

# Lanier County, Georgia

Including the City of Lakeland



## Hazard Mitigation Plan

### 2019-2024

ADOPTED  
Effective 3/19/2019 – 3/19/2024

This Plan produced for the Lanier 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

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## Chapter 1: Introduction to the Planning Process

### Summary of changes:

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

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

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

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

This document is the official plan update to the previous Lanier County Pre-Disaster Mitigation Plan Update, as approved by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA), which took effect on March 19, 2014 and expires on March 19, 2019.

The purpose of this document is to provide an overview of the hazards that may impact Lanier County and the City of Lakeland, 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 Lanier County and the City of Lakeland after they formed the Lanier 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 City of Lakeland is the only incorporated city located in Lanier County.

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

In order to initiate an outreach program to neighboring communities, governments, local and regional agencies, and to agencies authorized to regulate development, business, and the public, two Public Hearing Notices were published in the legal organ of the local newspaper. In addition, e-mail lists of stakeholders were kept updated and those on them were informed of meetings through e-mails, letters, and/or telephone calls. Surrounding county EMA Directors were notified of the plan update via phone calls and invited to participate in the process. This resulted in EMA personnel from adjacent Berrien and Clinch Counties, attending the kick-off meeting for the Lanier County Hazard Mitigation Plan. 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 Lanier County), attended the Lanier County meetings. They participated in all aspects of the planning process and provided a regional perspective in the formation of the multi-jurisdictional Lanier County and City of Lakeland Hazard Mitigation Plan.

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

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

### **A. Overview**

This Hazard Mitigation Plan Update encompasses the jurisdictions of Lanier County and the City of Lakeland, 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 (Lanier County HMPUC) was formed, and a year-long planning effort was undertaken, the final product of which was a Plan Update containing updated Mitigation Goals, Objectives, and Action Steps to reduce or eliminate the potential for loss of life and damage to property and the economy caused by natural disasters (see Chapter 4).

Potential members of the Lanier 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 Lanier County HMPUC. The Lanier County HMPUC was comprised of representatives from Lanier County and the City of Lakeland and also included representatives from other groups and individuals, as shown below, who attended meetings and/or conducted research:

<b>Organization</b>	<b>Title</b>	<b>Name</b>
Alapaha Church of God	Pastor	Donald Fender
American Legion	CDR	Cliff Hall
Boy Scout of America	Executive/CEO	Matt Hart
Boy Scouts of America	Member, Board of Directors	Bob Roquemore
Camp Patten	Ranger/Caretaker	Rusty Redshaw
City of Lakeland	Police Captain	David Warren
Community Emergency Response	Member	Mary Folsom
Department of Public Health	HCF	Carolyn McMillan
Gary Morford	Police Officer	City of Lakeland
GEMA/HS	Hazard Mitigation Planner	Shelby Meyers
Jamie M. Knudsen	Animal Control Officer	City of Lakeland
Lakeland United Methodist Church	Pastor	Richard Hamilton
Lanier County	Fireman	Jimmy R Kelly
Lanier County	Resident	Don Fender
Lanier County	County Commissioner	Dennis Fender
Lanier County BOC	Intern	James Barnes
Lanier County BOC	Administrator	Neil Ginty
Lanier County EMA	Director	Randy Patten
Lanier County Fire Rescue	Fire Chief	Gary Yeomans
Lanier County News	Writer (Sub)	Peter Moore
Lanier County Public Health	Training & Exercise	Marsha DeFelice
LC Schools	Superintendent	Scotty Hattaway
MAFB	EMA	T.C. Sirmans
Michael Slusher	Police Chief	City of Lakeland
SGMC EMS	District Commander	Scott Allen Fountain
Southern Health District	EP Director	Karen Craft
US Airforce (MAFB)	NCOIC	Anna Olson
US Post Office	Post Master	Sonya W Miley
Waldorf University	Student	Genevieve Chavez

<b>Organization</b>	<b>Title</b>	<b>Name</b>
	Private Citizen	Joe Henkels
	Private Citizen	Rita Henkels
	Private Citizen	Carol Exman
Southern Georgia Regional Commission	Planner	Ariel Godwin

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

- Kick-off public hearing – Jan. 10, 2018
- First workshop – Feb. 14, 2018
- Second workshop – Mar. 14, 2018
- Third workshop – Apr. 12, 2018
- Fourth workshop – May 9, 2018
- Final public hearing – March 12, 2019

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

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

Copies of the previous Plan were made available at each meeting, while relevant chapters and sections under discussion were photocopied and distributed to those in attendance for comments. Outside of the formal meetings, parts of the plan were e-mailed to certain individuals who were unable to attend the meetings, and their comments were sought. Copies of the previous Plan and the draft Plan Update document were also available on the Southern Georgia Regional Commission website and from the local EMA office and 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 City. 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 City do not have a Flood Mitigation Assistance Plan, but they do have a Flood Insurance Study.

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

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

The public was invited to attend and comment during two public hearings. The “kick-off” public hearing was 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 March 12, 2019 and was advertised in the local newspaper (see Appendix E). Citizens, including staff and members of the HMPUC, were present (see Appendix E). There were no substantive comments other than those complimentary of the planning process itself. Therefore, there was no need to consider or add public comments.

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.

**Lanier County and the City of Lakeland**  
**Hazard Mitigation Plan Update Committee**  
**Mission Statement**

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

**Lanier County and the City of Lakeland**  
**Hazard Mitigation Plan Update Committee**  
**Vision Statement**

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

The mission of the Lanier County Emergency Management is to provide an integrated, comprehensive emergency management program for Lanier County. The office is responsible for the preparedness, training, and coordination of emergency response and recovery efforts for Lanier County. The Office of Emergency Management plans for natural, manmade, or technological hazards that could adversely affect operations of the County.

