

Coffee County, Georgia



Hazard Mitigation Plan 2019-2024

Including the Cities of Ambrose, Broxton, Douglas, and Nicholls

This Plan produced for the Coffee 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

Effective 5/6/2019 - 5/6/2024

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	7
Section IV. Organization of the Plan	7
Section V. Local Hazard, Risk, and Vulnerability (HRV) Summary, Local Mitigation Goals, and Objectives	8
Section VI. Multi-Jurisdictional Special Considerations	9
Section VII. Adoption, Implementation, Monitoring, and Evaluation.....	9
Section VIII. Community Data.....	11
Chapter 2: Local Natural Hazard, Risk, And Vulnerability (HRV) Summary	17
Section I. Thunderstorms/Wind.....	18
Section II. Tornadoes.....	22
Section III. Drought	26
Section IV. Floods	31
Section V. Hail	36
Section VI. Wildfires	39
Section VII. Hurricanes/Tropical Storms	43
Section VIII. Severe Winter Storms	47
Chapter 3: Local Natural Hazard Mitigation Goals and Objectives	50
Overall Community Mitigation Goals, Policies, and Values Narrative.....	51
Section I. Thunderstorms and Wind	53
Section II. Tornadoes.....	55
Section III. Drought.....	58
Section IV. Floods	61
Section V. Hail	66
Section VI. Wildfires.....	69
Section VII. Hurricanes/Tropical Storms	75
Section VIII. Severe Winter Storms	79
Chapter 4: Executing The Plan	82
Section I. Implementation of the Action Plan.....	82
Section II. Evaluation and Monitoring	84
Section III. Plan Update and Maintenance	84
Chapter 5: Conclusion	86
References	87
Appendices	88

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.

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

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 Coffee 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 May 6, 2014 and expires on May 6, 2019.

The purpose of this document is to provide an overview of the hazards that may impact Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls after they formed the Coffee 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. The Cities of Ambrose, Broxton, Douglas, and Nicholls are the only incorporated cities located in Coffee County.

Authority for the development of this Plan was given by the Coffee County Commission as a result of their execution of the Grantee-Subgrantee Agreement for the Coffee County Hazard Mitigation Grant Program (HMGP) Planning Project; and by the Cities of Ambrose, Broxton, Douglas, and Nicholls, located within Coffee 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 telephone 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.

Planning Division staff from the Southern Georgia Regional Commission, which represents eighteen counties in the region (including Coffee County), attended the Coffee County meetings. They participated in all aspects of the planning process and provided a regional perspective in the formation of the multi-jurisdictional Coffee County and Cities of Ambrose, Broxton, Douglas, and Nicholls Hazard Mitigation Plan.

Through the above efforts, the multi-jurisdictional Coffee County and Cities of Ambrose, Broxton, Douglas, and Nicholls Hazard Mitigation Plan was updated, including a comprehensive range of Mitigation Goals, Objectives, and Action Steps (see Chapter 3) 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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, located in Southern Georgia. Each of these jurisdictions also participated in the previous Hazard Mitigation Plan update. The Southern Georgia Regional Commission provided technical assistance. A local Hazard Mitigation Plan Update Committee (Coffee 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 3).

Potential members of the Coffee 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 Coffee County HMPUC. The Coffee County HMPUC was comprised of representatives from Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls and also included representatives from other groups and individuals, as shown below, who attended meetings and/or conducted research:

Name	Organization	Title
Henry Milhollin	City of Ambrose	Mayor
Mary Vickers	City of Ambrose	City Clerk
Margret Hampton	City of Broxton	City Clerk
Darquitta M. Riley	City of Broxton	Mayor
Isaac Garcia	City of Broxton Police Dept.	Police Chief
Charlie Davis	City of Douglas	Assistant Manager
Terrell Jacobs	City of Douglas	Manager
Bryson Lott	City of Douglas Fire Dept.	Fire Captain
Casey Wright	City of Douglas Fire Dept.	Assistant Fire Chief
Larry Wilson	City of Douglas Fire Dept.	Fire Chief
Gary Casteloes	City of Douglas Police Dept.	Police Chief
Helen Gilliard	City of Nicholls	City Clerk
Jamie Merritt	City of Nicholls Police Dept.	Police Chief
A.J. Dovers	Coffee County	County Commissioner
Charles Deen	Coffee County	County Commissioner
Jimmy Kitchens	Coffee County	County Commissioner
Johnny Wayne Jowers	Coffee County	County Commissioner
Chairman Oscar Paulk	Coffee County	County Commissioner
Wesley Vickers	Coffee County	County Administrator
Morris Leis	Coffee County Board of Education	School Superintendent
Steve Carver	Coffee County EMA	EMA Director
Bradley Adams	Coffee County EMA	Deputy EMA Director

Name	Organization	Title
Andy Smith	Coffee County EMS	EMS Director
Charetha Killiebrew	Coffee County e911	e911 dispatcher
Vernicka Crockett	Coffee County e911	e911 supervisor
Deirdre Fletcher	Coffee County e911	e911 supervisor
Jeremy Spikes	Coffee County e911	e911 dispatcher
Nicole Grantham-Gomez	Coffee County e911	e911 dispatcher
Doyle Wooten	Coffee County Sheriff's Dept.	Sheriff
Joe White	Coffee County Sheriff's Dept.	Sheriff's Deputy
Alisha Cross	Coffee Regional Medical Center	EMS Secretary
Presika Clements	Coffee Regional Medical Center	EMS captain
Sherry Thomas	Coffee Regional Medical Center	VP of Operations
Diane Adams	Georgia Emergency Management Agency	Field Coordinator
Jamie Smith	Georgia Forestry Commission	Chief Ranger
Casey Stewart	Health Department	Nurse Manager
Sonja McCulloch	South Georgia State College	Campus Police Chief
Tim Allmond	Wiregrass Georgia Technical College	Campus Police

Additional entities and organizations that were invited and informed of the plan update, but did not participate actively in the plan update process, were the following:

- Surrounding counties’ EMAs and Boards of Commissioners (Ben Hill, Irwin, Berrien, Atkinson, Ware, Bacon, Jeff Davis, and Telfair Counties)

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

- Kick-off public hearing – September 21, 2017
- First workshop – October 4, 2017
- Second workshop – November 1, 2017
- Third workshop – December 6, 2017
- Fourth workshop – January 31, 2018
- Final public hearing – November 19, 2018

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 city 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 and Cities. 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 and Cities do not have a Flood Mitigation Assistance Plan or 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 advertised in the local newspaper (meeting advertisements and sign-in sheets are provided in Appendix E). A second and final public hearing was held on November 19, 2018 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. Therefore, there was no need to consider or add public comments.

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.

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls
Hazard Mitigation Plan Update Committee
Mission Statement

This committee’s mission is to make Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, and their citizens, local governments, communities, residences, and businesses, less vulnerable to the effects resulting from natural hazards. This will be accomplished through the effective administration of Pre-Disaster Mitigation Programs, hazard risk assessments, wise floodplain management, and a coordinated approach to mitigation policy through state, regional, and local planning activities.

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls
Hazard Mitigation Plan Update Committee
Vision Statement

This committee’s vision is to institutionalize a local Pre-Disaster Mitigation ethic through leadership, professionalism, and excellence, thus leading the way to a safe, sustainable way of life for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls.

Due to Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls being such close-knit communities, the Coffee 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 3), 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 joint Comprehensive Plan for the County and Cities, 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).

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 eight natural hazards chosen by the HMPUC that may affect and cause damage to Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. Chapter 2, Chapter 3, and Appendix A are each subdivided into Sections I through VIII; these sections reflect the 8 natural hazards that were chosen. The natural hazards are as follows (in order of priority):

- I. Thunderstorm/Wind
- II. Tornado
- III. Drought
- IV. Flood
- V. Hail
- VI. Wildfire
- VII. Hurricane/Tropical Storm
- VIII. Severe Winter Storm

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 3), and information on implementation, monitoring, and plan update and maintenance (see Chapter 4), 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 and City Council Members 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 Coffee County and Cities of Ambrose, Broxton, Douglas, and Nicholls 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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are intended to be an ongoing process and the Plan is to be amended as appropriate.

This Plan was prepared for:
Coffee County Board of Commissioners
101 South Peterson Avenue
Douglas, GA 31533
Phone: (912) 384-4799
E-mail: instructor601@yahoo.com

This Plan was prepared by:
Southern Georgia Regional Commission
327 West Savannah Avenue
Valdosta, Georgia 31601
Voice: (229) 333-5277 Fax: (229) 333-5312
agodwin@sgrc.us

Copies of the Plan are on file and may be examined at the County and City government offices, the County Emergency Management Agency, the Southern Georgia Regional Commission office (as well as the SGRC website, 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 3, Sections I-VII. In Chapter 4, 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 4, 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

Coffee County has a total area of 575.10 square miles with a population density of 73.7 people per square mile (US Census data, 2010). 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. Coffee County contains four incorporated cities: Ambrose, Broxton, Douglas (the county seat), and Nicholls.

The Coffee County Fire Department has 20 fire stations, the City of Douglas Fire Department has 3 fire stations, and the fire departments of the Cities of Ambrose, Broxton, and Nicholls have one fire station each. Coffee County's main fire station and the three City of Douglas fire stations are staffed by paid firefighters, and the remaining fire stations in the community are staffed by volunteers.

The following are the ISO Classes of fire districts in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls.

Fire Department	ISO Class
Coffee County Fire Department	4x
City of Ambrose Fire Department	6
City of Broxton Fire Department	5
City of Douglas Fire Department	3
City of Nicholls Fire Department	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 November 19, 2018 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 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 3), 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, City Council meetings, County Commission meetings, etc.).

