usually poorly organized and seem to occur at random times and locations, making them difficult to forecast.

#### **THE MULTICELL CLUSTER STORM:**

The multicell cluster is the most common type of thunderstorm. The multicell cluster consists of a group of cells, moving along as one unit, with each cell in a different phase of the thunderstorm life cycle. Mature cells are usually found at the center of the cluster with dissipating cells at the downwind edge of the cluster.

Multicell Cluster storms can produce moderate size hail, flash floods and weak tornadoes.



Each cell in a multicell cluster lasts only about 20 minutes; the multicell cluster itself may persist for several hours. This type of storm is usually more intense than a single cell storm, but is much weaker than a supercell storm.

#### THE MULTICELL LINE STORM (SQUALL LINE):

The multicell line storm, or squall line, consists of a long line of storms with a continuous well-developed gust front at the leading edge of the line. The line of storms can be solid, or there can be gaps and breaks in the line.

Squall lines can produce hail up to golf-ball size, heavy rainfall, and weak tornadoes, but they are best known as the producers of strong downdrafts. Occasionally, a strong [downburst](#) will accelerate a portion of the squall line ahead of the rest of the line. This produces what is called a [bow echo](#). Bow echoes can develop with isolated cells as well as squall lines. Bow echoes are easily detected on radar but are difficult to observe visually.

#### THE SUPERCELL STORM:

The supercell is a highly organized thunderstorm. Supercells are rare, but pose a high threat to life and property. A supercell is similar to the single-cell storm because they both have one main updraft. The difference in the updraft of a supercell is that the updraft is extremely strong, reaching estimated speeds of 150-175 miles per hour. The main characteristic which sets the supercell apart from the other thunderstorm types is the presence of rotation. The rotating updraft of a supercell (called a [mesocyclone](#) when visible on radar) helps the supercell to produce extreme severe weather events, such as giant hail (more than 2 inches in diameter, strong downbursts of 80 miles an hour or more, and strong to violent tornadoes.

The surrounding environment is a big factor in the organization of a supercell. Winds are coming from different directions to cause the rotation. And, as precipitation is produced in the updraft, the strong upper-level winds blow the precipitation downwind. Hardly any precipitation falls back down through the updraft, so the storm can survive for long periods of time.

The leading edge of the precipitation from a supercell is usually light rain. Heavier rain falls closer to the updraft with torrential rain and/or large hail immediately north and east of the main updraft. The area near the main updraft (typically towards the rear of the storm) is the preferred area for severe weather formation.

Most thunderstorm and wind events in Echols County are relatively minimal, typically lasting about 30 minutes. However, there is also the possibility of longer-duration thunderstorms and wind events associated with hurricane/tropical storm events or passing fronts. Thunderstorms and wind events can occur at any time, but are most likely to occur in the afternoon and evening hours in the spring and summer.

Lightning is a giant spark of electricity in the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground; however, when the differences

in charges becomes too great, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. Lightning most often strikes during thunderstorms, but can strike many miles from the center of the storm, or can even strike in areas not covered by a storm (this phenomenon is known as a “bolt from the blue”).

According to NOAA (<http://www.lightningsafety.noaa.gov/>), lightning strikes the United States about 25 million times a year. Although most lightning occurs in the summer, people can be struck at any time of year. Lightning kills an average of 47 people in the United States each year, and hundreds more are severely injured.

Lightning can strike in any place at any time but, contrary to popular myth, is not attracted to metal. Tall, isolated structures with a pointy shape are most likely to be struck by lightning. When thunder and lightning are present, the best course of action is to seek shelter inside a robust building. Sheltering under a tree increases the risk of getting struck by lightning and is more dangerous than being out in the open. Most cars protect their occupants from lightning because they have metal roofs and sides; contrary to popular myth, it is not the car’s rubber tires that protect the occupants. When sheltering inside a building, one should avoid metal objects (metal doors, plumbing, electronics, etc.). (Source: <http://www.lightningsafety.noaa.gov/myths.shtml>)

All of Echols County is equally vulnerable to the effects of lightning.

## **B. Profile of Events, Frequency of Occurrences, Probability**

According to the NOAA Storm Events Database (see Appendix F), there are 62 reports of thunderstorms and lightning occurring in Echols County between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 1.10 years. This is a 91.18% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 3.2, the past 20-year frequency is 2.75, and the past 50-year frequency is 1.24 (see the Hazard Frequency Table in Appendix D). Wind speeds of up to 60 knots have been recorded in an event in 2003, as well as many events with wind speeds between 50 and 55 knots. In addition, during an event in 1960, 1.75-inch hailstones were reported, and there have been numerous reports of smaller hailstones in other years. Cloud-to-ground lightning has been reported anecdotally by community members, although the exact number of cloud-to-ground lightning strikes has not been recorded.

9 thunderstorm events have been reported since the last hazard mitigation plan was adopted. Recently, thunderstorm events caused trees to be blown down across roads on May 31, 2016 and again on August 14, 2016. During another event, on July 1, 2015, the law enforcement complex in Statenville was damaged due to wind, and several trees were also blown down.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported.

## **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County is equally vulnerable to this hazard.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. All 25 Critical Facilities are in areas with a wind hazard score of 2. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

#### **E. Land Use and Development Trends**

The County has seen a slight decrease in population over the last few years.

Echols County does not have zoning regulations. The County has mandatory building and fire codes which are enforced by a building inspector. No other land use or development trends that relate to this hazard have been identified at this time.

#### **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. Lightning and thunderstorm events may happen at any place at any time, but the impact may be more severe in places with higher population density due to more people being in danger, and other impacts associated with higher population density. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of lightning and other hazards. No other multi-jurisdictional differences have been identified at this time.

#### **G. Overall HRV Summary of Events and Their Impact**

Lightning has the potential to cause damage at any place, at any time, throughout Echols County, especially during thunderstorms. Where lightning strikes cannot be predicted and residents may not have time to seek shelter. The cost of the damage and potential loss of life may be higher if the event strikes populated areas as opposed to more sparsely populated or unpopulated areas.

The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## Section VI. Extreme Heat

### A. Identification of Hazard

The threat of extreme heat has been chosen by the HMPUC as the sixth most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events.

The major hazard presented by heat waves is not so much to infrastructure as to the population. Despite the comparatively warm climate of this region, there are many residents who are not adequately prepared to handle extreme heat events (for example, those without air conditioning in their homes). The risk is particularly high for the elderly and the young. Extreme heat is a hazard that may result in loss of life or damage to property and the economy. Due to weather forecasting methods, most extreme heat events can be predicted with some level of accuracy ahead of time.

The heat index is a measure that combines the effects of heat and humidity. When heat and humidity combine to reduce the amount of evaporation of sweat from the body, outdoor exercise becomes dangerous even for those in good shape (source: National Weather Service, <http://www.nws.noaa.gov/forecasts/wfo/definitions/defineHeatIndex.html>).

The table below shows the levels of danger associate with the heat index as calculated by the National Weather Service (source: <https://www.weather.gov/ama/heatindex>).

<b>Heat Index category and effects</b>		
Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

The Heat Index chart below shows Heat Index Values for various temperatures and humidity levels. As an example, if the air temperature is 96° F and the relative humidity is 65%, the heat index—i.e., how hot it feels—is 121° F.

## NOAA's National Weather Service

### Heat Index Temperature (°F)

Relative Humidity (%)	Temperature (°F)																
	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136	
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137		
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137			
55	81	84	86	89	93	97	101	106	112	117	124	130	137				
60	82	84	88	91	95	100	105	110	116	123	129	137					
65	82	85	89	93	98	103	108	114	121	128	136						
70	83	86	90	95	100	105	112	119	126	134							
75	84	88	92	97	103	109	116	124	132								
80	84	89	94	100	106	113	121	129									
85	85	90	96	102	110	117	126	135									
90	86	91	98	105	113	122	131										
95	86	93	100	108	117	127											
100	87	95	103	112	121	132											

#### Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution     
  Extreme Caution     
  Danger     
  Extreme Danger

For the National Weather Service’s Tallahassee district (which includes Echols County), an **Excessive Heat Watch** is issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain. A Watch provides enough lead time so that those who need to prepare can do so, such as county officials who have excessive heat event mitigation plans. The National Weather Service office in Tallahassee will issue this product if the heat index might reach or exceed 113°F.

A **Heat Advisory** is issued when an excessive heat event is expected in the next 24 hours. This products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. An advisory is for less serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life. The National Weather Service will issue this product if the heat index might reach 108-112°F.

An **Excessive Heat Warning** is issued when an excessive heat event is expected in the next 24 hours. A warning is issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. The warning is used for conditions posing a threat to life. The National Weather Service will issue this product if the heat index is expected to reach or exceed 113°F. (Source: Florida State University, <https://emergency.fsu.edu/hazards/heat/about>)

All of Echols County is equally vulnerable to the effects of extreme heat.

### **B. Profile of Events, Frequency of Occurrences, Probability**

According to National Weather Service data (see Appendix F), there are 34 reports of extreme heat events occurring in Echols County between 01/01/2006 and 12/31/2017. The Historic Recurrence

Interval is 0.65 years. This is a 154.55% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 3.4, the past 20-year frequency is 1.7, and the past 50-year frequency is 0.68 (see the Hazard Frequency Table in Appendix D). These events were all Heat Advisories, except for 3 Excessive Heat Warnings in 2007 and 2 Excessive Heat Warnings in 2012. The all-time hottest day on record was August 2, 1999, when temperatures reached 106 degrees Fahrenheit.

An estimated 11 Extreme Heat events have occurred since the last Hazard Mitigation Plan was adopted. These were all Heat Advisories.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported.

### **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County is equally vulnerable to this hazard.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

### **E. Land Use and Development Trends**

The County has seen a slight decrease in population over the last few years.

Echols County does not have zoning regulations. The County has mandatory building and fire codes which are enforced by a building inspector. The County participates in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

No other land use or development trends that relate to this hazard have been identified at this time.

### **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. Extreme heat may happen at any place at any time, but the impact may be more severe in places with higher population density due to more people being in danger. Power failures exacerbate extreme heat events because of the ensuing lack of air conditioning. No other multi-jurisdictional differences have been identified at this time.