In addition, the Lanier County Emergency Management Agency is part of the Lanier County Office of Public Safety. We support the County in an effort to reduce loss of life and property, to protect the environment through collaboration, improve our capabilities to prepare for, protect against, respond to, recover from, and mitigate all hazards. We provide assistance coordinating resources, expertise, leadership, and advocacy through a comprehensive risk-based emergency preparedness program.

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

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

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

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

- The Community Wildfire Protection Plan (see Appendix C)
- The current joint Comprehensive Plan for the County and City, 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
- Lanier County Flood Insurance Study
- Data from the National Climatic Data Center (NCDC).

The update committee reviewed these documents and the relevant information was incorporated into this plan through a detailed review and analysis by SGRC staff when drafting the text of this plan. Information used included data and statistics, overall community issues, needs, and goals, and information about state, federal, and local policies and programs.

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 nine natural hazards chosen by the HMPUC that may affect and cause damage to Lanier County and the City of Lakeland. Chapter 2, Chapter 4, and Appendix A are each subdivided into Sections I through VIII; these sections reflect the 9 natural hazards that were chosen. The natural hazards are as follows (in order of priority):

1. Hurricanes/Tropical Storms
2. Tornadoes
3. Floods
4. Windstorms/Hailstorms/Lightning
5. Extreme Heat
6. Wildfires
7. Drought
8. Sinkholes (new for this plan update)
9. Severe Winter Storms (new for this plan update)

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

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

Throughout the effective time period of this Plan, the County Commissioners 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 Lanier County and City of Lakeland 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 Lanier County and the City of Lakeland are intended to be an ongoing process and the Plan is to be amended as appropriate.

This Plan was prepared for:

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

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

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

The vulnerability of the community to natural hazards is also summarized in the Hazard Frequency Table (see Appendix D), and the Inventory of Assets and number of people exposed to each hazard is evaluated in GEMA Worksheet 3A (see Appendix A). (Due to the lack of available complete jurisdiction-level data, it was not possible to break down these data by jurisdiction, therefore the data is for all of Lanier County, including all of the City of Lakeland.) Critical Facilities and Critical Infrastructure are also examined as to the present value and potential losses from natural hazards (see Appendix F).

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

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

Lanier County has a total area of 185.26 square miles of land with a population density of 54.4 people per square mile (US Census data, 2010) and 15 square miles of water. 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. Lanier County contains one incorporated city, Lakeland (County seat).

Lanier County and the City of Lakeland are served by a consolidated fire department. There are 7 fire stations in the unincorporated County and one (the main station) in the City of Lakeland. All stations are staffed by 100% volunteer firefighters. A small portion of Lanier County on the western edge has been annexed by the City of Ray City, and is served by their fire department.

The following are the ISO Classes of fire districts in Lanier County and City of Lakeland:

<b>Station</b>	<b>ISO Class</b>
Station 1 - Lakeland Headquarters	Class 6
Station 2 - Stockton	Class 6X
Station 3 - Teeterville	Class 6X
Station 4 - Mud Creek	Class 6X
Station 5 - Westside	Class 6X
Station 6 - Goodhope	Class 6X
Station 7 - Eastside	Class 6X
Station 8 - Stockton Southside	Class 6X

A small portion of Lanier County has been annexed by the City of Ray City and is served by their fire department.

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

After all plan development workshops were concluded, the draft plan was submitted to all local governments for their review. The draft plan was then submitted to GEMA and FEMA for their review and approval. After their approval, and any recommended changes, a second and final public hearing was held on March 12, 2019 in order to provide a further opportunity for public comment and review. After this final public hearing, resolutions adopting the plan were passed by the local governments on March 12, 2019 (City of Lakeland) and April 8, 2019 (Lanier County) adopting the Plan Update. Copies of the public hearing advertisements and resolutions are available in Appendix E.

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

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

newspapers, City Council meetings, County Commission meetings, etc.). The Lanier County EMA maintains an active website, lanierema.com, as well as Facebook and Twitter pages.

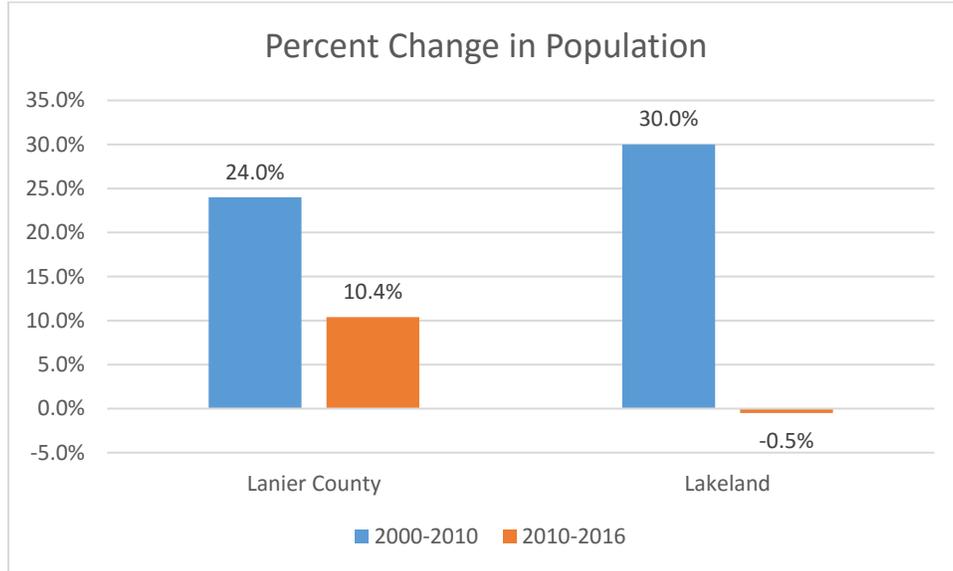
The method that the County EMA will use to monitor the plan will be to conduct quarterly telephone interviews with the various local governments and area agencies in order to chart their plan progress. Also, throughout the year, a series of informal meetings will be held in which various aspects of the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