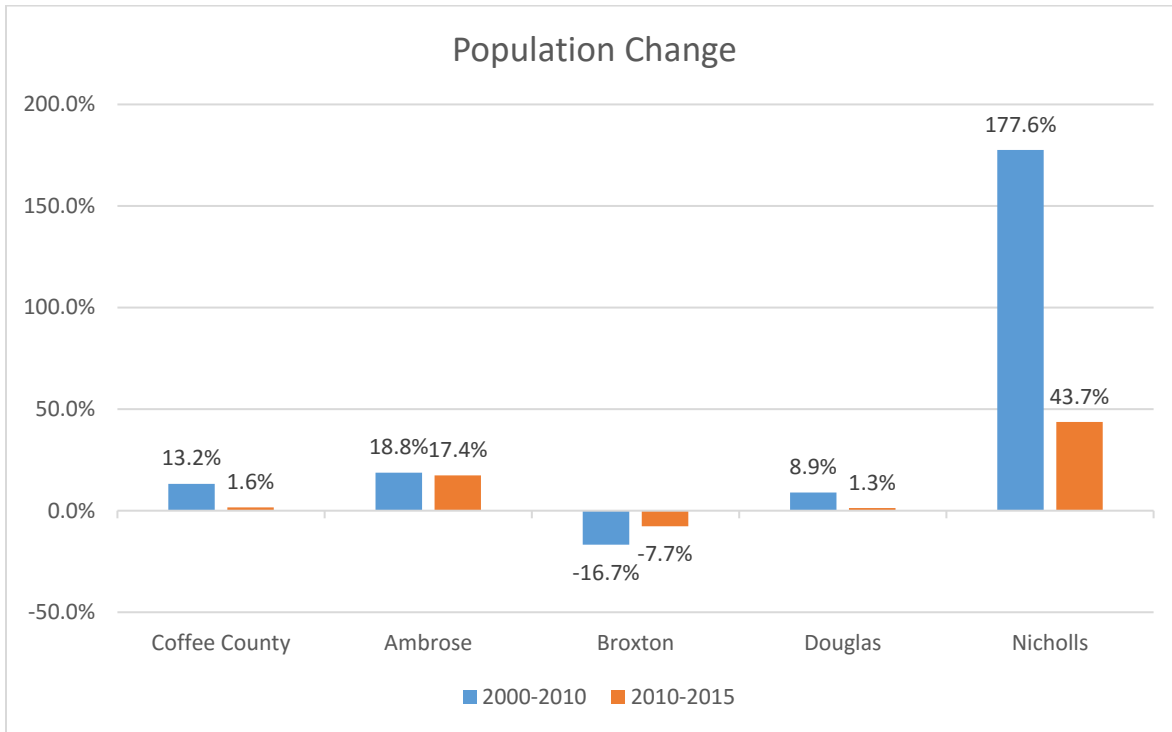
The method that the County EMA will use to monitor the plan will be to conduct quarterly telephone interviews with the various local governments and area agencies in order to chart their plan progress. Also, throughout the year, a series of informal meetings will be held in which various aspects of the 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.

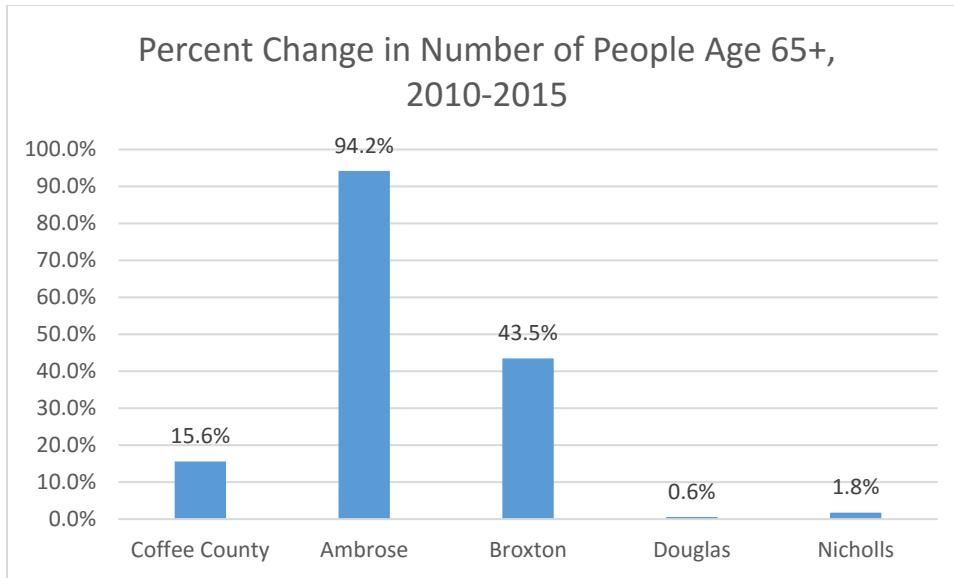
The major criteria to measure plan success will be the number of goals, objectives, and action steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 4.

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.

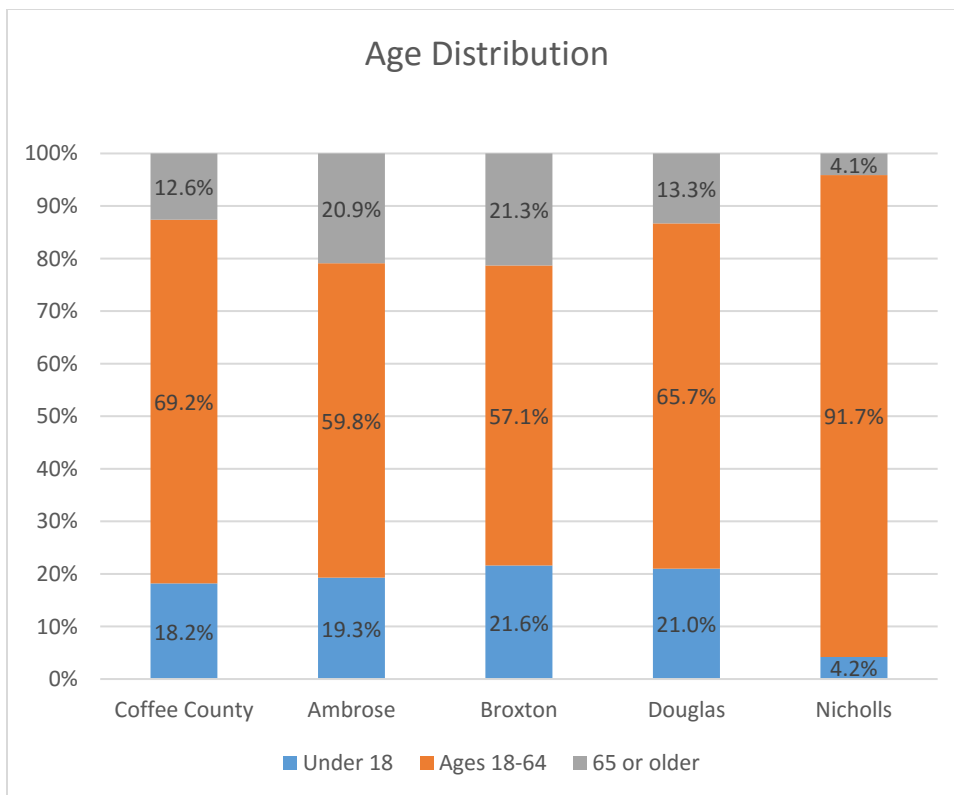
Section VIII. Community Data



According to 2016 U.S. Census Bureau American Community Survey 5-year estimates, the population of Coffee County is 43,042, an increase of 1.6% since 2010. The City of Ambrose's 2016 population is 446, a 17.4% increase since 2010. The City of Broxton's 2016 population is 1,098, a 7.7% decrease since 2010. The City of Douglas's 2016 population is 11,742, a 1.3% increase since 2010. The City of Nicholls' 2016 population is 4,021, a 43.7% increase since 2010. Coffee County had a 13.2% increase in population between 2000 and 2010, while the City of Ambrose's population increased by 18.8%, the City of Broxton's population decreased by 16.7%, the City of Douglas's population increased by 8.9%, and the City of Nicholls' population increased by 177.6% (mainly due to the City annexing Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates).

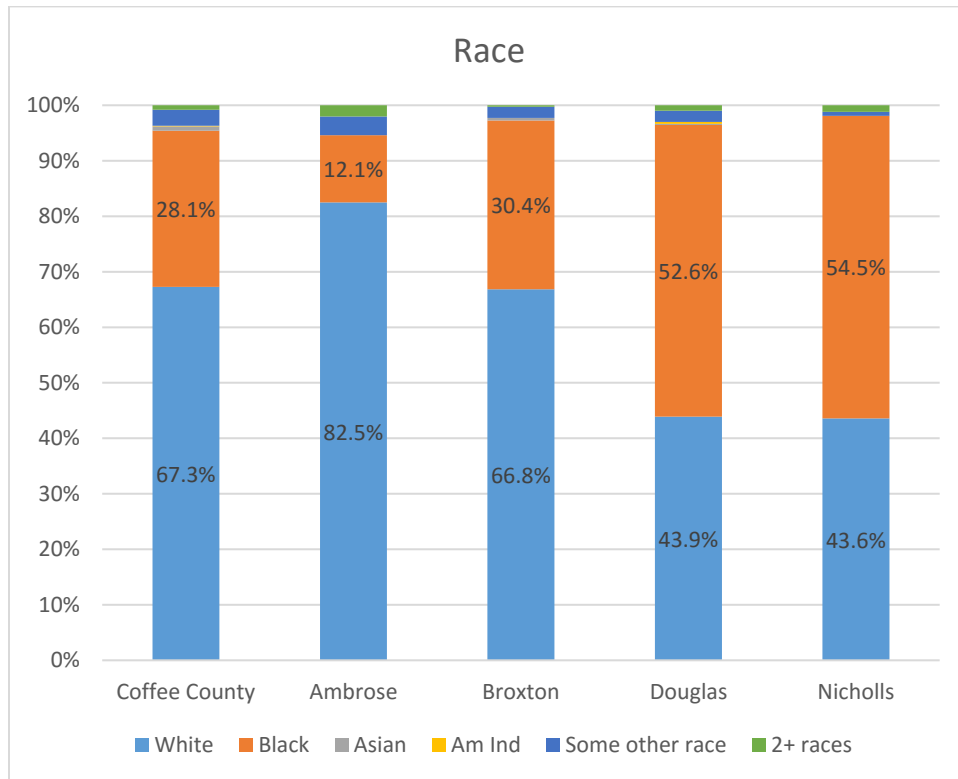


The total number of people aged 65 and older increased in Coffee County from 2010 to 2016 (15.6%). The number of people aged 65+ increased in Ambrose (94.2%), Broxton (43.5%), Douglas (0.6%), and Nicholls (1.8%).