### **G. Overall HRV Summary of Events and Their Impact**

Extreme heat has the potential to harm people throughout Echols County, especially during the summer months. The potential for damage to health and loss of life will be higher for people without air conditioning, and would be exacerbated by a power failure. Extreme heat is a far greater threat to public health than to buildings and infrastructure.

The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.



## **Section VII. Drought**

### **A. Identification of Hazard**

The threat of drought has been chosen by the HMPUC as the seventh most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center and U.S. Drought Monitor (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events.

Although drought is associated with the summer months in many other parts of the United States, our region has a humid subtropical climate with more precipitation, on average, in the summer than in the winter. Drought can occur at any time, and its effects can last throughout the year and continue from year to year. These effects may include agricultural losses, increased wildfire and fire risk, lack of water for citizens and firefighting, increased flooding risk (because dry land can be less absorbent of rainfall), and other effects that influence other hazards and the safety of the community.

Crops (including trees) are usually most adversely affected by drought events, along with community residents whose water supplies are restricted or cut off (especially those using individual wells). Residents of unincorporated Echols County have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time.

The U.S. Drought Monitor (<http://droughtmonitor.unl.edu>), established in 1999, is a weekly map of drought conditions that is produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the NDMC. The Drought Monitor summary map identifies general drought areas, labelling droughts by intensity, with D1 being the least intense and D4 being the most intense. Descriptions of these categories are provided in the table below (source: <http://droughtmonitor.unl.edu/AboutUs/ClassificationScheme.aspx>).

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"> <li>▪ short-term dryness slowing planting, growth of crops or pastures</li> </ul> Coming out of drought: <ul style="list-style-type: none"> <li>▪ some lingering water deficits</li> <li>▪ pastures or crops not fully recovered</li> </ul>
D1	Moderate Drought	<ul style="list-style-type: none"> <li>▪ Some damage to crops, pastures</li> <li>▪ Streams, reservoirs, or wells low, some water shortages developing or imminent</li> <li>▪ Voluntary water-use restrictions requested</li> </ul>
D2	Severe Drought	<ul style="list-style-type: none"> <li>▪ Crop or pasture losses likely</li> <li>▪ Water shortages common</li> <li>▪ Water restrictions imposed</li> </ul>
D3	Extreme Drought	<ul style="list-style-type: none"> <li>▪ Major crop/pasture losses</li> <li>▪ Widespread water shortages or restrictions</li> </ul>
D4	Exceptional Drought	<ul style="list-style-type: none"> <li>▪ Exceptional and widespread crop/pasture losses</li> <li>▪ Shortages of water in reservoirs, streams, and wells creating water emergencies</li> </ul>

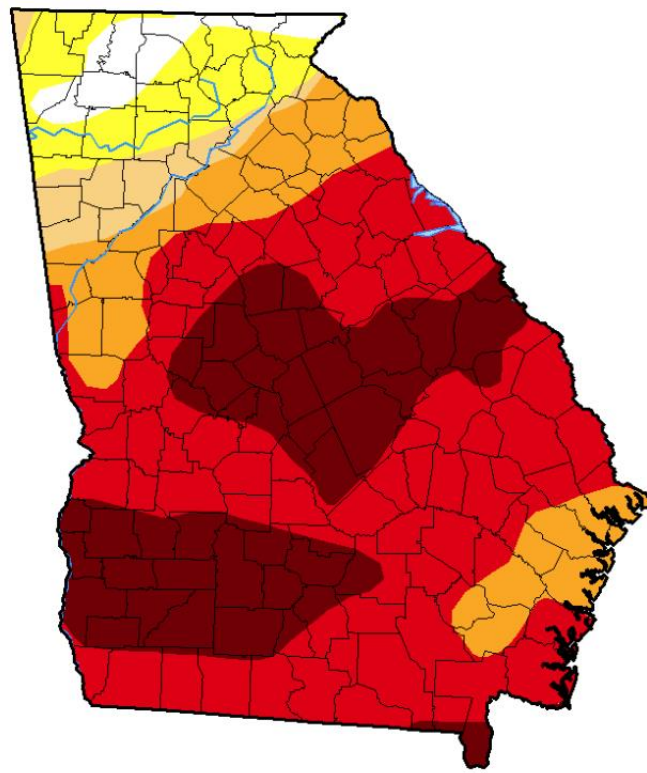
Echols County is all equally vulnerable to the effects of drought.

### B. Profile of Events, Frequency of Occurrences, Probability

According to U.S. Drought Monitor data (see Appendix F), there are 461 reports of drought events (D1, D2, D3, or D4) occurring in Echols County between 01/01/2000 and 04/24/2018. The Historic Recurrence Interval is 0.04 years. This is a 2,426.32% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 33.6, the past 20-year frequency is 23.05, and the past 50-year frequency is 9.22 (see the Hazard Frequency Table in Appendix D). The most severe drought on record was in April and May 2012, with D4 conditions persisting for five consecutive weeks.

#### Drought Classification

None D0 (Abnormally Dry) D1 (Moderate Drought) D2 (Severe Drought) D3 (Extreme Drought) D4 (Exceptional Drought)



**Example of drought conditions – this map shows conditions on May 1, 2012, when Echols County was under D3 and partly D4 conditions. Source: US Drought Monitor.**

Since the previous hazard mitigation plan was adopted, an estimated 79 drought events have occurred.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported.

#### **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County is equally vulnerable to this hazard.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

### **E. Land Use and Development Trends**

The County has seen a slight decrease in population over the last few years. The County has mandatory building and fire codes which are enforced by a building inspector. The County participates in joint comprehensive planning and in the required updates of the Service Delivery Strategy. No other land use or development trends that relate to this hazard have been identified at this time.

### **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. Residents of Echols County have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time. There is also a privately owned water utilities company in Echols County and is available to residents. No other multi-jurisdictional differences have been identified at this time.

### **G. Overall HRV Summary of Events and Their Impact**

Drought has the potential to harm people and the economy throughout Echols County, potentially at any time of the year, and most significantly in unincorporated areas not served by municipal water systems. Drought may increase the likelihood of wildfires and flooding. Water shortages can impede firefighting efforts at all levels.

The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## **Chapter 3:** **Local Technological Hazard, Risk,** **and Vulnerability (HRV) Summary**

### **Section I. Hazardous Materials Release**

#### **A. Identification of Hazard**

Hazardous materials are substances or materials that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce. When these materials are released they become dangerous. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the material to escape its container, enter the environment, and create a potential hazard.

The effects of hazardous material releases can occur very rapidly with little or no advance warning, in the form of explosions, fires, and immediate health impacts. Slower effects can include long-term environmental damage and long-term health problems resulting from exposure.

#### **B. Profile of Events, Frequency of Occurrences, Probability**

Hazardous material spills are common in areas where hazardous materials are fabricated, processed, and stored. Transportation of hazardous materials by truck is the cause of the greatest number of hazardous materials events. Many products containing hazardous chemicals are routinely used and stored in homes. These products are also shipped daily on the nation's highways, railroads, waterways, and in pipelines. In most cases, disasters involving hazardous materials are confined to a localized area, whether an accidental release occurs at a fixed facility or in association with a transportation incident. The United States Environmental Protection Agency categorizes wastes according to four characteristics: Ignitability, corrosivity, reactivity, and toxicity. Furthermore, the EPA categorizes hazardous wastes according to the following hazard codes (source: <https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes>):

- (T) - Toxic Waste
- (H) - Acute Hazardous Waste
- (I) - Ignitable Waste
- (C) - Corrosive Waste
- (R) - Reactive Waste
- (E) - Toxicity Characteristic Waste

The extent or severity of a hazardous materials release within the community is not predictable due to the varied nature of hazardous materials and the widespread area covered by the transportation network upon which such materials may be transported.

According to the USDOT Pipeline and Hazardous Materials Safety Administration's Office of Hazardous Materials Safety database (see Appendix F), there is 1 report of Hazardous Materials

Release events occurring in Echols County between 01/01/1978 and 12/31/2017. This event was on Nov. 2, 1998 and involved a 15-gallon fuel oil spill. The Historic Recurrence Interval is 40.00 years. This is a 2.50% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0, the past 20-year frequency is 0.05, and the past 50-year frequency is 0.02 (see the Hazard Frequency Table in Appendix D).

No hazardous materials release events have been recorded since the previous Hazard Mitigation Plan was completed.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported.

### **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County is equally vulnerable to this hazard.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. All 25 Critical Facilities are in areas with a wind hazard score of 2. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

### **E. Land Use and Development Trends**

Residential land use in Echols County is widely dispersed, where some relatively higher residential density exists.

Overall, the County has seen a slight decrease in population over the last few years. Echols County has no zoning ordinance. The County has mandatory building and fire codes which are enforced by a building inspector. The County participates in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

No other land use or development trends that relate to this hazard have been identified at this time.

## **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. The facilities most vulnerable to a hazardous materials release are those located within a one-mile buffer of the major highways and railways in the community.

State highways carrying truck traffic pass through all the jurisdictions, but the only major four-lane highway is State Route 94 (SR 94), passing southeast entering the County and intersects with SR 135, crossing over the Alapaha River. In Statenville, a disincorporated municipality, SR 135 meets US 129/SR11. A Norfolk Southern rail line passes through the northern part of the County.

## **G. Overall HRV Summary**

A significant portion of the community could be vulnerable to a hazardous materials release. Preparation for such an event requires specific training for first responders and coordination among agencies to ensure a swift response and containment of hazardous materials in order to minimize the potential loss of life and property. Therefore, a key priority should be to train responders to fulfill their responsibilities and conduct periodic tests to be sure the response plan is realistic and responders are ready to carry it out.

Human error is the probable cause of most transportation incidents and associated consequences involving the accidental release of hazardous materials. Varying quantities of hazardous materials are manufactured, used, or stored in Echols County. Due to the county's location on or near several major transportation routes, the potential exists for a catastrophic hazardous material release event due to a transportation accident.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## Section II. Public Health Emergency

### A. Identification of Hazard

The threat of a public health emergency has been chosen by the HMPUC as the second most likely human-caused hazard to occur and cause damage in the community.