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

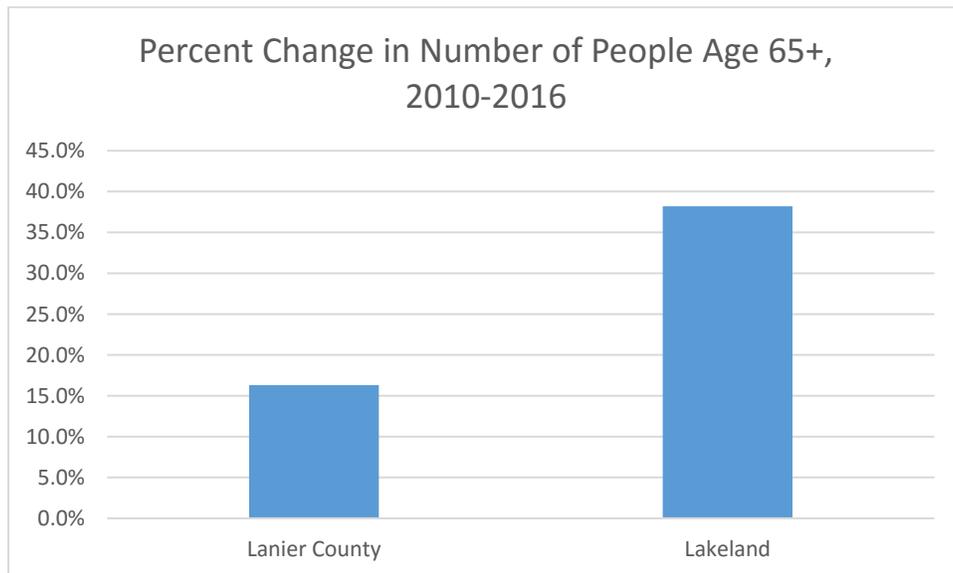
The major criteria to measure plan success will be the number of goals, objectives, and action steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. For further details on plan execution, see Chapter 6.

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

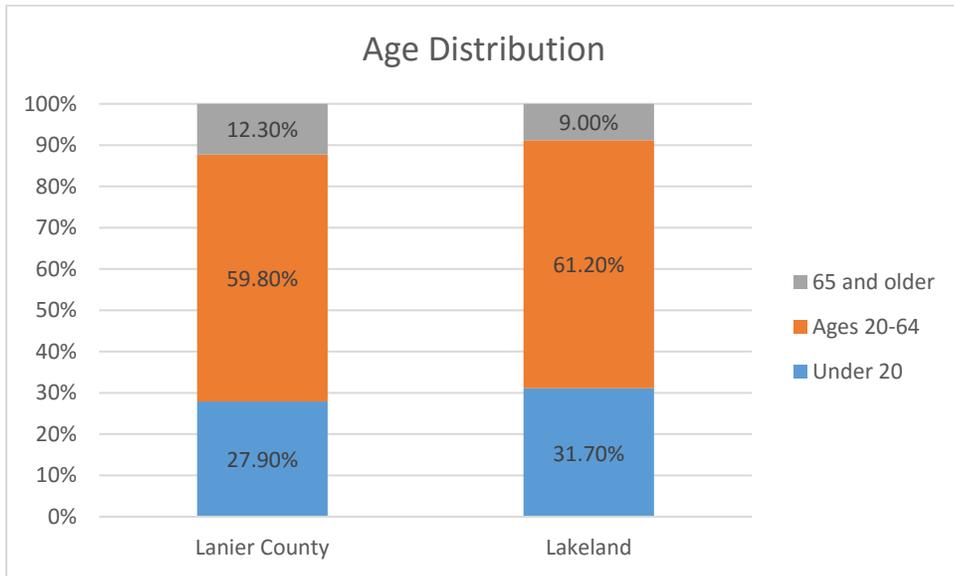
## Section VIII. Community Data



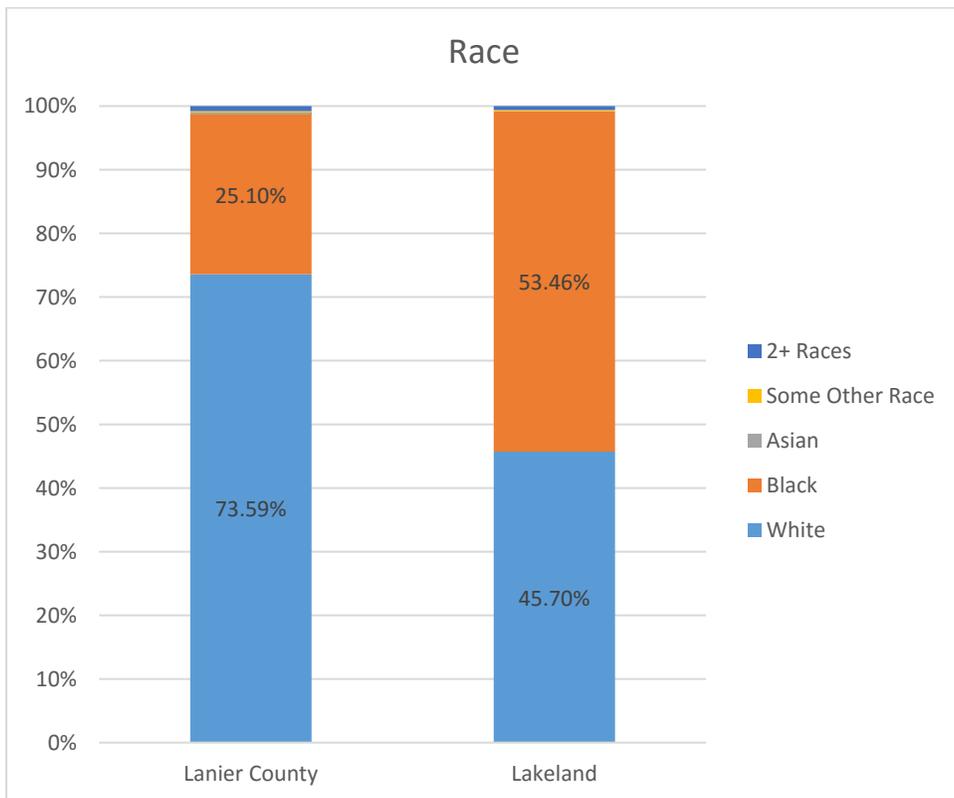
Both the County and City experienced rapid growth during the 2000s, which has leveled off somewhat during the 2010s. According to 2016 U.S. Census Bureau American Community Survey 5-year estimates, the population of Lanier County is 10,382, an increase of 10.40% since 2010. The City of Lakeland's 2016 population is 3,348, a -0.5% decrease since 2010. Lanier County had an increase in population between 2000 and 2010 at 24%, while the City of Lakeland's population increased by 30% and the City of Lakeland. The most rapid growth has occurred, and continues, on the far west side of the County.