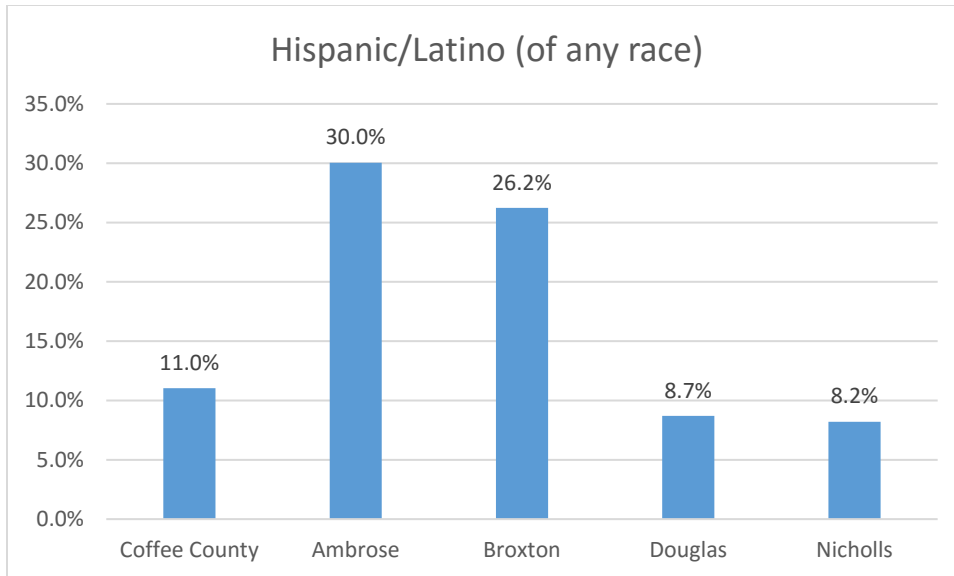


According to 2016 estimates, the age distribution in Coffee County is 12.6% over 65, 69.2% ages 18-64, and 18.2% under 18. In the City of Ambrose, the age distribution is 20.9% over 65, 59.8% ages 18-64, and 19.3% under 18. In the City of Broxton, the age distribution is 21.3%

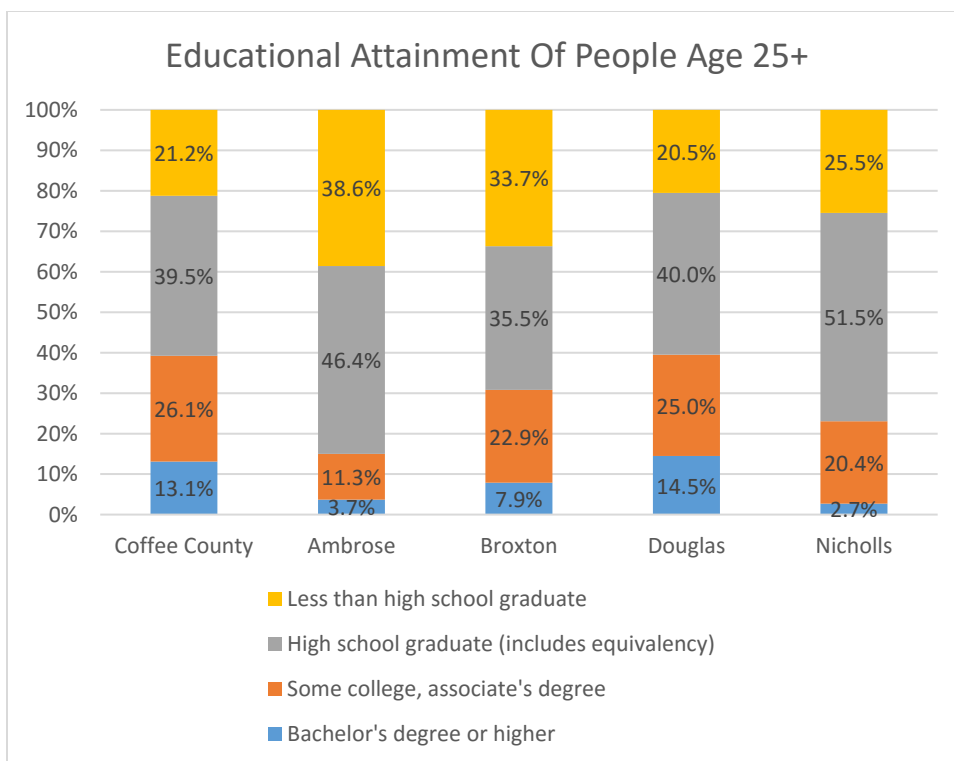
over 65, 57.1% ages 18-64, and 21.8% under 18. In the City of Douglas, the age distribution is 13.3% over 65, 65.7% ages 18-64, and 21.0% under 18. In the City of Nicholls, the age distribution is 4.1% over 65, 91.7% ages 18-64, and 4.2% under 18. Coffee County's population is 48.8% female and 52.2% male, the City of Ambrose's population is 43.3% female and 56.7% male, the City of Broxton's population is 54.0% female and 46.0% male, the City of Douglas's population is 55.6% female and 44.4% male, and the City of Nicholls' population is 13.9% female and 86.1% male.



The population of Coffee County is 67.3% White/Caucasian, 28.1% Black/African American, 2.9% some other race, 0.8% two or more races, 0.8% Asian, and 0.1% Native American. The City of Ambrose's population is 82.5% White/Caucasian, 12.1% Black/African American, 3.4% some other race, and 2.0% two or more races. The City of Broxton's population is 66.8% White/Caucasian, 30.4% Black/African American, 2.0% some other race, 0.5% Asian, and 0.3% two or more races. The City of Douglas's population is 52.6% Black/African American, 43.9% White/Caucasian, 2.0% some other race, 1.0% two or more races, 0.3% Native American, and 0.2% Asian. The City of Nicholls' population is 54.5% Black/African American, 43.6% White/Caucasian, 0.7% some other race, and 1.2% two or more races.

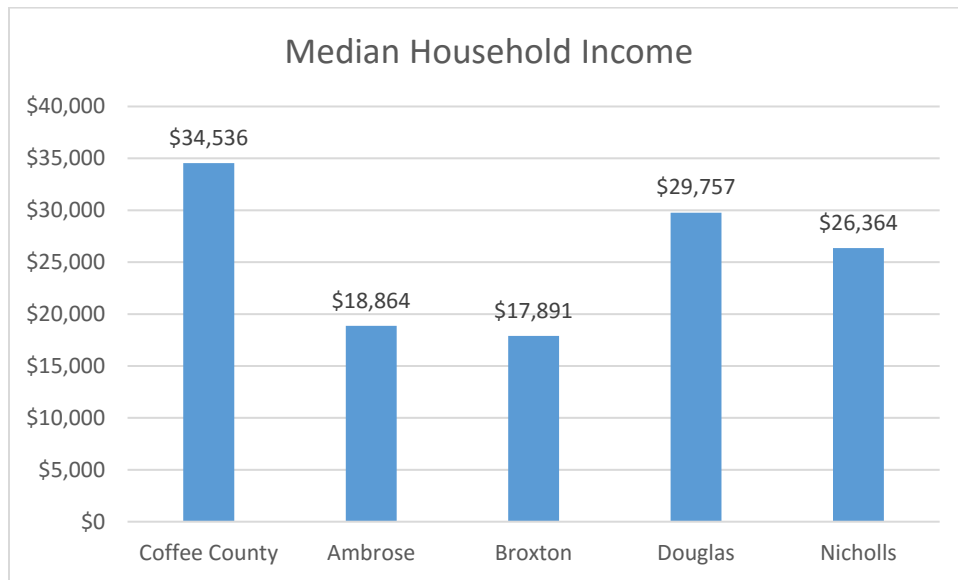


The percentage of the population that is Hispanic/Latino (of any race) is 11.0% in Coffee County, 30.0% in the City of Ambrose, 26.2% in the City of Broxton, 8.7% in the City of Douglas, and 8.2% in the City of Nicholls.

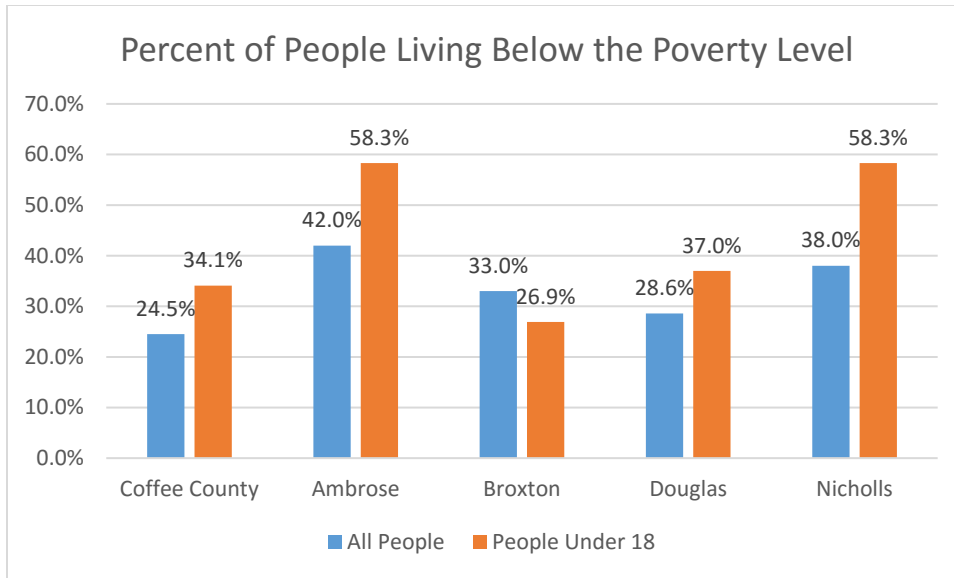


Among persons aged 25 or older, in Coffee County, 21.2% have no high school diploma, 39.5% are high school graduates (includes equivalency) with no further education, 26.1% have an associate's degree or some college, and 13.1% have a bachelor's or higher degree. Among persons aged 25 or older in the City of Ambrose, 38.6% have no high school diploma, 46.4% are high

school graduates (includes equivalency) with no further education, 11.3% have an associate’s degree or some college, and 3.7% have a bachelor’s or higher degree. Among persons aged 25 or older in the City of Broxton, 33.7% have no high school diploma, 35.5% are high school graduates (includes equivalency) with no further education, 22.9% have an associate’s degree or some college, and 7.9% have a bachelor’s or higher degree. Among persons aged 25 or older in the City of Douglas, 20.5% have no high school diploma, 40.0% are high school graduates (includes equivalency) with no further education, 25.0% have an associate’s degree or some college, and 14.5% have a bachelor’s or higher degree. Among persons 25 or older in the City of Nicholls, 25.5% have no high school diploma, 51.5% are high school graduates (includes equivalency) with no further education, 20.4% have an associate’s degree or some college, and 2.7 have a bachelor’s degree or higher.