The community is vulnerable to public health emergencies that may occur naturally on their own, including but not limited to:

- Communicable disease outbreaks
- Pandemic influenza
- Mosquito-borne illness
- Food-borne illness

Diseases that cause a public health emergency may have a rapid onset or a slow onset. They may be highly localized or may be widespread in nature. Depending on the nature of the public health emergency, treatment may or may not be immediately available.

Some examples of recent public health emergencies include:

- **Zika virus** – spread mostly by the bite of an infected *Aedes* species mosquito, Zika can be passed from a pregnant woman to her fetus. Infection during pregnancy can cause certain birth defects. There is no vaccine or medicine for Zika. Local mosquito-borne Zika virus transmission has been reported in the continental United States. (Source: <https://www.cdc.gov/zika/about/index.html>)
- **Pandemic Influenza** – Pandemics happen when new (novel) influenza A viruses emerge which are able to infect people easily and spread from person to person in an efficient and sustained way. Unlike seasonal flu, which happens annually, pandemic flu happens rarely (three times in the last century), but the results are much more devastating. Most people have little or no immunity to pandemic influenza because they have no previous exposure to the virus or similar viruses. Even healthy people may be at high risk for serious complications, and health care providers and hospitals may be overwhelmed. (Source: <https://www.cdc.gov/flu/pandemic-resources/basics/about.html>)
- **Ebola** - a rare and deadly disease caused by infection with one of the Ebola virus species, Ebola is spread through direct contact with bodily fluids. An outbreak in West Africa in 2014 is estimated to have caused more than 11,000 deaths. Although only 4 cases related to this outbreak occurred in the United States, transmission could have been far more widespread were it not for close coordination between the CDC, other federal agencies, state and local health departments, and the travel industry. (Source: <https://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/qa.html>).



## **B. Profile of Events, Frequency of Occurrences, Probability**

According to the best data available, there have not been any disease outbreak events in Echols County in recent history. However, the entire community is equally vulnerable to this hazard and an outbreak could happen at any place at any time.

## **C./D.: Inventory of Assets Exposed and Potential Loss**

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Echols County is equally vulnerable to this hazard.

An estimated 100% of the Residential property (1,344 of 1,344) in Echols County could be affected by this hazard, with a total value of \$52,296,462. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (780 of 780) in the community may be affected, with a total value of \$334,574,876. The values are based on the most recent available tax roll data for Echols County, provided by the Echols County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report ([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)), the total farm gate value of agricultural production in Echols County is \$194,625,932.

According to the inventory database reports and maps, all of the 25 Critical Facilities and Infrastructure for Echols County could be affected by this hazard. The total value of these Critical Facilities is \$90,179,421, plus a content value of \$7,895,500.

## **E. Land Use and Development Trends**

The County has seen a slight decrease in population over the last few years.

Echols County does not have zoning regulations. The County has mandatory building and fire codes which are enforced by a building inspector. The County participates in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

No other land use or development trends that relate to this hazard have been identified at this time.

## **F. Multi-Jurisdictional Differences**

Echols County has no incorporated cities, and therefore there is only one jurisdiction in this community. The impact of a disease event will be more severe in places with higher population density due to more people being exposed and higher potential for person-to-person transmission. No other multi-jurisdictional differences have been identified at this time.

## **G. Overall HRV Summary of Events And Their Impact**

For most of the last century, disease outbreaks have been rare in the United States due to the presence of an advanced health care system, effective vaccination programs, and coordination between the CDC, other federal agencies, state and local health departments, and health care providers. However, the potential remains for a disease outbreak to harm people throughout Echols County. The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 5.

Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## **Chapter 4: Local Natural Hazard Mitigation Goals and Objectives**

### Summary of Changes:

Table 4.1 provides a brief description of each section in this chapter and a summary of the changes that have been made.

<b>Chapter 4 Section</b>	<b>Updates to Section</b>
I. Hurricanes/Tropical Storms	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
II. Floods	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
III. Tornadoes	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
IV. Wildfires	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
V. Thunderstorms/Lightning	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
VI. Extreme Heat	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
VII. Drought	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)

Table 4.1: Overview of updates to Chapter 4: Local Natural Hazards, Mitigation Goals and Objectives

## **Overall Community Mitigation Goals, Policies, and Values Narrative**

There is a high level of cooperation exhibited among agencies within the County when it comes to hazard mitigation and emergency planning efforts. All relevant departments in Echols County have designated representatives to participate in the emergency management process, whether it be during planning, response, or recovery phases. The local Emergency Management Agency hosts regular meetings to gather all of the relevant local, regional and state partners together to develop effective plans and strengthen relationships among all of the stakeholders. Working together, the community has been able to access resources available through several state and federal sources that have been instrumental in improving the technical capabilities of Echols County to more effectively mitigate hazards and provide more accurate warning and preparatory information to citizens. Local authorities are listed in the following table.

<b>Function</b>	<b>Responsible Authority</b>
Planning	Echols County Board of Commissioners Staff
Historic preservation	Echols County Board of Commissioners Staff
Building codes (Note: County has no zoning ordinance or land development regulations)	Echols County Board of Commissioners Staff
NFIP participation	Echols County EMA
EMAP participation	Echols County EMA
Emergency management	Echols County EMA

Overall, community priorities have remained relatively unchanged. The hazards and risks associated with each have not changed, and many of the action steps identified during previous Hazard Mitigation Plans are still relevant and remain a priority in this plan as well.

Authority for the development of this Plan was given by the Echols County Commission as a result of their execution of the Grantee-Subgrantee Agreement for the Echols County Hazard Mitigation Grant Program (HMGP) Planning Project, through their participation in the planning project. The Echols County Emergency Management Agency is authorized to oversee emergency management within Echols County.

The County has many current policies and programs related to hazard mitigation, which are described in detail in the goals, objectives, and action steps contained in Chapter 4 of this Plan. All jurisdictions (within the boundaries of their budgets) have the ability to expand and improve their existing policies and programs as evidenced by the new and existing goals, objectives, and action steps included in this plan. The amount of resources available to the jurisdictions for expansion and improvement of existing programs will depend on factors such as the local government budgets and the availability of state and federal funding to support hazard mitigation activities.

This chapter contains a description of the comprehensive range of Mitigation Goals, Objectives, and Action Steps that were developed by the HMPUC to reduce damages and improve safety

through Hazard Mitigation. These have been arranged by the natural hazards contained in Chapter 2. There is particular emphasis on emergency preparedness and infrastructure.

The HMPUC discussed and identified the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Chapter 4 of this Plan after identifying the hazards noted in Chapter 2 of this Plan. All areas of the community were taken into account in the development of the comprehensive range of Mitigation Goals, Objectives, and Action Steps. These were identified after the weighing of many factors discovered during the planning process, including risk assessment, storm history, past damage, community resources, and other factors.

A list of the comprehensive range of Mitigation Goals, Objectives, and Action Steps was compiled from the input of the HMPUC, as well as from others within the community. Members of the HMPUC prioritized the identified comprehensive range of Mitigation Goals, Objectives, and Action Steps based on what was anticipated to be most beneficial to the community. The benefits of all action steps were determined to be greater than the costs involved.

Several criteria were established to assist the HMPUC members in the prioritization of these suggested Mitigation Goals, Objectives, and Action Steps. Criteria included perceived cost vs. benefit or cost effectiveness, availability of potential funding sources, overall feasibility, measurable milestones, political support for the proposed actions, and the STAPLEE criteria.

Through this prioritization process, several projects emerged as having higher priority than others. Some of the projects involved expending considerable amounts of funds to initiate the required actions. The determination of the cost/benefit analysis (such as the FEMA B/CA model) of a project will be implemented at the time of project application or funding request. Other projects allowed the communities to pursue completion of the project using potential grant funding. Still others required no significant financial commitment by the communities.

In Chapter 6, Sections I-III, there is a description of the planning process involved in selecting the comprehensive range of Mitigation Goals, Objectives, and Action Steps. The Action Steps are given a rating of High, Medium, or Low Priority by the HMPUC based on a number of factors (with a primary emphasis on prioritized cost versus benefit review) identified in Chapter 6, Section I.

Relevant comprehensive ranges of Mitigation Goals, Objectives, and Action Steps are listed below throughout the chapter. The Echols County EMA Director has been chosen by Echols County to oversee the projects. The Echols County EMA has been designated by Echols County to be the coordinating agency for implementation and administration of these projects.

## **Section I. Hurricanes/Tropical Storms**

### **A. Community Mitigation Goals**

As previously indicated in Chapter 2, hurricanes and tropical storms may cause substantial damage to life, property, and the economy in Echols County. They are usually accompanied by some advanced notice, giving the community time to prepare and/or evacuate. The HMPUC believes that, because these extreme weather events have the potential to cause great damage, injury, and loss of life, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

### **B. Identification and Analysis of Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 2, Section I.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

### **C. Mitigation Strategy and Recommendations**

#### **Goal 1: Minimize damage caused by high winds of Hurricanes/Tropical Storms in Echols County.**

Objective #1: Protect life, health and property of residents from high winds of Hurricanes/Tropical Storms.

<b>Action Step 1: Educate homeowners and builders on individual safe rooms.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Classes held to educate the public on safe rooms; ongoing – continuing as new homeowners enter the community

<b>Action Step 2: Distribute programs on personal emergency preparedness, i.e., emergency survival kits.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	\$1,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – performed on a continual basis due to importance.

<b>Action Step #3: Encourage the American Red Cross to teach Citizen Disaster Courses on a frequent basis.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – Extended due to importance. No classes have yet been taught.

<b>Action Step #4: Encourage businesses to develop emergency plans.</b>	
<b>Responsible Department</b>	Echols County EMA, Health Department
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – continues due to importance as new businesses join the community. Businesses have been encouraged to develop plans through distribution of brochures. So far no businesses are known to have developed emergency plans.

<b>Action Step #5: Increase public awareness of the NOAA weather radios and available community safe shelters by publishing articles in the local newspaper, holding town hall meetings and providing bulletins to local churches and the schools.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Public awareness has been conducted through social media, local paper, and brochures in the EMA office. Remains an ongoing need.