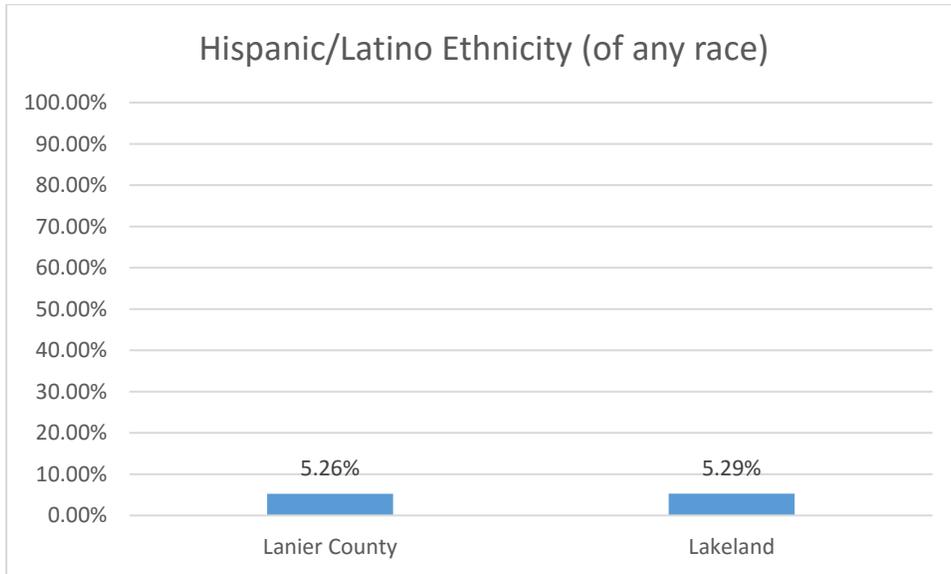
The total number of people aged 65 and older increased in Lanier County from 2010 to 2016 (16.30%). The number of people aged 65+ increased in Lakeland (38.19%).



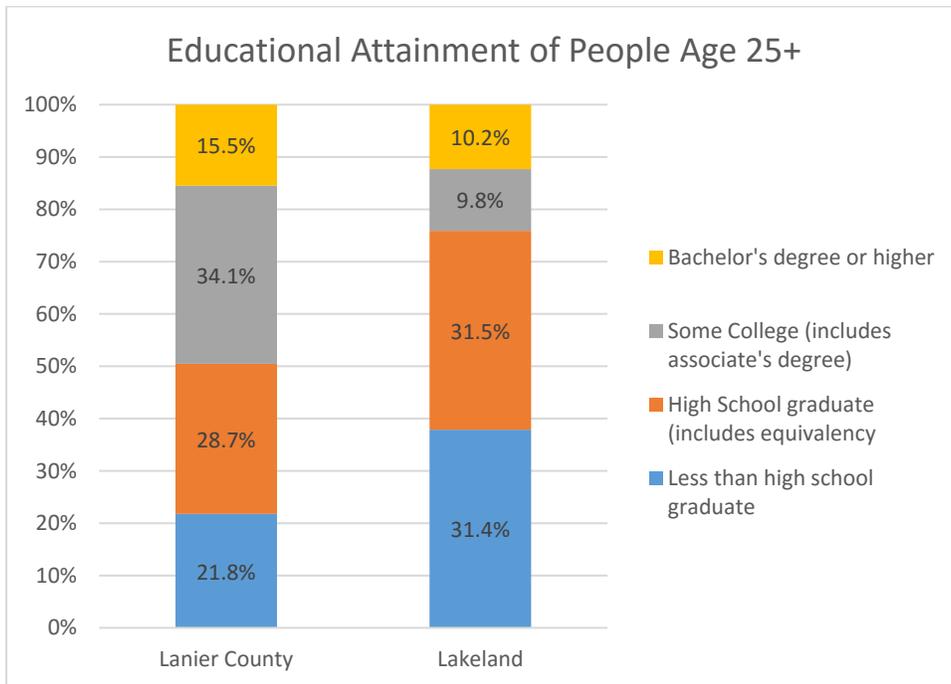
According to 2016 estimates, the age distribution in Lanier County is 12.30% over 65, 59.8% ages 20 -64, and 27.9% under 20. In the City of Lakeland, the age distribution is 9.0% over 65, 61.2% ages 20-64, and 31.7% under 20. Lanier County’s population is 49.5% female and 50.5% male and the City of Lakeland’s population is 52.2% female and 47.8% male.