As of 2016 (US Census Bureau American Community Survey 5-year estimates), the median household income is \$34,536 in Coffee County, \$18,864 in the City of Ambrose, \$17,891 in the City of Broxton, \$29,757 in the City of Douglas, and \$26,364 in the City of Nicholls.



According to the latest (2016) five-year Census Bureau American Community Survey estimates, 24.5% of all people and 34.1% of persons under 18 in Coffee County are living below the federal poverty level. This includes 42.0% of all people and 58.3% of those under 18 in the City of Ambrose, 33.0% of all people and 26.9% of those under 18 in the City of Broxton, 28.6% of all people and 37.0% of those under 18 in the City of Douglas, and 38.0% of all people and 58.3% of those under 18 in the City of Nicholls.

Source: U.S. Census Bureau (www.census.gov) 2016 five-year estimates and 2010 and 2000 decennial Census data.

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 8 natural hazards that were included in the previous plan, in a slightly modified 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.

Chapter 2 Section	Updates to Section
I. Thunderstorm/Wind	Updated data and information; edited for clarity
II. Tornado	Updated data and information; edited for clarity
III. Drought	Updated data and information; edited for clarity
IV. Flood	Updated data and information; edited for clarity
V. Hail	Updated data and information; edited for clarity
VI. Wildfire	Updated data and information; edited for clarity
VII. Hurricane/Tropical Storm	Updated data and information; edited for clarity
VIII. Severe Winter Storm	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. Thunderstorms/Wind

A. Identification of Hazard

The threat of thunderstorms and wind has been chosen by the Coffee County HMPUC as the most likely hazard to occur and cause damage in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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 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 Coffee County. Lightning can also occur even if it is not raining.

Thunderstorms are defined by NOAA as rain showers during which thunder is heard. The following are some of the most common thunderstorms types:

(Source: <http://www.nssl.noaa.gov/education/svrwx101/thunderstorms/types/>)

- **Single-cell thunderstorms**, often called “popcorn” convection, are small, brief, weak storms that grow and die within an hour or so. They are typically driven by heating on a summer afternoon. Single-cell storms may produce brief heavy rain and lightning.
- A **multi-cell storm** is a common type of thunderstorm in which new updrafts form along the leading edge of rain-cooled air (the gust front). Individual cells usually last 30 to 60 minutes, while the system as a whole may last for many hours. Multicell storms may produce hail, strong winds, brief tornadoes, and/or flooding.
- A **squall line** is a group of storms arranged in a line, often accompanied by “squalls” of high wind and heavy rain. Squall lines tend to pass quickly and are less prone to produce tornadoes than are supercells. They can be hundreds of miles long but are typically only 10 or 20 miles wide.
- A **supercell** is a long-lived (greater than 1 hour) and highly organized storm feeding off an updraft (a rising current of air) that is tilted and rotating. This rotating updraft - as large as 10 miles in diameter and up to 50,000 feet tall - can be present as much as 20 to 60 minutes before a tornado forms. Scientists call this rotation a mesocyclone when it is detected by Doppler radar. The tornado is a very small extension of this larger rotation. Most large and violent tornadoes come from supercells.

Wind is categorized, according to its strength and severity, using the Beaufort Wind Scale, developed in 1805 by Sir Francis Beaufort of the U.K. Royal Navy. The Beaufort Wind Scale is shown in the table below. (Source: <http://www.spc.noaa.gov/faq/tornado/beaufort.html>)

Beaufort Wind Scale

Force	Wind (Knots)	Wind (Mph)	World Meteorological Organization (WMO) Classification	Appearance of Wind Effects	
				On the Water	On Land
0	Less than 1	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	4-7	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	8-12	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	13-18	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	19-24	Fresh Breeze	Moderate waves 4-8 ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	25-31	Strong Breeze	Larger waves 8-13 ft, whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	32-38	Near Gale	Sea heaps up, waves 13-19 ft, white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	34-40	39-46	Gale	Moderately high (18-25 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Twigs breaking off trees, generally impedes progress
9	41-47	47-54	Strong Gale	High waves (23-32 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	55-63	Storm	Very high waves (29-41 ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	64-72	Violent Storm	Exceptionally high (37-52 ft) waves, foam patches cover sea, visibility more reduced	Very rarely experienced; accompanied by widespread damage.
12	64+	73+	Hurricane	Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced	Devastation.

B. Profile of Events, Frequency of Occurrences, Probability

According to the NOAA Storm Events Database (see Appendix F), there are 196 reports of Thunderstorm/Wind events occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 0.35 years. This is a 288.24 % Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 10.8 , the past 20-year frequency is 7.85 , and the past 50-year frequency is 3.9 (see the Hazard Frequency Table in Appendix D). Nine events have been recorded with winds up to 60 knots, and many more events have been recorded with wind speeds in the 45-55 knot range.

Since the previous Hazard Mitigation Plan became effective, 40 Thunderstorm/Wind events have occurred. One example is a severe storm that occurred on July 8, 2017. A roof was blown off a building on South Peterson Avenue in the City of Douglas, and several traffic lights were blown down off their lines.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to this hazard.

An estimated 100% of the Residential property (14,714 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard, with a total value of \$899,585,146. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (4,984 of 4,984) in the community may be affected, with a total value of \$1,246,669,248. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, all of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$905,789,637, plus a content value of \$46,538,173.

E. Land Use and Development Trends

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole

have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

Thunderstorm/Wind events are usually area-wide, and no difference in severity is expected between Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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.

Coffee County and the City of Douglas are members of the National Flood Insurance Program; the Cities of Ambrose, Broxton, and Nicholls are not (source: <https://www.fema.gov/cis/GA.html>), due to the relatively small portion of those jurisdictions that is within a flood zone and due to decisions made at the discretion of local leaders. However, this plan calls for those Cities to join the program as soon as possible. Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible, according to FEMA (source: <http://www.fema.gov/library/viewRecord.do?id=3629>).

G. Overall HRV Summary of Events And Their Impact

Thunderstorm/wind events can cause damage at any place, at any time, throughout Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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 3.

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. Tornadoes

A. Identification of Hazard

The threat of tornadoes 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.

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>)

EF Number	3-Second Gust	Damage
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.

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are all 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 22 reports of Tornadoes occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 3.09 years. This is a 32.35% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.4, the past 20-year frequency is 0.6, and the past 50-year frequency is 0.4 (see the Hazard Frequency Table in Appendix D). The strongest tornadoes recorded in the community have been F-2 tornadoes. There have been four of these recorded. The most recent one was in 2002.

Since the previous Hazard Mitigation Plan was completed, 3 tornado events have occurred. A recent tornado, on January 22, 2017, tracked across southern Coffee County producing EF1 damage with peak winds near 110 mph. Another EF1 tornado on May 4, 2017 struck the unincorporated community of West Green in Coffee County. Several trees with snapped trunks were observed along the tornado path. Some damage occurred to one home and one outbuilding.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to this hazard.

An estimated 100% of the Residential property (14,714 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard, with a total value of \$899,585,146. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (4,984 of 4,984) in the community may be affected, with a total value of \$1,246,669,248. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, all of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$905,789,637, plus a content value of \$46,538,173.

E. Land Use and Development Trends

Typically, mobile/manufactured homes are most vulnerable to tornado damage. According to 2016 Census Bureau estimates, 33.8% of occupied housing units in Coffee County (including the Cities) are mobile homes (4,769 mobile homes and approximately 13,020 people, based on the average household size of 2.73 persons per household in the County). In the City of Ambrose, 50% of occupied housing units are mobile homes (81 mobile homes and approximately 221 people). In the City of Broxton, 44.5% of occupied housing units are mobile homes (188 mobile homes and approximately 513 people). In the City of Douglas, 11.2% of occupied housing units are mobile homes (454 mobile homes and approximately 1,240 people). In the City of Nicholls, 38.9% of occupied housing units are mobile homes (133 mobile homes and approximately 363 people).

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

Tornadoes tend to follow a straight path regardless of natural features or political boundaries, and no difference in severity is expected between Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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. 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. In jurisdictions with a large number of mobile homes, the damage can be expected to be more severe.

G. Overall HRV Summary of Events And Their Impact

Tornadoes have the potential to cause damage at any place, at any time, throughout Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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 3.

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. Drought

A. Identification of Hazard

The threat of drought 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 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 Coffee County have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time. The Cities of Ambrose, Broxton, Douglas, and Nicholls have municipal water systems.

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

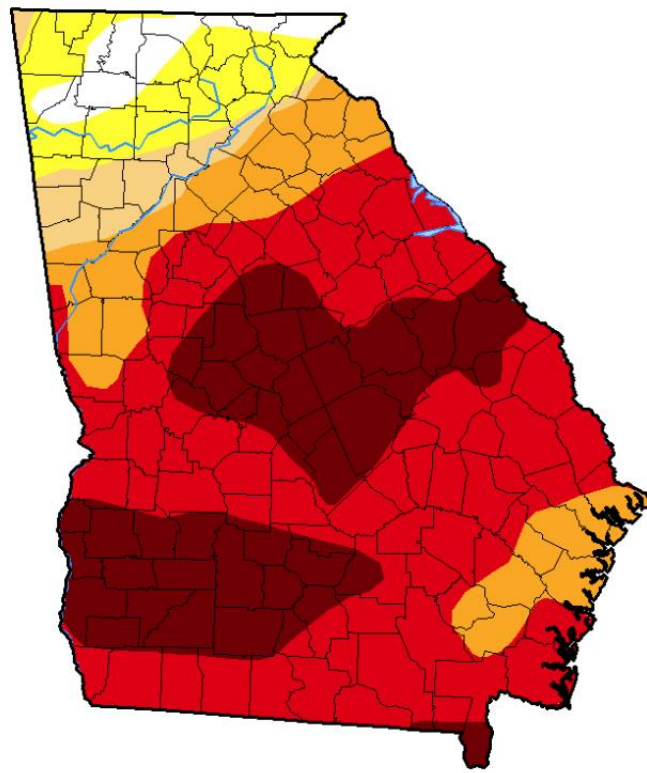
Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are all equally vulnerable to the effects of drought.