<b>Action Step #6: Trim tree lines around roads, homes, utilities and businesses.</b>	
<b>Responsible Department</b>	Echols County Public Works
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Power, Oglethorpe EMC, Slash Pine EMC
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – This is done approximately every month on an ongoing basis.

Objective 2: Minimize damages from high winds to institutional/public buildings in Echols County.

*Action Step #1 (Pursue funding to access all public buildings, particularly public schools) has been completed.*

*Action Step #2 (Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage) has been completed.*

*Action Step #3 (Explore funding opportunities to retrofit public structures that are deemed insufficient) has been completed.*

<b>Action Step 4: Purchase and install mobile and fixed generators (including transfer switches) for all designated evacuation and emergency shelters, community water systems, and critical facilities, and wherever else they are needed.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	\$100,000 per generator
<b>Existing &amp; Potential Funding Sources</b>	General Funds, FEMA, GEMA, grants
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Facilities are still lacking generators and none have been purchased since the last HMP was updated.



**D. Special Multi-Jurisdictional Strategy and Considerations:**

There is only one jurisdiction in Echols County (Echols County itself).

**E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**

Goal 1, Objective 1

Action Step	Changes
Action Step 1: Educate homeowners and builders on individual safe rooms.	None - Ongoing
Action Step 2: Distribute programs on personal emergency preparedness, i.e., emergency survival kits.	None - Ongoing
Action Step 3: Encourage the American Red Cross to teach Citizen Disaster Courses on a frequent basis.	None - Ongoing
Action Step 4: Encourage businesses to develop emergency plans.	None - Ongoing
Action Step 5: Increase public awareness of the NOAA weather radios and available community safe shelters by publishing articles in the local newspaper, holding town hall meetings and providing bulletins to local churches and the schools.	None - Ongoing
Action Step 6: Trim tree lines around roads, homes, utilities and businesses.	None - Ongoing

Goal 1, Objective 2

Action Step	Changes
Action Step 1: Pursue funding to access all public buildings, particularly public schools	Completed
Action Step 2: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage	Completed
Action Step 3: Explore funding opportunities to retrofit public structures that are deemed insufficient	Completed
Action Step 4: Install auxiliary generators for all designated evacuation and emergency shelters and community water systems.	Ongoing; reworded in plan update

## Section II. Floods

### **A. Community Mitigation Goals**

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Echols County. Floods are unpredictable and can happen at any place and at any time. Because of the damage and loss of life it may cause, the HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard’s potential impact on the community.

The major flooding sources in Echols County are the Alapaha River, Alapahoochee River, Grand Bay Creek running south through the county, and Suwanoochee Creek, which runs southwest thru Echols County. There is also Mud Swamp, which runs into Grand Bay Creek from a westerly direction. The western half of Echols County is located in the Alapaha River sub-basin of the Suwannee River basin. The eastern half of the county, from well east of Statenville to just west of Fargo, is located in the Upper Suwannee River sub-basin of the same Suwannee River basin.

Due to these facts, the Echols County HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps listed below should be implemented to reduce the threat of flood damage in Echols County.

### **B. Identification and Analysis of the Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 2, Section II.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

**C. Mitigation Strategy and Recommendations:**

**Goal 2: Minimize flood damage in Echols County.**

Objective 1: Minimize losses to existing and future structures, especially community critical facilities, due to flooding caused by excessive rainfall.

<b>Action Step 1: Review data on storm events to determine where repetitive Flooding occurs as a result of inadequate drainage infrastructure and identify &amp; pursue grant funds to upgrade deficient drainage systems.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Commission
<b>Anticipated Cost</b>	\$500,000 each project
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA, GA DCA CDBG
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Data have been reviewed but further review and system upgrades are needed.

<b>Action Step 2: Utilize tax evaluation data to determine cost effectiveness of acquiring properties in flood prone areas.</b>	
<b>Responsible Department</b>	Echols County
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing – not yet accomplished

<b>Action Step 3: Identify and pursue funding to acquire properties in flood prone areas.</b>	
<b>Responsible Department</b>	Echols County
<b>Anticipated Cost</b>	\$400,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA, FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing – there are currently no identified properties that need to be acquired, but this remains a potential need as new properties may be identified for acquisition.

<b>Action Step 4: Continue membership in the NFIP by adopting updated ordinances and FIRM maps as updates are available.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA Homeland Security
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – partly accomplished (FIRM maps updated) but it is anticipated that further updates will be necessary.

<b>Action Step 5 (formerly #4): Encourage homeowners review benefits offered through the National Flood Insurance Program.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing – Extended due to importance. Homeowners have been informed of the benefits through brochures and social media. Further encouragement is needed in order to reach more homeowners.

Objective 2: Protect and preserve flood prone areas for green space use, such as community parks and recreational areas.

<b>Action Step 1: Monitor comprehensive land use plans to ensure mapping of lands to be permanently protected.</b>	
<b>Responsible Department</b>	Echols County
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing – this is a continual need.

<b>Action Step 2: Monitor existing subdivision regulations to promote conservation of floodplains, wetlands, and groundwater recharge areas.</b>	
<b>Responsible Department</b>	Echols County
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing – monitoring is being done on a continual basis.

<b>Action Step 3: Seek funding from private foundations, individuals, federal and state grants, and local communities to leverage available green space grant funds.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Commission,
<b>Anticipated Cost</b>	\$2,000,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA DOT TE, DOHS-GEMA/FEMA, Private Foundations, Individual Assistance
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing – Extended due to importance. No funding has been found.

<b>Action Step 4: Educate public and private organizations on methods for preserving parks and recreation areas.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Commission,
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing – Extended due to importance. Some education has been conducted via social media, more is needed.

Objective 3: Establish correct boundaries for flood prone areas along the major rivers in Echols County.

*Action Step 1 (Petition the National Weather Service or US Geological Survey to place and maintain river gauges at identified locations along the Alapaha and Suwannee Rivers in Echols County) has been completed.*

<b>Action Step 1 (new): Rebuild SR-135 bridge over the Alapahoochee River (known locally as the “Little River”)</b>	
<b>Responsible Department</b>	Echols County, GDOT
<b>Anticipated Cost</b>	\$1.5 million
<b>Existing &amp; Potential Funding Sources</b>	General Funds, Grants, GDOT
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 2 (new): Repair J. Frank Culpepper Rd. bridge over the Alapahoochee River (known locally as the “Little River”)</b>	
<b>Responsible Department</b>	Echols County, GDOT
<b>Anticipated Cost</b>	\$1 million
<b>Existing &amp; Potential Funding Sources</b>	General Funds, Grants, GDOT
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

Objective 4: Explore incorporation of increased buffers around natural features in Echols County.

*Action Step 1 (Evaluate existing regulations to determine if buffering around natural features is adequate) has been completed.*

**D. Special Multi-Jurisdictional Strategy and Considerations:**

There is only one jurisdiction in Echols County (Echols County itself).

**E. Local Public Information and Awareness Strategy.**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**

Goal 1, Objective 1

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Review data on storm events to determine where repetitive Flooding occurs as a result of inadequate drainage infrastructure and identify & pursue grant funds to upgrade deficient drainage systems.	None - ongoing
Action Step 2: Utilize tax evaluation data to determine cost effectiveness of acquiring properties in flood prone areas.	None - ongoing
Action Step 3: Identify and pursue funding to acquire properties in flood prone areas.	None - ongoing
Action Step 4: Continue membership in the NFIP by adopting updated ordinances and FIRM maps as updates are available.	None - ongoing
Action Step 5 (formerly #4): Encourage homeowners review benefits offered through the National Flood Insurance Program.	Ongoing. Renumbered – was #4

Goal 1, Objective 2

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Monitor comprehensive land use plans to ensure mapping of lands to be permanently protected.	None - ongoing
Action Step 2: Monitor existing subdivision regulations to promote conservation of floodplains, wetlands, and groundwater recharge areas.	None - ongoing
Action Step 3: Seek funding from private foundations, individuals, federal and state grants, and local communities to leverage available green space grant funds.	None - ongoing
Action Step 4: Educate public and private organizations on methods for preserving parks and recreation areas.	None - ongoing

Goal 1, Objective 3

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Petition the National Weather Service or US Geological Survey to place and maintain river gauges at identified locations along the Alapaha and Suwannee Rivers in Echols County.	Completed
Action Step 1 (new): Rebuild SR-135 bridge over the Alapahoochee River (known locally as the “Little River”)	New
Action Step 2 (new): Repair J. Frank Culpepper Rd. bridge over the Alapahoochee River (known locally as the “Little River”)	New

Goal 1, Objective 4

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Evaluate existing regulations to determine if buffering around natural features is adequate.	Completed



## **Section III. Tornadoes**

### **A. Community Mitigation Goals**

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Echols County. Tornadoes are unpredictable and can happen at any place and at any time. Because these tornadoes may be extremely powerful and cause great damage, the HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

### **B. Identification and Analysis of Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 2, Section III.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

### **C. Mitigation Strategy and Recommendation:**

**Goal 3: Enhance the community's ability to issue early warning of Tornadoes in an effective, dependable, and rapid manner.**

Objective 1: Ensure that a comprehensive early warning notification system is in place.

<b>Action Step 1: Get an early warning system horn in Statenville by seeking funding from various sources.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	\$25,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – not yet accomplished, still needed. Funding not yet available. No horn has yet been located for purchase.

Objective 2: Enhance the ability of the Echols County Emergency Management Agency to respond effectively and efficiently to emergency needs during and after a Tornado event.

<b>Action Step 1: Become a designated “StormReady Community”.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – work has not yet begun on this item and it has not been completed.

<b>Action Step 2: Implement the “Community Emergency Response Team” (CERT) program.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	\$5,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – not yet completed, remains a need.

<b>Action Step 3: Seek funds to purchase 800 mhz (or similar) base station and portable radios for emergency use.</b>	
<b>Responsible Department</b>	Echols County
<b>Anticipated Cost</b>	\$60,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – extended due to importance. Funding has not been identified for this item and it has not been completed.