The population of Lanier County is 73.59% White/Caucasian, 25.10% Black/African American, 0.28% Asian, 0.24% some other race, 0.79% two or more races. The City of Lakeland's population is 53.46% Black/African American, 45.7% White/Caucasian, 0.20% some other race, and 0.63% two or more races.

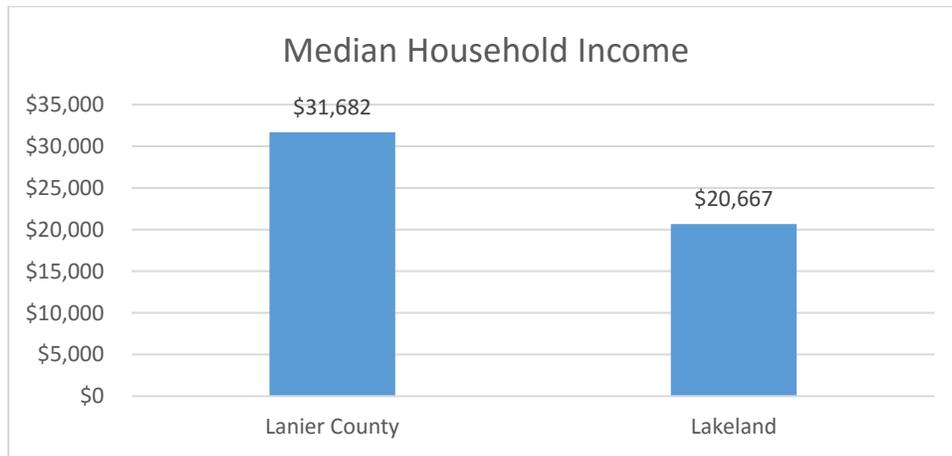


The percentage of the population that is Hispanic/Latino ethnicity (of any race) is 5.26% in Lanier County and 5.29% in the City of Lakeland.

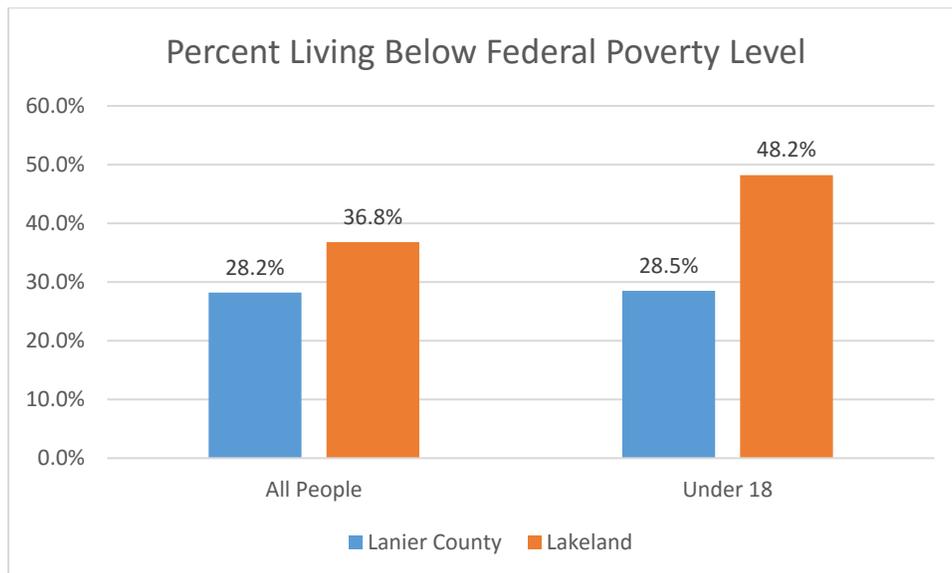


Among persons aged 25 or older, in Lanier County, 21.8% have no high school diploma, 28.7% are high school graduates (includes equivalency) with no further education, 34.1% have an associate's degree or some college, and 15.5% have a bachelor's or higher degree. Among

persons aged 25 or older in the City of Lakeland, 31.4% have no high school diploma, 31.5% are high school graduates (includes equivalency) with no further education, 9.9% have an associate's degree or some college, and 10.2% have a bachelor's or higher degree.



As of 2015 (US Census Bureau American Community Survey 5-year estimates), the median household income in Lanier County is \$31,682 and the median household income in the City of Lakeland is \$20,667.



The percentage of the population living below the federal poverty level is estimated at 28.2% for Lanier County and 36.8% for the City of Lakeland. For persons under 18, the percent living below the poverty level is estimated at 28.5% in Lanier County and 48.2% in the City of Lakeland.

In 2016, according to the Bureau of Labor Statistics, the annual average seasonally-adjusted unemployment rate for Lanier County was 13.9%.

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

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

### Summary of changes:

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

<b>Chapter 2 Section</b>	<b>Updates to Section</b>
I. Hurricanes/Tropical Storms	Updated data and information; edited for clarity
II. Tornadoes	Updated data and information; edited for clarity
III. Floods	Updated data and information; edited for clarity
IV. Windstorms/Hailstorms/Lightning	Updated data and information; edited for clarity
V. Extreme Heat	Updated data and information; edited for clarity
VI. Wildfires	Updated data and information; edited for clarity
VII. Drought	Updated data and information; edited for clarity
VIII. Sinkholes	New for this plan update
IX. Severe Winter Storms	New for this plan update

Table 2.1: Overview of updates to Chapter 2

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

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

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

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

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

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

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

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

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

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

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

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

## SAFFIR-SIMPSON HURRICANE SCALE

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

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

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

Because of their location, Lanier County and the City of Lakeland 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 9 reports of hurricanes/tropical storms occurring in Lanier County (including the City of Lakeland) between 01/01/1950 and 12/31/2018. The Historic Recurrence Interval is 7.56 years. This is a 13.24% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.3, the past 20-year frequency is 0.45, and the past 50-year frequency is 0.18 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, two Hurricane/Tropical Storm events have occurred. On Sept. 1, 2016, Tropical Storm Hermine caused numerous trees and power lines blown down, especially in the pecan orchards. Total damage cost was estimated at \$500,000. On Sept. 10-11, 2017, Tropical Storm Irma caused widespread damage. Lanier County reported trees and power lines down across the county including a few large oak trees. Five trees were down on homes. The county sheltered 97 people. Total property damage was estimated at \$1 million. Wind speeds were recorded at up to 55 mph. Power was out in most of the county for approximately 24 to 48 hours. More recently the community was also impacted by Hurricane Michael in October 2018, but complete data on this event is not yet available.