B. Profile of Events, Frequency of Occurrences, Probability

According to U.S. Drought Monitor data (see Appendix F), there are 393 reports of Drought occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 0.05 years. This is a 2183.33% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 20.3, the past 20-year frequency is 19.65, and the past 50-year frequency is 7.86 (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 Coffee County was under D3 and partly D4 conditions. Source: US Drought Monitor.

Since the previous Hazard Mitigation Plan became effective, 50 drought events have occurred. These have all been D1 and D2 events.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to this hazard.

An estimated 100% of the Residential property (14,714 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard, with a total value of \$899,585,146. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (4,984 of 4,984) in the

community may be affected, with a total value of \$1,246,669,248. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, all of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$905,789,637, plus a content value of \$46,538,173.

E. Land Use and Development Trends

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

Residents of unincorporated Coffee County have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time. The Cities of Ambrose, Broxton, Douglas, and Nicholls have municipal water systems.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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 3.

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. Floods

A. Identification of Hazard

The threat of a flood 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 (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>)

Zone Designations	Zone Descriptions
A	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.
AH	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.
AO	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.
A1-A30	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).
A99	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.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
AR	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.
V	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.
V1-V30	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.
VE	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	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.
C	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.
D	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.
X Shaded	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.
X Unshaded	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are all 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 11 reports of Floods occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 6.18 years. This is a 16.18% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.4, the past 20-year frequency is 0.55, and the past 50-year frequency is 0.22 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, one flood event has occurred. This event occurred on April 2, 2016. An earthen dam collapsed along the edge of a pond next to U.S. Highway 221 near the unincorporated community of Huffer in Coffee County. The water washed a car off of the road into a ditch. The driver had to be rescued. The highest river crest on record for the Altamaha River, which runs along the north border of Coffee County, is 91.51 ft on 01/22/1925, measured at nearby Baxley (the nearest point along the river for which data are available). The highest river crest since the previous hazard mitigation plan was completed was 83.74 ft on 01/06/2016, measured at the same location.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to this hazard.

An estimated 10.6% of the Residential property (1,561 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) are partly or completely in flood zones and therefore could be affected by this hazard, with a total value of \$119,539,954. Also, an estimated 33.3% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,661 of 4,984) in the community may be affected, with a total value of \$482,143,659. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, 12 of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$53,734,400, plus a content value of \$5,115,457.

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 report lists a total of 7 Repetitive Loss/NFIP properties in Coffee County including the Cities. All are residential properties. Six are in unincorporated Coffee County and one is in the City of Douglas.

E. Land Use and Development Trends

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

According to FEMA data, 12.0% of the total area of Coffee County (46,100 acres) is within a flood zone (11.1% in Zone A, 0.7% in Zone AE, and 0.1% in the 0.2 percent annual chance flood hazard zone). Approximately 1.1% of the City of Ambrose (22 acres) is within a flood zone. Approximately 0.5% of the City of Broxton (11.3 acres) is within a flood zone. Approximately 11.4% of the City of Douglas (1,055 acres) is within a flood zone. Approximately 12.3% of the City of Nicholls (134.5 acres) is within a flood zone.

Coffee County and the City of Douglas are members of the National Flood Insurance Program; the Cities of Ambrose, Broxton, and Nicholls are not (source: <https://www.fema.gov/cis/GA.html>), due to the relatively small portion of those jurisdictions that is within a flood zone and due to decisions made at the discretion of local leaders. However, this plan calls for those Cities to join the program as soon as possible. Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible, according to FEMA (source: <http://www.fema.gov/library/viewRecord.do?id=3629>).

As of late 2017, Coffee County and the City of Douglas are in compliance with NFIP requirements and intend to remain in compliance by enforcing flood plain ordinances which prohibit or severely limit development in floodplains.

G. Overall HRV Summary of Events And Their Impact

Floods have the potential to cause damage at any place, at any time, throughout Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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 3.

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. Hail

A. Identification of Hazard

The threat of hail has been chosen by the Coffee County HMPUC as the fifth most likely hazard to occur and cause damage in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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.

Hail is a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere, where they freeze into balls of ice. Hail can damage aircraft, homes and cars, and can be deadly to livestock and people. Hail is usually pea-sized to marble-sized, but big thunderstorms can produce big hail.

Hail size is estimated by comparing it to a known object. Most hail storms are made up of a mix of sizes, and only the very largest hail stones pose serious risk to people caught in the open. The following are some common size measurements.

(Source: <http://www.nssl.noaa.gov/education/svrwx101/hail/>):

- Pea = 1/4 inch diameter
- Marble/mothball = 1/2 inch diameter
- Dime/Penny = 3/4 inch diameter
- Nickel = 7/8 inch
- Quarter = 1 inch — hail quarter size or larger is considered severe
- Ping-Pong Ball = 1 1/2 inch
- Golf Ball = 1 3/4 inches
- Tennis Ball = 2 1/2 inches
- Baseball = 2 3/4 inches
- Tea cup = 3 inches
- Grapefruit = 4 inches
- Softball = 4 1/2 inches

B. Profile of Events, Frequency of Occurrences, Probability

According to the NOAA Storm Events Database (see Appendix F), there are 48 reports of Hail occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 1.42 years. This is a 70.59% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 1.6, the past 20-year frequency is 2.1, and the past 50-year frequency is 0.96 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan became effective, 3 Hail events have been recorded. Recently, during an event on May 19, 2015, nickel-sized hail was reported in areas between Douglas and Nicholls. The largest hailstones on record in the community have been 2.75 inches.

These were reported during an event on March 20, 2003. Many other events have occurred with hail in the 0.75 – 1.25 inch range.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to this hazard.

An estimated 100% of the Residential property (14,714 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard, with a total value of \$899,585,146. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (4,984 of 4,984) in the community may be affected, with a total value of \$1,246,669,248. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, all of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$905,789,637, plus a content value of \$46,538,173.

E. Land Use and Development Trends

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

Hail events are usually area-wide, and no difference in severity is expected between Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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.

G. Overall HRV Summary of Events And Their Impact

Hail events can cause damage at any place, at any time, throughout Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, especially during thunderstorms. The cost of the damage 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 3.

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. Wildfires

A. Identification of Hazard

The threat of wildfire 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 and Georgia Forestry Commission (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events.

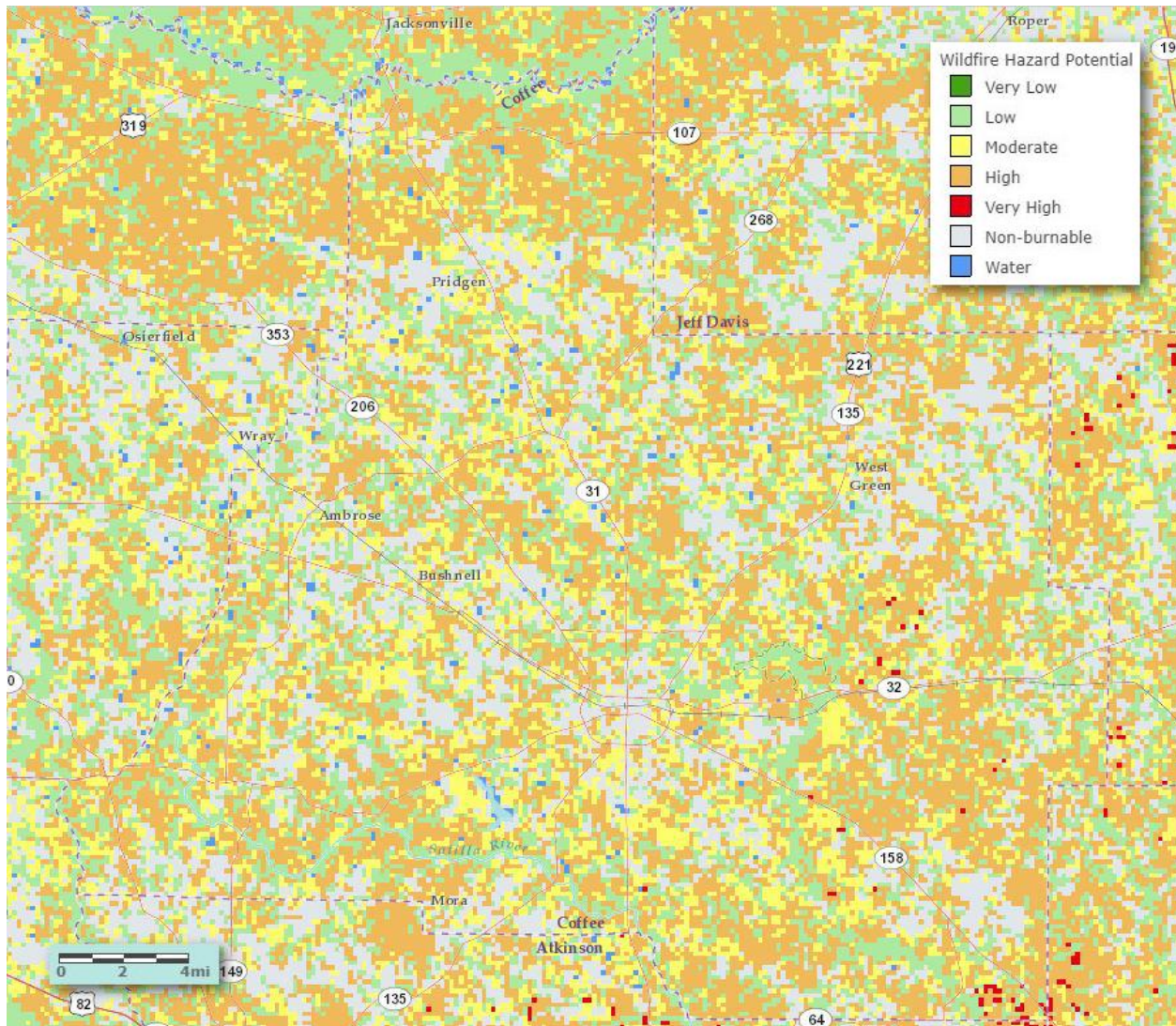
Much of southern Georgia is covered by forests, and fires play an important role in the health of forest ecosystems by breaking down organic matter into soil nutrients and helping seeds to germinate (source: NASA, https://earthobservatory.nasa.gov/Features/GlobalFire/fire_2.php). When naturally occurring 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. Much of Coffee County, including some areas near the Cities, 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.