**Goal 3a: Reduce the risks and vulnerability of citizens and critical facilities to Tornado damage.**

Objective 1: Protect life, health, and property of residents from force of Tornadoes.

<b>Action Step 1: Educate homeowners and builders on individual safe rooms.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Some homeowners have been educated through distribution of brochures. Ongoing – extended due to importance as new homeowners enter the community.

<b>Action Step 2: Distribute programs on personal emergency preparedness, i.e., emergency survival kits</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	\$1,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – performed on a continual basis.

<b>Action Step 3: Encourage the American Red Cross to teach Citizen Disaster Courses on a frequent basis.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Red Cross, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – extended due to importance. No classes have yet been taught.

<b>Action Step 4: Encourage businesses to develop emergency plans.</b>	
<b>Responsible Department</b>	Echols County EMA, Health Department
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – extended due to importance. Businesses have been encouraged to develop plans through distribution of brochures. So far no businesses are known to have developed emergency plans.

<b>Action Step 5: Increase public awareness of the Early Warning Communication/ Notification System, NOAA weather radios and available community safe shelters by publishing articles in the local newspaper, holding town hall meetings and providing bulletins to local churches and the schools.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – extended due to importance. Public awareness has been conducted through social media, local paper, and brochures in the EMA office. Remains an ongoing need.

<b>Action Step 6: Purchase and install mobile and fixed generators (including transfer switches) for all designated evacuation and emergency shelters, community water systems, and critical facilities, and wherever else they are needed.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	\$100,000 per generator
<b>Existing &amp; Potential Funding Sources</b>	General Funds, FEMA, GEMA, grants
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Facilities are still lacking generators and none have been purchased since the last HMP was updated.

<b>Action Step 7: Trim tree lines around roads, homes, utilities and businesses.</b>	
<b>Responsible Department</b>	Echols County Public Works
<b>Anticipated Cost</b>	\$100,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Power, Oglethorpe EMC, Slash Pine EMC
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – extended due to importance. This is done approximately every month on an ongoing basis.

<b>Action Step 8: Seek funding to retrofit public buildings to reinforce windows, roofs and doors.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County BOE
<b>Anticipated Cost</b>	\$500,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – extended due to importance. Funding has not been identified.

<b>Action Step 9: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.</b>	
<b>Responsible Department</b>	Echols County Building Inspector
<b>Anticipated Cost</b>	\$10,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – extended due to importance. Resources have not been available to start this program yet.

**D. Special Multi-Jurisdictional Strategy and Considerations:**

There is only one jurisdiction in Echols County (Echols County itself).

**E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**

**Completed Action Steps**

Goal 1, Objective 1

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Get an early warning system horn in Statenville by seeking funding from various sources.	None - Ongoing

Goal 1, Objective 2

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Become a designated “StormReady Community”.	None - Ongoing
Action Step 2: Implement the “Community Emergency Response Team” (CERT) program.	None - Ongoing
Action Step 3: Seek funds to purchase 800 mhz (or similar) base station and portable radios for emergency use.	None - Ongoing

Goal 2, Objective 1

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Educate homeowners and builders on individual safe rooms.	None - Ongoing

<b>Action Step</b>	<b>Changes</b>
Action Step 2: Distribute programs on personal emergency preparedness, i.e., emergency survival kits	None - Ongoing
Action Step 3: Encourage the American Red Cross to teach Citizen Disaster Courses on a frequent basis.	None - Ongoing
Action Step 4: Encourage businesses to develop emergency plans.	None - Ongoing
Action Step 5: Increase public awareness of the Early Warning Communication/ Notification System, NOAA weather radios and available community safe shelters by publishing articles in the local newspaper, holding town hall meetings and providing bulletins to local churches and the schools.	None - Ongoing
Action Step 6: Purchase and install mobile and fixed generators (including transfer switches) for all designated evacuation and emergency shelters, community water systems, and critical facilities, and wherever else they are needed.	Wording changed slightly - Ongoing
Action Step 7: Trim tree lines around roads, homes, utilities and businesses.	None - Ongoing
Action Step 8: Seek funding to retrofit public buildings to reinforce windows, roofs and doors.	None - Ongoing
Action Step 9: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.	None - Ongoing

## **Section IV. Wildfires**

### **A. Community Mitigation Goals**

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Echols County. Wildfires are unpredictable and can happen at any place and at any time. Due to the great damage it may cause, the HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

### **B. Identification and Analysis of the Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 2, Section IV.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

### **C. Mitigation Strategy and Recommendation**

**Goal 4. Prevent damage resulting from wildfires in Echols County, reduce the threat of Wildfires, and protect the life and property of residents.**

Objective 1: Minimize the threat of Wildfires to persons and properties in Echols County.

<b>Action Step #1: Request the Echols County Commission to consider the use of Urban/Wildland Interface in the development of its comprehensive plan.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County BOC
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – Extended due to importance. This has not been accomplished but is a goal for the next comprehensive plan update.

<b>Action Step #2: Implement Fire-Wise program in Echols County.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – Extended due to importance. Not yet implemented.

<b>Action Step #3: Train all firefighters to FF1 &amp; FF2 standards and ensure that emergency vehicle drivers are trained properly.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	\$4,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA, AFG
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Most firefighters and drivers have been trained but new hires will need to be trained.



<b>Action Step #4: Ensure that all firefighters have latest NFPA compliant PPE turnout gear sets and SCBAs.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA, AFG
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. All firefighters currently have the appropriate gear but new firefighters will need gear.

<b>Action Step #5: Obtain a new fire trucks and rehabilitate old trucks, as needed.</b>	
<b>Responsible Department</b>	Echols County Fire Dept.
<b>Anticipated Cost</b>	\$50,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA, AFG
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Currently fire truck needs are met but new trucks and/or repairs will be needed during the next 5 years.

<b>Action Step #6: Create a minimum of 30 feet of defensible space around all governmental structures and recommend to homeowners &amp; community stakeholders that they create same space through the trimming of shrubs and vines, overhanging limbs, replacement of flammable plants with less flammable varieties and remove vegetation around chimneys.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept. & Public Works Dept.
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Defensible space has been created but needs to be maintained as vegetation grows.

<b>Action Step #7: Reduce structural ignitability by cleaning flammable vegetative materials from roofs and gutters, store firewood appropriately, install skirting around raised structures, store water hoses for easy access and replace pine straw and mulch around plantings with less flammable landscaping materials around all governmental structures and recommend same to homeowners and community stakeholders.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept. & Public Works Dept.
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished but needs to continue on an ongoing basis.

<b>Action Step #8: Work with GA Power and EMCs to encourage new underground service to rural homes.</b>	
<b>Responsible Department</b>	Echols County Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished but needs to continue on an ongoing basis.

<b>Action Step #9: Adopt standards for safety zones around propane distribution tanks.</b>	
<b>Responsible Department</b>	Echols County Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Standards have not yet been adopted.

<b>Action Step #10: Ensure Driveway Access/Right-Of-Way Clearance by maintaining vertical and horizontal clearance for emergency equipment and seeing that adequate lengths of culverts are installed to allow emergency vehicle access.</b>	
<b>Responsible Department</b>	Echols County Road Dept., Building Inspection Dept. & Public Works Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished but needs to continue on an ongoing basis.

<b>Action Step #11: Ensure Road Access by identifying needed road improvements and as roads are upgraded, widen to minimum standards with at least 50 foot diameter cul-de-sacs or turn arounds.</b>	
<b>Responsible Department</b>	Echols County Road Dept., Building Inspection Dept. & Public Works Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished for existing roads but needs to continue on an ongoing basis for new roads and new upgrades.

<b>Action Step #12: Examine existing codes and ordinances and amend and enforce existing building codes as they relate to skirting, propane tank locations, public nuisances (trash/debris on property) and other relevant concerns; Review subdivision and development ordinances for public safety concerns; Enact and enforce uniform addressing ordinance.</b>	
<b>Responsible Department</b>	Echols County Building Inspection Dept. & Public Works Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Resources have not yet become available to accomplish this item.

<b>Action Step #13: Work with local law enforcement to better control non-essential traffic during fire emergencies.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished but needs to continue on an ongoing basis.

<b>Action Step #14: On adjacent WUI Lands, reduce hazardous fuels by encouraging prescribed burning for private landowners and industrial timberlands particularly adjacent to residential areas; Seek grant for mowing or prescribed burning in WUI areas.</b>	
<b>Responsible Department</b>	Georgia Forestry Commission
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA, USFS
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished but needs to continue on an ongoing basis. No grant funding has been found.

<b>Action Step #15: Encourage railroads to better maintain their ROW eliminating brush and grass through herbicide and mowing. Maintain firebreaks along ROW adjacent to residential areas.</b>	
<b>Responsible Department</b>	Echols County Fire Dept., Building Inspection Dept. & Public Works Dept.
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished but needs to continue on an ongoing basis.

<b>Action Step #16: Improve existing fire lines by reducing hazardous fuels through the cleaning and re-harrowing of existing lines.</b>	
<b>Responsible Department</b>	Echols County Fire Dept., Building Inspection Dept. & Public Works Dept.
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished but needs to continue on an ongoing basis due to vegetation growth.

<b>Action Step #17: Ensure access to water sources and dry hydrants by inspecting, maintaining and improving access to existing dry hydrants, adding signage along roads to mark the hydrants, purchasing improved drafting equipment, floating and turbo drafts, investigating the possibility of placing compatible fittings on irrigation wells and updating the GFC Fire plan to include identified helicopter dip sites.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept., Road Dept. & Public Works Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. These items have not been accomplished. The GFC fire plan update is in progress.

<b>Action Step #18: Ensure all fire stations and firefighters are equipped with wildland hand tools &amp; lightweight PPE gear and investigate the need for additional tankers and overhead refill tanks (at rural stations).</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	\$50,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DHS FEMA/GEMA, AFG
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Tools and gear are available but upgrades will be needed in the next 5 years. Additional tankers and tanks are still needed.

<b>Action Step #19: Ensure that road names are adequately marked through improved road signage at crossroads and installation of “Dead End” or “No Outlet” tags on road signs.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Road Dept.
<b>Anticipated Cost</b>	\$25,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Accomplished for some but not all roads.