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 Lanier County and the City of Lakeland are equally vulnerable to hurricanes/tropical storms. The County has a wind hazard score of 2 (91-100 mph gust). A map of the wind hazard scores and critical facilities is provided in Appendix A. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010. A slow decline in City population has continued (from 3,366 in 2010 down to 3,250 for the Census Bureau's 2017 American Community Survey estimate) but the reason for this decline has not been identified.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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 Lanier County and the City of Lakeland. However, the impact may be more severe in places with higher population density due to more people being in danger, more people needing

to evacuated, more debris from damaged buildings, and other impacts associated with higher population density.

Lanier County and the City of Lakeland are members of the National Flood Insurance Program. As of January 2019, these jurisdictions 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. These ordinances are enforced by the building inspector and/or code enforcement officer for Lanier County and the City of Lakeland. (Source: <https://www.fema.gov/cis/GA.html>) Lanier County and the City of Lakeland 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**

Hurricanes/tropical storms have the potential to cause damage at any place, at any time, throughout Lanier County and the City of Lakeland. 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 Lanier County HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

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

## Section II. 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>)

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

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

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

Lanier County and the City of Lakeland 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 5 reports of tornadoes occurring in Lanier County (including the City) between 01/01/1950 and 12/31/2018. The Historic Recurrence Interval is 13.60 years. This is a 7.35% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.1, the past 20-year frequency is 0.1, and the past 50-year frequency is 0.01 (see the Hazard Frequency Table in Appendix D).

The most recent tornado on record was an EF-3 that occurred on March 2, 2012. Property damage was estimated at \$1,000,000. The tornado’s track was about 10 miles long, of which approximately 6 miles were in Lanier County and half a mile was in the City of Lakeland. There was some damage to the hospital in Lakeland and the nearby Lakeland Villa Convalescent Center. The Emergency Medical Services trailer was damaged and there was a localized power outage affecting the hospital. Several roads were closed due to downed power lines.

No tornadoes have been reported in the community since the previous Hazard Mitigation Plan was adopted. 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 Lanier County and the City of Lakeland are equally vulnerable to this hazard. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

Typically, mobile/manufactured homes are most vulnerable to tornado damage. According to 2016 Census Bureau estimates, 29.5% of occupied housing units in Lanier County are mobile homes (1,267 mobile homes and approximately 3,586 people based on the average household size of 2.83 persons per household in the County). In the City of Lakeland, 25.9% of occupied housing units are mobile homes (343 mobile homes and approximately 971 people).

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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 Lanier County and the City of Lakeland. 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 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 Lanier County and the City of Lakeland. They can form quickly and residents may not have time to find adequate shelter, or else adequate shelter facilities may not be available. The cost of the damage and potential loss of life may be higher if the event strikes populated areas as opposed to more sparsely populated or unpopulated areas, or if the event strikes areas with a large number of mobile homes.

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

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

## Section III. Floods

### A. Identification of Hazard

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

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

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

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

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

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

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

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

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

Lanier County and the City of Lakeland 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 no reports of floods occurring in Lanier County (including the City) between 01/01/1950 and 12/31/2018. No flood events have been reported since the previous Hazard Mitigation Plan was completed. Although

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

The two waterways in the community that could potentially cause the greatest flooding problems are Big Creek and Mill Creek. Mill Creek includes the Lake Irma dam, located in a residential neighborhood near to downtown Lakeland. According to the Lanier County Flood Insurance Study (available online at: <http://www.georgiadfirm.com/pdf/panels/13173CV000A.pdf>), the 1% annual chance flood level for Mill Creek would come up to the level of the Lake Irma dam (elevation 173 feet), and any higher flood level would overflow the dam. There are no flood protection measures in place for the Lake Irma dam. Therefore, flooding has the potential to cause significant problems in the community. Possible outcomes from a potential flood include washed-out roads, and widespread power outages, and destroyed or damaged homes and other structures.

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

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that those parts of Lanier County and the City of Lakeland that are within flood hazard areas are vulnerable to this hazard.

An estimated 7.8% of the Residential property (309 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$18,774,566. Also, an estimated 21.9% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (347 of 1,583) in the community may be affected, with a total value of \$113,058,467. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, only 1 of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) is in a flood zone and therefore could be affected by this hazard. This facility is the Teeterville Fire Station (Station 3) and its recorded value is \$5,513,700.

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 Georgia Mitigation Information System (GMIS) reports do not list any Repetitive Loss/NFIP properties in Lanier County or the City of Lakeland.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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, 23.7% of the total area of Lanier County (30,376 acres) is within a flood zone and 22.7% of the total area of the City of Lakeland (459 acres) is within a flood zone. Lanier County and the City of Lakeland are both members of the National Flood Insurance Program (source: <https://www.fema.gov/cis/GA.html>). As of late 2017, these jurisdictions 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. Lanier County's current floodplain ordinance was adopted in 2003, and the City of Lakeland's was adopted in 2012. These ordinances are enforced by the building inspector and/or code enforcement officer for Lanier County and the City of Lakeland.