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are all 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, most of Coffee County is scored either Low, Moderate, High, or 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 4,610 reports of Wildfires occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 0.01 years. This is a 9,220.00% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 73.4, the past 20-year frequency is 79.65, and the past 50-year frequency is 92.2 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, 285 wildfire events have occurred, with a total of 786.7 acres burned. The most destructive wildfire event was in April 1988, when 2,084 acres burned.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to this hazard.

An estimated 100% of the Residential property (14,714 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard, with a total value of \$899,585,146. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (4,984 of 4,984) in the community may be affected, with a total value of \$1,246,669,248. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, all of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$905,789,637, plus a content value of \$46,538,173.

E. Land Use and Development Trends

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

Wildfires may happen at any place at any time, but are more likely in forested areas. Unincorporated Coffee County has more areas rated "High" for Wildfire Hazard Potential than the Cities, and unincorporated Coffee County is the only jurisdiction that has any areas rated "Very High." 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 Coffee County Fire Department has 20 fire stations, the City of Douglas Fire Department has 3 fire stations, and the fire departments of the Cities of Ambrose, Broxton, and Nicholls have one fire station each. Coffee County’s main fire station and the three City of Douglas fire stations are staffed by paid firefighters, and the remaining fire stations in the community are staffed by volunteers.

The following are the ISO Classes of fire districts in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls.

Fire Department	ISO Class
Coffee County Fire Department	4x
City of Ambrose Fire Department	6
City of Broxton Fire Department	5
City of Douglas Fire Department	3
City of Nicholls Fire Department	6

G. Overall HRV Summary of Events And Their Impact

Wildfires have the potential to cause damage at any place, at any time, throughout Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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 3.

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. Hurricanes/Tropical Storms

A. Identification of Hazard

The threat of hurricanes/tropical storms 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 (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.¹ 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:

¹ 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, Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are 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 3 reports of Tropical Storms occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. Besides these events, there was one additional Tropical Storm event occurring on Sept. 11, 2017 which has not yet been recorded in the NCDC database, bringing the total to 4 events 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 0.2, 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 – 2, 2016, Tropical Storm Hermine caused widespread damage. Numerous trees and power lines were blown down across the county. About 2,000 residents were without power. The peak wind measured at the Douglas Municipal Airport was 38 mph at 6:35 am on Sept. 2nd. However, at other locations, according to NOAA data, wind gusts of up to 55 mph were reported. Storm total rainfall included 4.92 inches in the unincorporated community of Pridgen.

On Sept. 11, 2017, Tropical Storm Irma caused widespread power outages, downed power lines, impassable roads due to fallen trees, and damage to homes and other structures. Wind speeds up to 50 mph were reported.

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.

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

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to hurricanes/tropical storms. Coffee County has a wind hazard score of 2 (91-100 mph gust). A map of the wind hazard score and critical facilities is provided in Appendix A.

An estimated 100% of the Residential property (14,714 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard, with a total value of \$899,585,146. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (4,984 of 4,984) in the community may be affected, with a total value of \$1,246,669,248. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, all of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$905,789,637, plus a content value of \$46,538,173.

E. Land Use and Development Trends

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

Hurricane/tropical storm events are usually area-wide, and no difference in severity is expected between Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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. 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.

Coffee County and the City of Douglas are members of the National Flood Insurance Program; the Cities of Ambrose, Broxton, and Nicholls are not (source: <https://www.fema.gov/cis/GA.html>), due to the relatively small portion of those jurisdictions that is within a flood zone and due to decisions made at the discretion of local leaders. However, this plan calls for those Cities to join the program as soon as possible. Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible, according to FEMA (source: <http://www.fema.gov/library/viewRecord.do?id=3629>).

As of late 2017, Coffee County and the City of Douglas are in compliance with NFIP requirements and intend to remain in compliance by enforcing flood plain ordinances which prohibit or severely limit development in floodplains.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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 Coffee 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 3.

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 VIII. Severe Winter Storms

A. Identification of Hazard

The threat of Severe Winter Storms has been chosen by the Coffee County HMPUC as the eighth most likely hazard to occur and cause damage in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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.

Although this natural hazard did not rank high in any dataset of occurrences or damages happening in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, undocumented personal accounts of the HMPUC members rated this hazard as likely to occur and cause damage. Because of the infrequency of severe winter storms in this region, residents of the community are not well prepared to handle such events. Icy roads may result in a disproportionate number of automobile crashes because residents are not accustomed to driving in icy conditions. Bridges and overpasses may be more susceptible to icing over, creating an additional hazard. Being unprepared may result in loss of life or substantial damage to property and the economy.

Severe winter storms, at the worst, will produce sleet, freezing rain, and/or 1 to 2 inches of snow, with temperatures as low as the teens (°F). Snow accumulation usually melts away within 24 hours. Possible damage that may occur includes downed tree limbs, impassable roadways, power outages, increased emergency service workloads, failed water/sewer/septic systems, crop damage, and vehicle crashes.

B. Profile of Events, Frequency of Occurrences, Probability

According to the NOAA Storm Events Database (see Appendix F), there have been 3 reports of Severe Winter Storms occurring in Coffee County (including the Cities) between 01/01/1950 and 12/31/2017. The Historic Recurrence Interval is 22.67 years. This is a 4.41% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.3, the past 20-year frequency is 0.15, and the past 50-year frequency is 0.06 (see the Hazard Frequency Table in Appendix D).

On January 29, 2011, an ice storm resulted in light sleet accumulations with freezing rain and snow flurries in Douglas. Bridges were icy. Schools were closed on the 29th. There was one report of a car sliding off the road along U.S. Highway 441, north of Pridgen, with no injuries. Ice accumulation of up to ¼ inch was estimated.

Since the previous Hazard Mitigation Plan became effective, no Severe Winter Storm events have been reported.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls are equally vulnerable to this hazard.

An estimated 100% of the Residential property (14,714 of 14,714) in Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard, with a total value of \$899,585,146. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (4,984 of 4,984) in the community may be affected, with a total value of \$1,246,669,248. The values are based on the most recent available tax roll data for Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, provided by the Coffee 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 2015 Georgia Farm Gate Value Report (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf), the total farm gate value of agricultural production in Coffee County is \$257,222,318.

According to the inventory database reports and maps, all of the 131 Critical Facilities and Infrastructure for Coffee County (including the Cities of Ambrose, Broxton, Douglas, and Nicholls) could be affected by this hazard. The total value of these Critical Facilities is \$905,789,637, plus a content value of \$46,538,173.

E. Land Use and Development Trends

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have seen considerable changes in population over the last few years. Both the City of Douglas and the County as a whole have seen slight gains in population. The City of Ambrose has seen considerable population growth, and the City of Broxton has seen a decline in population. The population of the City of Nicholls has increase greatly, mostly due to the City's annexation of Coffee Correctional Facility, which has a capacity of approximately 3,000 inmates.

Coffee County and the Cities of Broxton and Douglas have zoning regulations; the Cities of Ambrose and Nicholls do not. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and Cities participate 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

Severe Winter Storm events are usually area-wide, and no difference in severity is expected between Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. In the event of icy roads, hazards would be greater along high-traffic corridors and in more densely populated areas. In the event of a power failure, households for which electricity is the only available source of heat will be more vulnerable to low temperatures. Homeless people are one of the groups that

are most vulnerable to the effects of severe winter storms. Agriculture is a significant part of the economy of unincorporated Coffee County, and many crops may be affected by severe winter weather.

G. Overall HRV Summary of Events And Their Impact

Severe winter storms have the potential to cause damage at any place, at any time during the winter months, throughout Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. The cost of the damage may be higher in terms of vehicle crashes along high-traffic corridors and in more densely populated areas, and higher in terms of crop damage in the agricultural areas of the county.

The Coffee County HMPUC recognizes severe winter storms as the eighth most likely natural hazard to occur and cause damage. They have developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen severe winter storm impacts on Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. These are contained in Chapter 3.

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

Chapter 3: Local Natural Hazard Mitigation Goals and Objectives

Summary of Changes:

Table 3.1 provides a brief description of each section in this chapter and a summary of the changes that have been made.

Chapter 3 Section	Updates to Section
I. Thunderstorm/Wind	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. Tornado	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. 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)
IV. Flood	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. Hail	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. Wildfire	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. Hurricane/Tropical Storm	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
VIII. Severe Winter Storm	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 3.1: Overview of updates to Chapter 3: Local Natural Hazards, Mitigation Goals and Objectives

Overall Community Mitigation Goals, Policies, and Values Narrative

While Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls each operate autonomously, there is a high level of cooperation exhibited when it comes to hazard mitigation and emergency planning efforts. Each local government has 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 jurisdictions have been able to access resources available through several state and federal sources that have been instrumental in improving the technical capabilities of these communities to more effectively mitigate hazards and provide more accurate warning and preparatory information to their citizens.

Overall, the priorities for each of the local communities 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 Coffee County Commission as a result of their execution of the Grantee-Subgrantee Agreement for the Coffee County Hazard Mitigation Grant Program (HMGP) Planning Project; and by the Cities of Ambrose, Broxton, Douglas, and Nicholls, located in Coffee County, through their participation in the planning project. The Coffee County Emergency Management Agency is authorized to oversee emergency management within Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls.

The jurisdictions have many current policies and programs related to hazard mitigation, which are described in detail in the following list.