<b>Action Step #20: Ensure that all personnel are trained in Wildfire Suppression.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Existing staff has been trained but new hires will need to be trained.

<b>Action Step #21: Conduct “How to Have a Firewise Home” Workshop for Echols County Residents.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Annual workshops have been held and will continue.

<b>Action Step #22: Conduct “Firewise” Workshop for Echols County Community Leaders.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Annual workshops have been held and will continue.

<b>Action Step #23: Conduct a Spring Clean-up Event Every Spring.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Annual cleanups have been held and will continue.

<b>Action Step #24: Develop and distribute Firewise informational packets to realtors, tax office &amp; insurance agents.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Information has been distributed and should continue to be distributed.

<b>Action Step #25: Create and Exhibit a Wildfire Protection Display at Local Events such as the Carrot Festival &amp; Fourth of July and Hold Open Houses At Fire Stations to Develop Community Support and Understanding of Local Fire Departments and Current Issues.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. Annual exhibits have been held and should continue.

<b>Action Step #26: Invite the Local News Media to Community “Firewise” Functions for News Coverage and Regularly Submit Press Releases Documenting Wildfire Risk Improvements.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County Fire Depts.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance. This has been accomplished and should continue on a regular basis.

**D. Special Multi-Jurisdictional Strategy and Considerations:**

There is only one jurisdiction in Echols County (Echols County itself).

**E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**



Goal 1, Objective 1

Action Step	Changes
Action Step #1: Request the Echols County Commission to consider the use of Urban/Wildland Interface in the development of its comprehensive plan.	None - Ongoing
Action Step #2: Implement Fire-Wise program in Echols County.	None - Ongoing
Action Step #3: Train all firefighters to FF1 & FF2 standards and ensure that emergency vehicle drivers are trained properly.	None - Ongoing
Action Step #4: Ensure that all firefighters have latest NFPA compliant PPE turnout gear sets and SCBAs.	None - Ongoing
Action Step #5: Obtain a new fire trucks and rehabilitate old trucks, as needed.	None - Ongoing
Action Step #6: Create a minimum of 30 feet of defensible space around all governmental structures and recommend to homeowners & community stakeholders that they create same space through the trimming of shrubs and vines, overhanging limbs, replacement of flammable plants with less flammable varieties and remove vegetation around chimneys.	None - Ongoing
Action Step #7: Reduce structural ignitability by cleaning flammable vegetative materials from roofs and gutters, store firewood appropriately, install skirting around raised structures, store water hoses for easy access and replace pine straw and mulch around plantings with less flammable landscaping materials around all governmental structures and recommend same to homeowners and community stakeholders.	None - Ongoing
Action Step #8: Work with GA Power and EMCs to encourage new underground service to rural homes.	None - Ongoing
Action Step #9: Adopt standards for safety zones around propane distribution tanks.	None - Ongoing
Action Step #10: Ensure Driveway Access/Right-Of-Way Clearance by maintaining vertical and horizontal clearance for emergency equipment and seeing that adequate lengths of culverts are installed to allow emergency vehicle access.	None - Ongoing
Action Step #11: Ensure Road Access by identifying needed road improvements and as roads are upgraded, widen to minimum standards with at least 50 foot diameter cul-de-sacs or turn arounds.	None - Ongoing
Action Step #12: Examine existing codes and ordinances and amend and enforce existing building codes as they relate to skirting, propane tank locations, public nuisances (trash/debris on property) and other relevant concerns; Review subdivision and development ordinances for public safety concerns; Enact and enforce uniform addressing ordinance.	None - Ongoing
Action Step #13: Work with local law enforcement to better control non-essential traffic during fire emergencies.	None - Ongoing
Action Step #14: On adjacent WUI Lands, reduce hazardous fuels by encouraging prescribed burning for private landowners and industrial timberlands particularly adjacent to residential areas; Seek grant for mowing or prescribed burning in WUI areas.	None - Ongoing
Action Step #15: Encourage railroads to better maintain their ROW eliminating brush and grass through herbicide and mowing. Maintain firebreaks along ROW adjacent to residential areas.	None - Ongoing
Action Step #16: Improve existing fire lines by reducing hazardous fuels through the cleaning and re-harrowing of existing lines.	None - Ongoing

<b>Action Step</b>	<b>Changes</b>
Action Step #17: Ensure access to water sources and dry hydrants by inspecting, maintaining and improving access to existing dry hydrants, adding signage along roads to mark the hydrants, purchasing improved drafting equipment, floating and turbo drafts, investigating the possibility of placing compatible fittings on irrigation wells and updating the GFC Fire plan to include identified helicopter dip sites.	None - Ongoing
Action Step #18: Ensure all fire stations and firefighters are equipped with wildland hand tools & lightweight PPE gear and investigate the need for additional tankers and overhead refill tanks (at rural stations).	None - Ongoing
Action Step #19: Ensure that road names are adequately marked through improved road signage at crossroads and installation of “Dead End” or “No Outlet” tags on road signs.	None - Ongoing
Action Step #20: Ensure that all personnel are trained in Wildfire Suppression.	None - Ongoing
Action Step #21: Conduct “How to Have a Firewise Home” Workshop for Echols County Residents.	None - Ongoing
Action Step #22: Conduct “Firewise” Workshop for Echols County Community Leaders.	None - Ongoing
Action Step #23: Conduct a Spring Clean-up Event Every Spring.	None - Ongoing
Action Step #24: Develop and distribute Firewise informational packets to realtors, tax office & insurance agents.	None - Ongoing
Action Step #25: Create and Exhibit a Wildfire Protection Display at Local Events such as the Carrot Festival & Fourth of July and Hold Open Houses At Fire Stations to Develop Community Support and Understanding of Local Fire Departments and Current Issues.	None - Ongoing
Action Step #26: Invite the Local News Media to Community “Firewise” Functions for News Coverage and Regularly Submit Press Releases Documenting Wildfire Risk Improvements.	None - Ongoing

## **Section V. Thunderstorms and Lightning**

### **A. Community Mitigation Goals**

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Echols County. Thunderstorms and lightning are unpredictable and can happen at any place and at any time. Because these storms may be extremely violent and cause great damage, the HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

### **B. Identification and Analysis of the Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 2, Section V.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

### **C. Mitigation Strategy and Recommendations:**

#### **Goal 5: Protect Citizens of Echols County from the threat of Thunderstorms & Lightning strikes.**

Objective #1: Provide tools necessary for warning of Thunderstorms & Lightning strikes.

<b>Action Step 1: Provide every public outdoor recreation facility and every public school outdoor recreation facility with an automatic warning device, if feasible.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County BOE
<b>Anticipated Cost</b>	\$25,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – not yet achieved due to lack of funds, extended due to importance

*Action Step 2 (Make lightning warning system information available to other entities having significant outdoor activities such as golf courses, businesses, airports, etc.) has been completed.*

<b>Action Step 3: Educate the public on the risks of thunderstorms &amp; lightning through press releases on thunderstorms &amp; lightning, brochures and other methods.</b>	
<b>Responsible Department</b>	Echols County EMA, Echols County BOE
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – a continual need. Brochures have been distributed to the public and this needs to continue.

#### **D. Special Multi-Jurisdictional Strategy and Considerations:**

There is only one jurisdiction in Echols County (Echols County itself).

#### **E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

#### **F. Changes from the Previous Plan**

Goal 1, Objective 1

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Provide every public outdoor recreation facility and every public school outdoor recreation facility with an automatic warning device, if feasible.	None – Ongoing

<b>Action Step</b>	<b>Changes</b>
Action Step 2: Make lightning warning system information available to other entities having significant outdoor activities such as golf courses, businesses, airports, etc.	Completed
Action Step 3: Educate the public on the risks of thunderstorms & lightning through press releases on thunderstorms & lightning, brochures and other methods.	None – Ongoing

## **Section VI. Extreme Heat**

### **A. Community Mitigation Goals**

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Echols County. Extreme Heat events can happen at any place and at any time. Because of the potential for injury and death, the HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below should be implemented to reduce this hazard’s potential impact on the community.

### **B. Identification and Analysis of Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 2, Section VI.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

### **C. Mitigation Strategy and Recommendation:**

#### **Goal 6: Ensure the citizens of Echols County are warned of conditions of extreme heat.**

Objective 1: Employ methodology for determining “Heat Stress” days in Echols County and forecasting the danger.

*Action Step 1 (Identify and designate emergency shelters, in consultation with appropriate organizations (Senior Citizen Centers, hospitals, churches, health department, etc.), and promote their use during extreme heat events) has been completed.*

*Action Step 2 (Educate the community of heat risks, via brochures, announcements, etc.) has been completed.*

**Goal 6a: Ensure the vulnerable citizens of Echols County are protected against conditions of extreme heat.**

Objective 1. Provide potential heat-stress victims with emergency shelter.

*Action Step 1 (Purchase diffusers for fire hydrants) has been completed.*

**D. Special Multi-Jurisdictional Strategy and Considerations:**

There is only one jurisdiction in Echols County (Echols County itself).

**E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**

Goal 1, Objective 1

<b>Action Step</b>	<b>Changes</b>
Action Step #1: The Director, Echols County Emergency Management Center, request assistance from the National Weather Service, using National Weather Service historical information and computer programming, to determine the number of “Heat Stress” days per year in Echols County.	Completed
Action Step #2: The Director, Echols County Emergency Management Center, request assistance from the National Weather Service/Jacksonville.	Completed

Goal 2, Objective 1

Action Step #1: Designate emergency shelters in consultation with appropriate organizations (Red Cross, Senior Citizen Centers, hospital, churches, health department, etc.)	Completed
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## **Section VII. Drought**

### **A. Community Mitigation Goals**

As previously indicated in Chapter 2, drought may cause substantial economic, property, and personal damage in Echols County, particularly in the form of crop damage. Its effects can be long-term, with the damage increasing as time goes by. In addition, drought conditions can contribute to wildfires in the community. The HMPUC believes that, due to the damage drought can cause, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

### **B. Identification and Analysis of Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 2, Section VII.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

### **C. Mitigation Strategy and Recommendations**

#### **Goal 7: Protect Echols County from the effects of drought conditions.**

Objective 1: Ensure adequate drinking water supply is available during drought conditions.