Lanier County and the City of Lakeland 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**

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

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

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

## **Section IV. Hail/Lightning/Wind**

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

The threat of hail, lightning and wind has been chosen by the Lanier County HMPUC as the fourth most likely hazard to occur and cause damage in Lanier County and the City of Lakeland, 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**

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

#### **Lightning**

Lightning is a giant spark of electricity in the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground; however, when the differences in charges becomes too great, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. Lightning most often strikes during thunderstorms, but can strike many miles from the center of the storm, or can even strike in areas not covered by a storm (this phenomenon is known as a “bolt from the blue”).

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

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

Lanier County and the City of Lakeland are all equally vulnerable to the effects of lightning, hail, and wind.

## **Wind**

Wind is the perceptible natural movement of the air, especially in the form of a current of air blowing from a particular direction. The faster this movement, the more likely there will be damage to communities and structures built by humans. On the Beaufort Scale (see chart below), “High wind” is defined as 32 – 38 mph, and “strong wind” as 47 – 54 mph. “Thunderstorm wind” is wind that is associated with a thunderstorm. The threat of wind has been chosen by the Lanier County HMPUC as the second most likely hazard to occur and cause damage in Lanier County and the City of Lakeland, 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.

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**

<b>Force</b>	<b>Wind (Knots)</b>	<b>Wind (Mph)</b>	<b>World Meteorological Organization (WMO) Classification</b>	<b>Appearance of Wind Effects</b>	
				<b>On the Water</b>	<b>On Land</b>
<b>0</b>	Less than 1	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
<b>1</b>	1-3	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
<b>2</b>	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

### Hail

According to the NOAA Storm Events Database (see Appendix F), there are 20 reports of hail storms occurring in Lanier County (including the City) between 01/01/1950 and 12/31/2018. The Historic Recurrence Interval is 3.4 years. This is a 29.41% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.6, the past 20-year frequency is 0.6, and the past 50-year frequency is 0.38. In some cases, more than one event occurred on the same day. In these cases, multiple events on the same day are counted as one event.

According to the best data available, since the previous Hazard Mitigation Plan became effective, 3 Hail events have been recorded. Most recently, on April 22, 2018, hail sizes up to 0.75 inches were reported and some damage to awnings and automobiles was 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.

### **Lightning**

According to the NOAA Storm Events Database (see Appendix F), there is 1 report of lightning occurring in Lanier County (including the City) between 01/01/1950 and 12/31/2018. The Historic Recurrence Interval is 68.00 years. This is a 1.47% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.0, the past 20-year frequency is 0.05, and the past 50-year frequency is 0.02 (see the Hazard Frequency Table in Appendix D). Since the previous Hazard Mitigation Plan was completed, no lightning events have been recorded in the NOAA database. However, lightning is a regular occurrence in the community, and severe lightning strikes are known to have occurred even though they are not recorded in standard databases. Lightning strikes in the community have, in past, caused trees to fall, caused localized power outages, and caused localized wildfires. No lightning-related fatalities are known to have occurred in Lanier County or the City of Lakeland.

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.

### **Wind**

According to the NOAA Storm Events Database (see Appendix F), there are 72 reports of wind events (including High Wind, Strong Wind, and Thunderstorm Wind) occurring in Lanier County (including the City of Lakeland) between 01/01/1950 and 12/31/2018. The Historic Recurrence Interval is 0.94 years. This is a 105.88% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 4.7, the past 20-year frequency is 3.0, and the past 50-year frequency is 1.38 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, 30 wind events have been reported. Recent events include a storm on May 3, 2016 during which numerous trees were snapped and one tree fell through the roof of a home. Damage was caused by a downburst and the cost was estimated at \$50,000. Also, an earlier storm on April 1, 2016 caused downed power lines and trees blown down in the Teeterville area, as well as damage to a mobile home in the area. Wind speeds were estimated locally at 50 mph.

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 Lanier County and the City of Lakeland are equally vulnerable to all of the three hazards covered in this section (hail, lightning, and wind).

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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, lightning and/or wind may happen at any place at any time, and no difference in severity is expected between Lanier County and the City of Lakeland. However, the impact may be more severe in places with higher population density due to more people being in danger, and other impacts associated with higher population density. No other multi-jurisdictional differences have been identified at this time.

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

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

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

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

## **Section V. Extreme Heat**

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

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat. The threat of extreme heat has been chosen by the HMPUC as the fifth most likely hazard to occur and cause damage in the community, based on past experience, the FEMA-described methodology, and other factors. Historic data have been examined from various sources, including the National Climatic Data Center (see Appendix F), as well as from local history and personal accounts, in order to determine the frequency of events.

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

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

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

### Heat Index category and effects

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

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

### NOAA's National Weather Service

#### Heat Index Temperature (°F)

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

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

Caution
  Extreme Caution
  Danger
  Extreme Danger

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

A **Heat Advisory** is issued when an excessive heat event is expected in the next 24 hours. This products are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. An advisory is for less serious conditions that cause significant

discomfort or inconvenience and, if caution is not taken, could lead to a threat to life. The National Weather Service will issue this product if the heat index might reach 108-112°F.

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

Lanier County and the City of Lakeland are all equally vulnerable to the effects of extreme heat.

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

According to National Weather Service data (see Appendix F), there are 32 reports of extreme heat events occurring in Lanier County (including the City) between 01/01/2006 and 12/31/2018. (According to the data, there were no extreme heat events on record for the community in 2016 or 2017, or through April 2018.) The Historic Recurrence Interval is 0.38 years. This is a 266.67% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 3.1, the past 20-year frequency is 1.6, and the past 50-year frequency is 0.64 (see the Hazard Frequency Table in Appendix D). These were all Heat Advisories except for one event in 2012, which was an Excessive Heat Warning.