POLICIES AND PROGRAMS RELATED TO HAZARD MITIGATION

- Local hazard mitigation planning (County and all 4 Cities) – All jurisdictions coordinate on regular updates and implementation of the local hazard mitigation plan. These activities are overseen by the County Emergency Management Agency.
- Comprehensive planning – the comprehensive plan and the hazard mitigation plan are coordinated with each other in order to ensure that the community goals and projects listed in each plan are consistent. The comprehensive plan provides guidance for future development which helps to reduce vulnerability to natural hazards. For example, the comprehensive plan includes a “conservation” character area that guides development away from the community’s most flood-prone areas.
- Zoning - Coffee County and the Cities of Broxton and Douglas have zoning regulations. This helps to regulate land use development and activities and to reduce the possibility of land uses that might increase the community’s vulnerability to natural hazards.
- All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. This helps to mitigate the community’s vulnerability to hazards such as wind damage and wildfires.

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 3 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 4, 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 4, Section I.

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

Section I. Thunderstorms and Wind

A. Community Mitigation Goals

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. Thunderstorms and wind 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 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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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: Prevent or reduce damage caused by Thunderstorms and Wind in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #1.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Thunderstorms and Winds.

Action Steps:

Activity #1.1.1. Increase public awareness of weather radios, shelters, emergency procedures and the use of a local radio station as the emergency broadcast system station in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls through public safety announcements, publications and other means.	
Priority Level	High Priority
Responsible Agency	Coffee County EMA
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	\$25,000
Funding Source(s)	General Funds/HUD CDBG
STATUS	Ongoing

Activity #1.1.2. Disseminate information to the public concerning wind ratings and champion new construction being built to those minimum wind standards and champion the wind retrofitting of Critical Facilities and existing buildings in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.	
Priority Level	Medium Priority
Responsible Agency	Coffee County EMA/Code Enforcement
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

(No changes.)

Section II. Tornadoes

A. Community Mitigation Goals

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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 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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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: Prevent or reduce damage caused by Tornadoes in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #2.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Tornadoes.

Action Steps:

Activity #2.1.1. Use building inspection program to inspect for adequate tie-downs on manufactured housing in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls Building & Codes Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #2.1.2. Plan for pre-disaster mitigation in Tornado & other hazard seasons by preparing public service announcements, brochures and solicit business participation in distributing information in Coffee County and in the Cities of Ambrose, Broxton, Douglas and Nicholls.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls Code Enforcement
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #2.1.3. Promote safe shelter rooms in areas of Coffee County, the Cities of Ambrose, Broxton, Douglas and Nicholls where Tornadoes and other disasters frequent.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #2.1.4. Secure funding for a hazardous weather alert system (horn) in the Cities of Ambrose, Broxton, Douglas and Nicholls and in populated areas of Coffee County and reverse call back	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$25,000
Funding Source(s)	General Funds/GEMA/FEMA
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

(No changes.)

Section III. Drought

A. Community Mitigation Goals

As previously indicated in Chapter 2, drought may cause substantial economic, property, and personal damage in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls, 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 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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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 #3: Prevent or reduce damage caused by Drought in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #3.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Drought.

Action Steps:

Activity #3.1.1. Make residents aware (through service announcements) of the Immediate Threat and Danger Program that provides wells to low-moderate income individuals affected by Drought in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	GEMA
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds/GEMA/FEMA/Homeland Security/Red Cross
Savings/Benefit Estimate	\$12,750,000.00 per occurrence
STATUS	Ongoing

Activity #3.1.3. Replace antiquated water & sewer lines and equipment prone to failure in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls through CDBG grant funds and other funds when available.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	\$10,000,000.00
Funding Source(s)	General Funds/HUD/CDBG
STATUS	Ongoing

Activity #3.1.6. Adopt Groundwater Recharge Protection District Ordinance in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	Med. Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

(No changes.)

Section IV. Floods

A. Community Mitigation Goals

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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.

Many river, creeks, and other waterways are present in Coffee County and are sources of flooding. The primary waterways are the Satilla River and Seventeen Mile River, and their tributaries, as well as the Ocmulgee River, which forms the northernmost border of the county. Due to these facts, the Coffee 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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls.

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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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 #4: Prevent or reduce damage caused by Floods in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #4.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Floods.

Action Steps:

Activity #4.1.1. Conduct storm-water drainage replacement, repair & cleaning and maintain canals in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000 each
Funding Source(s)	General Funds/HUD CDBG/User Fees
STATUS	Ongoing

Activity #4.1.2. Plan flood and drainage projects in Coffee County in high risk areas and in areas lacking curb & gutter.	
Priority Level	High Priority
Responsible Agency	Coffee County Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000.00 each
Funding Source(s)	General Funds/GEMA/FEMA/HUD CDBG
STATUS	Ongoing

Activity #4.1.3. Plan flood and drainage projects in the City of Ambrose in high risk areas and in areas lacking curb & gutter.	
Priority Level	High Priority
Responsible Agency	City of Ambrose Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000.00 per each
Funding Source(s)	General Funds/GEMA/FEMA/HUD CDBG
STATUS	Ongoing

Activity #4.1.4. Plan flood and drainage projects in the City of Broxton in high risk areas and in areas lacking curb & gutter.	
Priority Level	High Priority
Responsible Agency	City of Broxton Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #4.1.5. Plan flood and drainage projects in the City of Douglas in high risk areas and in areas lacking curb & gutter.	
Priority Level	High Priority
Responsible Agency	City of Douglas Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000.00 each
Funding Source(s)	General Funds/GEMA/FEMA/HUD CDBG
STATUS	Ongoing

Activity #4.1.6. Plan flood and drainage projects in the City of Nicholls in high risk areas and in areas lacking curb & gutter.	
Priority Level	High Priority
Responsible Agency	City of Nicholls Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000.00 each
Funding Source(s)	General Funds/GEMA/FEMA/HUD CDBG
STATUS	Ongoing

Activity #4.1.7. The City of Ambrose should join the National Flood Insurance Program as soon as possible.	
Priority Level	High Priority
Responsible Agency	City of Ambrose
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #4.1.8. The City of Broxton should join the National Flood Insurance Program as soon as possible.	
Priority Level	High Priority
Responsible Agency	City of Broxton
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #4.1.9. The City of Nicholls should join the National Flood Insurance Program as soon as possible.	
Priority Level	High Priority
Responsible Agency	City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #4.1.10. Work with FEMA to update local FIRM maps in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County EMA
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #4.1.12. Work to alleviate evacuation & emergency access problems in various subdivisions and in other areas in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	Medium/Low
Responsible Agency	Coffee County/City of Ambrose/ City of Broxton/City of Douglas/City of Nicholls Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000.00 each project
Funding Source(s)	General Funds/GEMA/FEMA/HUD CDBG
STATUS	Mostly completed but a small number are still ongoing

Activity #4.1.14. Work to preserve wetland areas in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls to assure that excess water can be captured.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/ City of Broxton/City of Douglas/City of Nicholls Planning Commission
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #4.1.15. After flood events, or other hazard events in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls, attempt to perform analysis on properties affected to determine if events have occurred in the past and attempt to mitigate or purchase, if necessary.	
Priority Level	Med Priority
Responsible Agency	Coffee County EMA
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff time
Funding Source(s)	General Funds/GEMA/FEMA
STATUS	Ongoing

Activity #4.1.17. Work with the Bay Meadows Lake Owner’s Association and the residents of the Bay Meadows subdivision to identify opportunities for dam management and flood prevention training.	
Priority Level	Med Priority
Responsible Agency	County EMA, Private
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #4.1.18. Establish and maintain a clear point of contact and communication between The Coffee County EMA and the Bay Meadow’s Owner’s Association to share information regarding flooding events, dam performance and management techniques.	
Priority Level	Med Priority
Responsible Agency	Coffee County EMA, Private
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

- **Completed Action Steps**
 - **Activity #4.1.16:** Prepare Storm Drainage Master Plan in City of Douglas.

Section V. Hail

A. Community Mitigation Goals

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. Hail is unpredictable and can happen at any place and at any time. Due to the 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 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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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: Prevent or reduce damage caused by Hail in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #5.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Hail in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Action Steps:

Activity #5.1.1. Install storm windows on new and existing Critical Facilities and promote their installation on new and existing private buildings; Encourage public to include hail damage under insurance coverage and store equipment & vehicles under shelters	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	\$5,000.00 each project
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #5.1.2. Increase public awareness of weather radios, shelters, emergency procedures and the use of a local radio station as the emergency broadcast system station in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls through public safety announcements, publications and other means.	
Priority Level	High Priority
Responsible Agency	Coffee County EMA
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	\$25,000
Funding Source(s)	General Funds/HUD CDBG
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

Action Step 5.1.2 was previously only listed under Thunderstorm/Wind but is now listed under both Thunderstorm/Wind and Hail.

Section VI. Wildfires

A. Community Mitigation Goals

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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 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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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: Prevent or reduce damage caused by Wildfire in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #6.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, and woodlands due to wildfire.

Action Steps:

Activity #6.1.1. Provide additional first responder training, air units, air unit chargers, Class A Pumper & Fire Knocker trucks and other equipment to all Coffee County Volunteer Fire Departments for Wildfire use	
Priority Level	High Priority
Responsible Agency	Coffee County
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$2,000,000.00
Funding Source(s)	General Funds/GEMA/FEMA/Homeland Security
STATUS	Ongoing

Activity #6.1.2. Provide additional first responder training, air units, air unit chargers, Class A Pumper & Fire Knocker trucks and other equipment to the City of Douglas Fire Departments for Wildfire use	
Priority Level	High Priority
Responsible Agency	City of Douglas
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$750,000.00
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.1.3. Partner with the Georgia Forestry Service and other fire service personnel to train all Coffee County and City of Douglas Fire Departments on Wildfire strategy and tactics.	
Priority Level	High Priority
Responsible Agency	Coffee County/ City of Douglas
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds/GEMA/FEMA/Homeland Security
Savings/Benefit Estimate	\$10,000.00 per building occurrence
STATUS	Ongoing

Activity #6.1.4. Support & enforce GA Forestry Commission burn ordinances and bans and promote hazardous fuel reduction by prescribed burning, mechanical or chemical treatment carried out and promoted by the GA Forestry in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.1.7. Continue to train and equip a Hazardous Materials Team to deal with agricultural chemicals during wildfire events	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$100,000.00
Funding Source(s)	General Funds/GEMA/FEMA/Homeland Security
STATUS	Ongoing

Activity #6.1.8. In Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls, replace the four inch (4") (and smaller) water lines with six inch (6") water lines and hydrants, replace old lines and extend lines to all areas of the cities.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000.00 each project
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.1.9. Continue to encourage agencies and private property owners to trim tree lines and create fire buffers/breaks around Critical Facilities, new and existing homes, businesses and utilities in Coffee County and the Cities of Ambrose Broxton, Douglas and Nicholls.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.1.11. Continue to work with developers and homeowners to pre-plan each building site and/or subdivision to help in pre-disaster mitigation of wildfire	
Priority Level	Medium Priority
Responsible Agency	County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls.
Coordinating Organization	County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.1.12. Working with the Georgia Forestry Commission and others, conduct a survey and assessment of areas and communities in County and the Cities of Ambrose, Broxton, Douglas and Nicholls that are at risk of Wildfire, assess the level of threats, evaluate resources and tactics and recommend improvements.	
Priority Level	Medium Priority
Responsible Agency	County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls.
Coordinating Organization	County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.1.17. Renovate Building & Repair Pump Motor with Well in City of Ambrose	
Priority Level	Medium Priority
Responsible Agency	City of Ambrose
Coordinating Organization	County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$30,000.00
Funding Source(s)	General Funds
STATUS	Ongoing

Objective #6.2: Obtain a FireWise Community Status by educating The Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls Fire Department personnel and the public on the hazards of Wildfire and the pre-disaster mitigation thereof.