<b>Action Step 1: Develop a comprehensive study that will allow community leaders to understand when public and domestic underground water systems' water levels are threatened.</b>	
<b>Responsible Department</b>	Echols County Water Authority
<b>Anticipated Cost</b>	\$10,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – not yet accomplished due to lack of funds/staff, but still needed.

*Action Step 2 (Develop a tiered plan from the comprehensive study of underground water supplies serving the public and domestic water system to provide temporary water supplies for domestic consumption as needed) has been completed.*

**D. Special Multi-Jurisdictional Strategy and Considerations:**

There is only one jurisdiction in Echols County (Echols County itself).

**E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**

<b>Action Step</b>	<b>Changes</b>
Action Step 1: Develop a comprehensive study that will allow community leaders to understand when public and domestic underground water systems' water levels are threatened.	None - Ongoing
Action Step 2: Develop a tiered plan from the comprehensive study of underground water supplies serving the public and domestic water system to provide temporary water supplies for domestic consumption as needed	Completed

## Chapter 5. Local Technological Hazard Mitigation Goals and Objectives

### Overall Community Mitigation Goals, Policies, and Values Narrative

The purpose of the Echols County Hazard Mitigation Plan is to not only assess the vulnerability of the area to natural hazards, but to identify those action steps that may need to be undertaken to reduce the potential loss of life and property from identified technological hazards. As in the case of natural hazards, the development of this plan requires an overall set of community goals that clearly state the community's commitment to reducing or avoiding the long-term vulnerabilities to the identified hazards. With these overall goals in place, more specific goals, objectives, and action steps to protect the community from the identified hazards can then be developed. Using the findings from the Risk Assessment as a guide, the HMPUC has developed the following overall community mitigation goals:

**Goal 1: Protect the public health and safety;**

**Goal 2: Eliminate or reduce exposure of critical community facilities to the hazards identified in the community risk assessment;**

**Goal 3: Where exposure to hazards cannot be limited, implement, to the extent resources are available, the action steps needed to reduce the potential loss of life and property;**

**Goal 4: Maintain and/or enhance the community's capacity to issue warnings and to respond promptly and effectively in a hazard event.**

With these overall community mitigation goals in place, the following Goals, Objectives, and Action Steps have been developed to specifically address the technological hazards identified in Chapter 3. In addition, the same methodology as in Chapter 4 was utilized in ranking the priority of each action step.

There have not been any changes in the overall priorities since the previous plan was completed.

### Section I. Hazardous Materials Release

#### **A. Community Mitigation Goals**

As previously indicated in Chapter 3, a hazardous materials release may cause substantial damage to life, property, and the economy in Echols County. Such events can occur with little or no warning, giving the community no time to prepare and/or evacuate. The HMPUC believes that, because these events have the potential to cause great damage, injury, and loss of life, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

#### **B. Identification and Analysis of Comprehensive Range of Mitigation Options**

**1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

**2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 3, Section I.

**3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards.

**4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

**5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

**C. Mitigation Strategy and Recommendations**

**Goal 1: Protect the health and safety of residents of Echols County.**

Objective 1: Enhance the ability of the Echols County Emergency Management Agency to coordinate effectively and efficiently the emergency response during and after a hazardous materials release.

<b>Action Step 1: Implement the “Community Emergency Response Team” (CERT) program.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	\$5,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance

Objective 2: Minimize the effect of hazardous material spills.

<b>Action Step 1: Maintain HazMat response training</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance

<b>Action Step 2: Seek funding to expand HazMat training to first responders (fire, sheriff, EMS)</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance

<b>Action Step 3: Increase public awareness and procedures to follow if a hazardous material spill event occurs by publishing articles in the local newspaper, holding town hall meetings, radio announcements and providing bulletins to local churches and schools.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance

<b>Action Step 4: Train local government officials on proper response procedures for hazardous material spill events.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance

<b>Action Step 5: Investigate, implement and train in methods to relocate residents if event occurs.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance

<b>Action Step 6: Provide workplace training on decontamination steps.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing – Extended due to importance

<b>Action Step 7: Review annually all hazardous material transportation routes (relocate routes if necessary)</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-GEMA/FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing – Extended due to importance

**D. Special Multi-Jurisdictional Strategy and Considerations:**

Most of the strategies outlined above apply to and are intended to be carried out by each of the local jurisdictions. In certain cases, where the action step may not apply to all jurisdictions, the applicable jurisdictions are noted in the table.

**E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**

*(None)*

## **Section II. Public Health Emergency**

### **A. Community Mitigation Goals**

As previously indicated in Chapter 3, a disease outbreak may cause substantial damage to life, public health, and the economy in Echols County. A disease outbreak can overwhelm community resources and first responders, and may be difficult or impossible to contain. Because these events have the potential to cause great damage, injury, and loss of life, the HMPUC believes that a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

### **B. Identification and Analysis of Comprehensive Range of Mitigation Options**

#### **1. Structural and Non-Structural Mitigation:**

This Hazard Mitigation Plan contains both structural and non-structural options. For more information, see the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below.

#### **2. Existing Policies, Regulations, Ordinances and Land Use:**

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 3, Section I.

#### **3. Community Values, Historic and Special Considerations:**

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. A small number of properties in the community are listed in the National Register of Historic Places.

#### **4. New Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect new buildings and infrastructure from the effects of this hazard.

#### **5. Existing Buildings and Infrastructure:**

The mitigation strategy and recommendations that follow include action steps designed to protect existing buildings and infrastructure from the effects of this hazard.

## C. Mitigation Strategy and Recommendations

### Goal 1: Protect the population of Echols County from the effects of a disease outbreak.

Objective 1: Secure external sources of funding and training to help prepare for and respond to events.

<b>Action Step 1: Increase Immunization education, prevention and pre-planning efforts, particularly for the homeless and low-income individuals in the community, and host flu shot and other immunization clinics.</b>	
<b>Responsible Department</b>	Health Department
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GEMA, FEMA, Health Department
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 2: Identify vulnerable populations (homeless, migrants, low income, etc.) and identify community groups to work with in order to reach and educate these populations effectively regarding health issues.</b>	
<b>Responsible Department</b>	Echols County EMA, Health Department
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GEMA, FEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 3: Develop plan to identify community locations to obtain and distribute Water, Food, Ice, Tarps, medical countermeasures, etc.</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GEMA
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

<b>Action Step 4: Develop Local Emergency Planning Committee</b>	
<b>Responsible Department</b>	Echols County EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

<b>Action Step 5: Approach large businesses about working with the EMA on developing public health emergency plans.</b>	
<b>Responsible Department</b>	Health Department
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Echols County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

**D. Special Multi-Jurisdictional Strategy and Considerations:**

Most of the strategies outlined above apply to and are intended to be carried out by each of the local jurisdictions. In certain cases, where the action step may not apply to all jurisdictions, the applicable jurisdictions are noted in the table.

**E. Local Public Information and Awareness Strategy:**

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, web pages and County Commission meetings, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

The major criteria to measure plan success will be the number of Goals, Objectives, and Action Steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

**F. Changes from the Previous Plan**

*All action steps are new. (This is a new hazard section for this plan update.)*



## **Chapter 6:** **Executing The Plan**

### **Summary of changes:**

- Revised and updated language.

## **Section I.** **Implementation of the Action Plan**

### **A. Administrative Actions**

The meetings and planning process of the HMPUC have been overseen by the Echols County Emergency Management Agency. The Southern Georgia Regional Commission contracted with the Echols County Commission to administer and facilitate the planning process. The Echols County Commission will adopt the Plan (on approval by GEMA and FEMA) by the resolutions contained in Appendix E.

### **B. Authority and Responsibility**

The Echols County Commission have authorized the submission of this Plan to both GEMA and FEMA for approval.

As determined by the Echols County Commission, the Echols County EMA Director will be responsible for this Plan and its continued usage as a planning document. The EMA Director will oversee implementation, monitoring, and updates for the county and will be responsible for the implementation of the specific mitigation activities proposed in this plan.

### **C. Prioritization**

#### **1. Methodology for Prioritization**

In prioritizing the implementing of the action steps identified in this plan, those hazards deemed to pose the greatest threat will be given the primary consideration. In prioritizing the implementation feasibility of the action steps and projects, local governments will take into consideration the additional factors of cost and time. Those activities requiring smaller amounts of money and staff time to implement will be given highest implementation priority. Those steps requiring additional funding for equipment or staff time beyond the normal budgets of the communities will be incorporated into the budget process when possible based on the cost-benefit analysis described below. “High” priority indicates actions that are of great importance to the community and that efforts will be made to accomplish these actions, depending on available funding, prior to accomplishing the other listed action steps. “Medium” priority indicates those items that are important to the community but should receive funding and resources only after sufficient funding and resources have been devoted to accomplishing “High” priority action steps. “Low” priority action steps are those that, while still important to the community, will be accomplished

depending on funding and resources and on the number of “High” and “Medium” priority action steps that have first been accomplished.

## **2. Use of Cost Benefit Analysis**

The data provided in Worksheet 3 will be utilized to quantify the number of persons and/or property at risk from each hazard. Combined with the criteria in Worksheet 4, this will allow local governments to assess the potential value of at-risk properties and the resulting benefits from the proposed action steps.

In prioritizing projects, the local governments will also utilize cost benefit analysis (CBA) to evaluate the feasibility of a major project. CBA is a well-established method for quantitatively comparing the benefits and costs of mitigation projects. The end result is a Benefit-Cost Ratio (BCR), which is derived from a project’s total net present value of benefits divided by the total project cost estimate, which must include all documented project and maintenance costs. The benefits of mitigation projects are avoided damages, disruptions, losses, and casualties. Examples of common benefits include avoided or reduced damages to buildings, contents, or infrastructure; avoided or reduced economic impacts of loss of function of buildings; avoided or reduced displacement costs for temporary quarters; avoided or reduced loss of public services; avoided or reduced loss of net business income; avoided or reduced economic impacts of loss of function of infrastructure; avoided or reduced road or bridge closures; avoided or reduced loss of utility services; and avoided or reduced deaths and injuries.