Action Steps:

Activity #6.2.1. Continue to maintain good public relations between the citizens of County and the Cities of Ambrose, Broxton, Douglas and Nicholls and The Coffee County/City Fire Departments and plan to increase levels of awareness and resources during peak hazard conditions through the use of education sessions, community meetings, etc.	
Priority Level	Medium Priority
Responsible Agency	County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls.
Coordinating Organization	County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.2.3. Partner with the Georgia Forestry Commission to provide education to Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls communities and citizens on the pre-disaster mitigation of wildfire and use & develop grade school based programs to educate children.	
Priority Level	Medium Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls.
Coordinating Organization	Coffee County EMA
Timeline	Annually
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.2.4. Plan RFD meetings in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls and hold joint mock fire drills for all fire departments.	
Priority Level	Medium Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls.
Coordinating Organization	Coffee County EMA
Timeline	Annually
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #6.2.5. Encourage tree trimming and non-combustible buffer zones around buildings and homes, and seek FireWise Community status.	
Priority Level	Medium Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/ City of Douglas/City of Nicholls.
Coordinating Organization	Coffee County EMA
Timeline	Annually
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

(No changes.)

Section VII. 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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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 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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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: Prevent or reduce damage caused by Hurricanes/Tropical Storms in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #7.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, and the public, due to Hurricanes/Tropical Storms.

Action Steps:

Activity #7.1.1. If possible, design new educational facilities to the level that they could be used as public shelters for emergency purposes and test current shelters and educational facilities for safety and effectiveness in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/Cities of Broxton/City of Douglas/City of Nicholls.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds/GEMA/FEMA/Homeland Security/Red Cross
STATUS	Ongoing

Activity #7.1.2. Work with GDOT to improve unsafe roads in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls that already are, or could be, evacuation routes.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #7.1.3. Develop a Comprehensive Transportation Plan in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 20012 - 2017
Approximate Cost	\$250,000
Funding Source(s)	General Funds, GDOT, City of Douglas
STATUS	Ongoing

Objective #7.2: Advise the public of health & safety precautions and procedures necessary during Hurricanes/Tropical Storms and other events and on pre-disaster mitigation, in general, in Coffee County, and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Action Steps:

Activity #7.2.1. Acquire and distribute literature from state agencies regarding pre-disaster mitigation, disaster health & safety issues in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds
STATUS	Ongoing

Objective #7.3: Ensure reliable electrical power and communications efficiency at Critical Facilities and among agencies during Hurricanes/Tropical Storms and other events in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Action Steps:

Activity #7.3.1. Purchase portable and fixed generators (including transfer switches) and trailers for use at Critical Facilities and other places where they are needed. Pre-wire Critical Facilities & gas pumps for generator use in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$500,000.00
Funding Source(s)	General Funds/GEMA/FEMA/Homeland Security/Red Cross
STATUS	Ongoing

Activity #7.3.2. Continue to update communications equipment (radios, pagers, batteries and chargers) that have multi-channel capabilities and store them at certain Critical Facilities in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/City of Broxton/City of Douglas/City of Nicholls
Coordinating Organization	Coffee County EMA
Timeline	2019-2024
Approximate Cost	\$1,000,000.00
Funding Source(s)	General Funds/GEMA/FEMA/Homeland Security
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

Completed Action Steps

- Activity #7.1.10: Install automated recorders and create an information line at The Coffee County Commission to educate and inform the public on hazardous weather information, closings, events, etc.
- Activity #7.2.2: Order additional road signage for emergency traffic circulation and publish most efficient routes in advance in Coffee County, and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Section VIII. Severe Winter Storms

A. Community Mitigation Goals

As previously indicated in Chapter 2, severe winter storms may cause substantial economic, property, and personal damage in Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. Severe winter storms are usually predictable ahead of time, but they can still cause substantial problems. Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls do not have the specialized equipment used during severe winter storms that most northern counties and cities possess. The HMPUC believes that, due to the damage these severe winter storms have the potential to 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 VIII.

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. There are four historic districts in the community listed in the National Register of Historic Places: the Gaskin Avenue Historic District, the Downtown Douglas Historic District, the Eleventh District A & M School-South Georgia College Historic District, and the 63rd Army Air Forces Contract Pilot School.

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 #8: Prevent or reduce damage caused by Severe Winter Storms in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls.

Objective #8.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Severe Winter Storms.

Action Steps:

Activity #8.1.1. Continue the policy of wrapping exposed piping with insulation and installing new insulation layers at critical facilities in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	High Priority
Responsible Agency	Coffee County/City of Ambrose/Cities of Broxton/City of Douglas/City of Nicholls Public Works Dept.
Coordinating Organization	Coffee County EMA
Timeline	Ongoing After Implementation 2019-2024
Approximate Cost	\$3,000.00 each project
Funding Source(s)	General Funds
STATUS	Ongoing

Activity #8.1.3. Disseminate information to the public concerning Severe Winter Storms, champion new construction being built to appropriate low temperature ratings and existing buildings being retrofitted in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls	
Priority Level	Medium Priority
Responsible Agency	Coffee County EMA
Coordinating Organization	Coffee County EMA
Timeline	Ongoing after Implementation 2019-2024
Approximate Cost	Staff Time
Funding Source(s)	General Funds/GEMA/FEMA
STATUS	Ongoing

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, City Council 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 4.

F. Changes from the Previous Plan

- **Completed Action Steps: Activity** #6.1.2: Maintain temperatures above 32 degrees to prevent freezing in government owned occupied and unoccupied structures in Coffee County and the Cities of Ambrose, Broxton, Douglas and Nicholls. (*Completed and continued as part of regular maintenance.*)

Chapter 4: **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 Coffee County Emergency Management Agency. The Southern Georgia Regional Commission contracted with the Coffee County Commission to administer and facilitate the planning process. The Coffee County Commission and the Cities of Ambrose, Broxton, Douglas, and Nicholls will adopt the Plan (on approval by GEMA and FEMA) by the resolutions contained in Appendix E.

B. Authority and Responsibility

The Coffee County Commission and the Cities of Ambrose, Broxton, Douglas, and Nicholls have authorized the submission of this Plan to both GEMA and FEMA for approval.

As determined by the City and County governments and the HMPUC, the Coffee 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 all jurisdictions. The respective jurisdictions will be responsible for the implementation of their specific mitigation activities as 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.

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.

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 Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls. 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.

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

To facilitate inclusion of this Plan, the Coffee County Commission and the Cities of Ambrose, Broxton, Douglas, and Nicholls will provide a copy of this Plan to the persons and/or committees responsible for writing and updating plans.

Section II. **Evaluation and Monitoring**

A. Method

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

- The Coffee 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 Coffee County and Cities of Ambrose, Broxton, Douglas, and Nicholls residents, it is imperative that public involvement be an integral part of the planning process.

Since adoption of the original Coffee 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.
- Copies of the plan will be kept on hand at appropriate agencies throughout the community.

- The plan will be available City, County, and/or 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 5: **Conclusion**

Summary of changes:

- Revised and updated language.

Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have 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 Coffee 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, Coffee County and Cities of Ambrose, Broxton, Douglas, and Nicholls 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, Coffee County and the Cities of Ambrose, Broxton, Douglas, and Nicholls have a realistic perspective on the hazards to which the community is exposed. With the mitigation strategy outlined in Chapter 3 and the implementation plan included in Chapter 4, the local leaders have an "action plan" to follow when allocating resources to reduce their community's vulnerability to such hazards.

References

- Coffee County Board of Tax Assessors (<https://www.qpublic.net/ga/coffee/index-boa.html>)
- Coffee County website (<http://coffeecountygov.com/>)
- City of Broxton website (<http://www.cityofbroxton.com/>)
- City of Douglas website (<http://www.cityofdouglas.com/>)
- Center for Agribusiness & Economic Development. 2015 Georgia Farm Gate Value Report. (http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf)
- Federal Emergency Management Agency (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)
- 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)
- 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)

Appendices

Contents

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

Section I. GEMA Worksheet 3A

- I. Thunderstorm/Wind
- II. Tornado
- III. Drought
- IV. Flood
- V. Hail
- VI. Wildfire
- VII. Hurricane/Tropical Storm
- VIII. Severe Winter Storm

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
- Coffee County Tax Digest
- City of Ambrose Tax Digest
- City of Broxton Tax Digest
- City of Douglas Tax Digest
- City of Nicholls Tax Digest

Appendix C. Other Planning Documents

- Comprehensive Plan Short Term Work Program
- 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

Appendix F. Reports and Inventories

- I. General Historic Reports
 - I. Thunderstorm/Wind – NOAA data

- II. Tornado – NOAA data
- III. Drought – US Drought Monitor data
- IV. Flood – NOAA data
- V. Hail – NOAA data
- VI. Wildfire – Georgia Forestry Commission data
- VII. Hurricane/Tropical Storm – NOAA data
- VIII. Severe Winter Storm – NOAA data

II. Critical Facilities Inventory

Appendix G. HAZUS Report