## **3. Use of Other Calculations**

Additional calculations that were performed included: Availability of potential funding sources; overall feasibility; measurable milestones; public and political support for the proposed actions; and the STAPLEE criteria. The STAPLEE criteria were considered for each action step and include the following: Social criteria (acceptance of the relevant action by the community, effect on segment of population); technical criteria (technical feasibility of the given action step, whether it is a long term solution, and secondary impacts); administrative criteria (staffing required, funding allocated, and maintenance/operations required); political criteria (political support for the action step, the presence of a local champion for the given action, and public support for the action step); legal criteria (state authority, existing local authority, and potential legal challenges); economic criteria (benefits of the action, costs of the action, contribution to the community’s economic goals, and outside funding required); and finally, environmental criteria (effect on land/water, effect on endangered species, effect on HAZMAT/waste sites, consistency with community environmental goals, and consistency with federal laws). Each of these STAPLEE criteria was evaluated individually for each action step through analysis by SGRC staff and the HMPUC. Results are shown in Worksheet 4 in Appendix D.

## **4. Use of Other Review Structure**

In addition to the cost-benefit analysis, other factors that may affect the prioritization of projects include the availability of special tax, grant, and/or loan funds which become available on a limited basis to finance project implementation, such as SPLOST funds or FEMA Pre-Disaster Mitigation Program funds.

#### **D. Incorporation of Local Hazard Mitigation Plan into Other Plans/Planning Measures**

This Plan will be reviewed by Echols County. The requirements of this Hazard Mitigation Plan will be taken into consideration and will be incorporated into Comprehensive Plans, Five-Year Short-Term Work Program, Capital Improvement Plans, Local Emergency Operations Plans, and all other such Plans as appropriate. Specifically, the Goals, Objectives, and Action Steps of this HMP will be used to inform the goals, community needs and opportunities, community policies, and work program projects listed in the Comprehensive Plan, which include a five-year short-term work program, as well as those projects listed in any future capital improvement plans. The goals and objectives of this plan will be used to inform the development of any future Local Emergency Operations Plans.

Once this plan is approved, it will be used by the consultants and planning committees responsible for the update process for the County Comprehensive Plan, Short-Term Work Program, and all other plans that could incorporate the requirements of this plan.

To facilitate inclusion of this Plan, the Echols County Commission will provide a copy of this Plan to the persons and/or committees responsible for writing and updating plans. Copies will be provided electronically (via e-mail, the SGRC website, web-based file sharing, or other methods as requested by the relevant committee) as well as hard copy if desired.

## **Section II.** **Evaluation and Monitoring**

### **A. Method**

The Echols County EMA Director will be charged with ensuring that this plan is monitored and periodically updated in subsequent years. The method that the Echols County EMA will use to monitor the plan and evaluate implementation progress will be the following:

- The Echols County EMA will conduct quarterly telephone interviews with the various local governments and area agencies in order to chart their plan progress.
- The EMA Director will hold formal public meetings at least once a year to monitor the progress of the plan implementation and allow the public a forum for expressing concerns, opinions, and ideas.
- Throughout the year, a series of informal meetings will be held in which various aspects of the plan, including monitoring and evaluation, are discussed.

### **B. Criteria Used To Monitor and Evaluate the Plan**

The major criteria to measure plan success will be the number of goals, objectives, and action steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property.

## **Section III.** **Plan Update and Maintenance**

### **A. Public Involvement**

Because the Hazard Mitigation Plan is intended to help ensure a safe and livable environment for all of Echols County, it is imperative that public involvement be an integral part of the planning process.

Since adoption of the original Echols County Pre-Disaster Mitigation Plan, citizens have been kept involved and apprised of plan progress through such forums as regularly scheduled County Commission meetings, public hearings, and applicable newspaper coverage. This same level of public education and awareness and citizen involvement will continue over the next five years until the next required update of the Hazard Mitigation Plan. When specific issues dictate, public hearings will be conducted, and all other community planning efforts (Comprehensive Plan, Regional Plan, etc.) will afford citizens the opportunity to participate in and comment on the need to incorporate hazard mitigation initiatives.

To facilitate the goal of continued public involvement in the planning process, the EMA will assure that the following steps are taken:

- The public will be directly involved in the update and review of the Plan. The public will be notified and invited to the annual meetings through flyers, social media and/or the local

newspaper, and an e-mail list. Echols County Board of Commissioners staff will use social media, e-mail lists, and flyers to publicize meetings.

- Copies of the plan will be kept on hand at the Echols County Board of Commissioners office and the Echols County EMA office.
- The plan will be available on the County and/or Southern Georgia Regional Commission websites, and will contain an e-mail address and phone number the public can use for submitting comments and concerns about the plan.
- A public meeting will be held annually to provide the public with a forum for expressing concerns, opinions, and ideas. The EMA will set meeting schedules and dates and use County resources to publicize and host this meeting.

## **B. Timeframe**

Pursuant to the requirements set forth in the Disaster Mitigation Act of 2000, the community is again required to update and evaluate the plan no more than five years after its adoption. At least one year prior to the end of the required five-year update period, the EMA Director will begin the planning process for a new update to this plan. This will consist of establishing a new planning committee that will be tasked with completing the update following the same process used for this update.

No later than the conclusion of the five-year period following approval of the plan update, the EMA Director shall submit a revised Hazard Mitigation Plan to GEMA for its approval. It is important to note that the plan update process, as established by the planning committee, is subject to change, depending upon subsequent regulations and/or requirements set forth by GEMA and FEMA.

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

### Summary of changes:

- Revised and updated language.

Echols County has suffered considerable damage in the past from natural hazards. Planning ahead and undertaking structural and nonstructural action steps before a disaster occurs can save lives and property. This philosophy has been the driving force behind the preparation of the Echols County Hazard Mitigation Plan.

Education of the population and enhanced warning can decrease the vulnerability of the county's citizens and visitors. Continued and improved public information and communication with the population are important parts of this plan. Because of this planning process, Echols County Officials have gained a better understanding of the hazards affecting the community.

As a result of the planning process described in Chapter 1 and the hazard, risk, and vulnerability assessment in Chapter 2, Echols County has a realistic perspective on the hazards to which the community is exposed. With the mitigation strategy outlined in Chapter 4 and the implementation plan included in Chapter 6, the local leaders have an "action plan" to follow when allocating resources to reduce their community's vulnerability to such hazards.

## **References**

Echols County Board of Tax Assessors (<http://www.qpublic.net/ga>)

Echols County website (<http://www.echolscountyga.com>)

Echols County Flood Insurance Study  
(<http://www.georgiadfirm.com/status/echols/13101CV000A.pdf>)

Center for Agribusiness & Economic Development. 2016 Georgia Farm Gate Value Report.  
([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2016\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2016_DEC16.pdf))

Federal Emergency Management Agency ([www.fema.gov](http://www.fema.gov))

FEMA National Flood Insurance Program Community Status Book  
(<https://www.fema.gov/national-flood-insurance-program-community-status-book>)

Georgia Data. "Agriculture." (<https://georgiadata.org/agriculture.html>)

Georgia Emergency Management Agency, Georgia Mitigation Information System  
(<https://apps.itos.uga.edu/GEMA.GMIS/>)

Georgia Emergency Management and Homeland Security Agency (<http://www.gema.ga.gov/>)

Georgia Forestry Commission ([www.gatrees.org](http://www.gatrees.org))

National Oceanic and Atmospheric Administration, National Centers for Environmental Information, Storm Events Database (<http://www.ncdc.noaa.gov/stormevents/>)

National Weather Service. Archived NWS Watch/Warnings at the Iowa State University Environmental Mesonet (<https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml>)

Southern Georgia Regional Commission ([www.sgrc.us](http://www.sgrc.us))

USDOT Pipeline and Hazardous Materials Safety Administration. Office of Hazardous Materials Safety database  
(<https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/IncrSearch.aspx>)

U.S. Drought Monitor (<http://droughtmonitor.unl.edu/>)

United States Census Bureau ([www.census.gov](http://www.census.gov))

# **Appendices**



## Contents

### **Appendix A. Hazard Identification, Risk, and Vulnerability (HRV)**

#### Section I. GEMA Worksheet 3A

- I. Hurricanes/Tropical Storms
- II. Tornadoes
- III. Floods
- IV. Lightning
- V. Extreme Heat
- VI. Wildfires
- VII. Drought

#### Section II. GMIS Critical Facilities Maps

1. Critical Facilities and Hazard Potential for Hazards Affecting the Entire Community (Hurricanes/Tropical Storms, Tornadoes, Lightning, Extreme Heat, and Drought)
2. Critical Facilities and Wind Zones
3. Critical Facilities and Wildfire Hazard Areas (GMIS data)
4. Critical Facilities and Flood Zones

#### Section III. Other Maps

- Hurricane MEOW maps
- Tornado track map
- FEMA flood maps
- UNL Drought Monitor Map

### **Appendix B. Growth and Development Trends**

- Census Demographic Summary
- Comprehensive Plan Short Term Work Program
- Echols County Tax Digest

### **Appendix C. Other Planning Documents**

- Community Wildfire Protection Plan

### **Appendix D. Worksheets Used In Planning Process**

- Hazard Frequency Table
- GEMA Worksheet #1
- GEMA Worksheet #2
- GEMA Worksheet #4 (for each objective)

### **Appendix E. Copies of Required Planning Documentation**

- I. Public Notices
- II. Sign-in Sheets
- III. Adoption Resolutions [pending]

### **Appendix F. Reports and Inventories**

- I. General Historic Reports
  1. Hurricanes/Tropical Storms – NOAA data
  2. Tornadoes – NOAA data
  3. Floods – NOAA data
  4. Lightning/Thunderstorms/Wind/Hail – NOAA data
  5. Wildfires – GFC data
  6. Extreme Heat – NWS data

7. Drought – NOAA data

8. Hazardous Materials Release – USDOT data

II. Critical Facilities Inventory

**Appendix G. HAZUS Report**