Since the previous Hazard Mitigation Plan became effective, 14 extreme heat events have occurred. These were all Heat Advisories. According to Weather Channel climate data, the hottest month in the area is typically July, with an average high temperature of 91 degrees. The record high temperature is 108 degrees (recorded in 1927), which is 17 degrees above the average daily high. Therefore, the area is subject to extreme heat events that bring temperatures far higher than what people are used to. Some people in the community do not have air conditioning in their residences, and the very old and very young are particularly vulnerable to extreme temperatures. 12.3 percent of the county's population is over age 65, meaning there are substantial numbers of seniors who are potentially much more vulnerable to extreme heat events than the rest of the population. Extreme heat has the potential to caused significant injury and even death in the community.

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 Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total

value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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. Despite a global trend of rising temperatures (based on data available online at <https://climate.nasa.gov/vital-signs/global-temperature/>), there has not yet been an identifiable local trend towards warmer temperatures in Lanier County and the City of Lakeland.

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

Extreme heat may happen at any place at any time, and no difference in severity is expected between Lanier County and the City of Lakeland. However, the impact may be more severe in places with higher population density due to more people being in danger. Power failures exacerbate extreme heat events because of the ensuing lack of air conditioning. No other multi-jurisdictional differences have been identified at this time.

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

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

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

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

## **Section VI. Wildfires**

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

Wildfire is a large, destructive fire that spreads quickly over woodland or brush. 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.

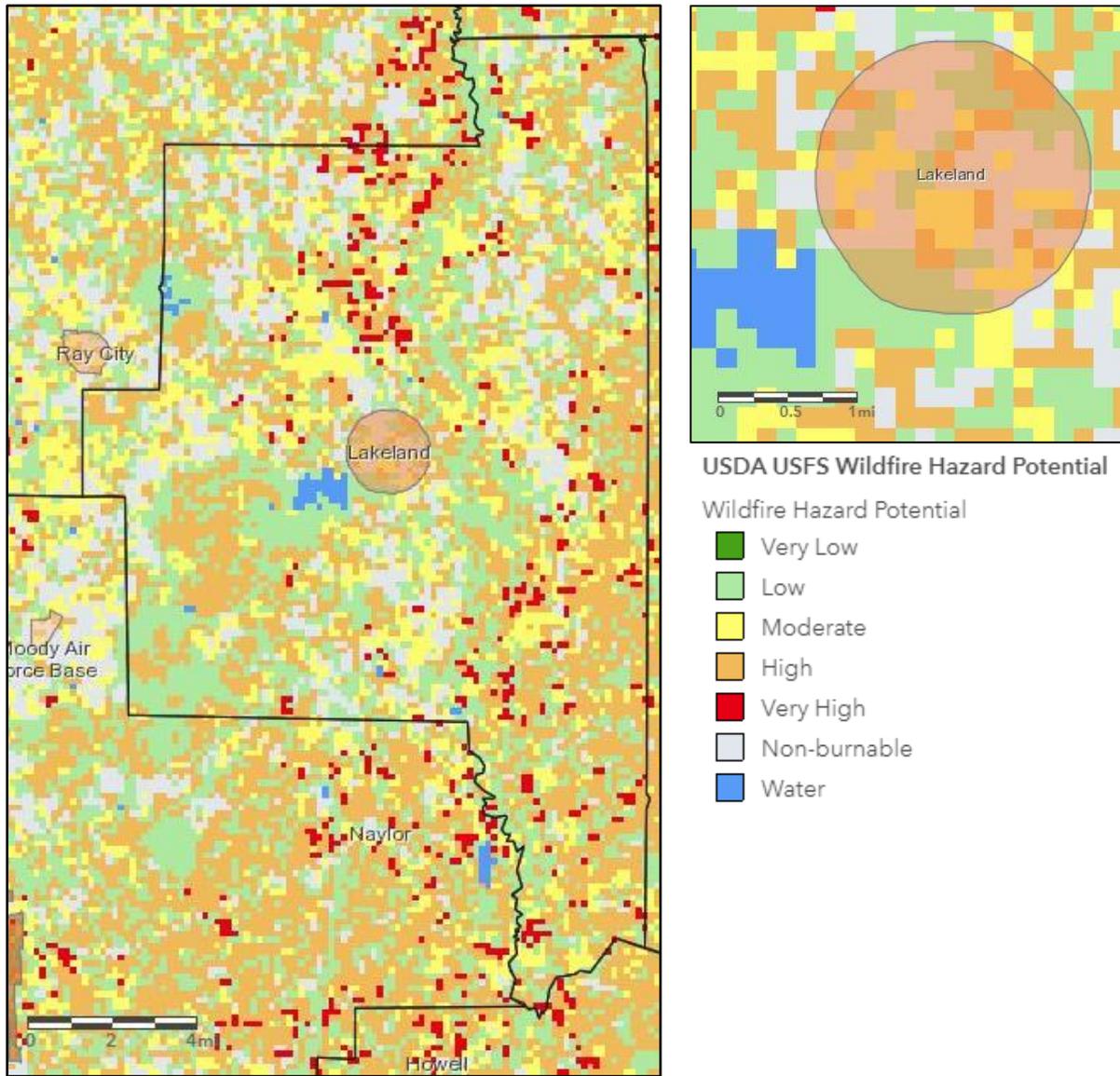
Much of southern Georgia is covered by forests, and fires play an important role in the health of forest ecosystems by breaking down organic matter into soil nutrients and helping seeds to germinate (source: NASA, [https://earthobservatory.nasa.gov/Features/GlobalFire/fire\\_2.php](https://earthobservatory.nasa.gov/Features/GlobalFire/fire_2.php)). 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 Lanier County, including some areas near the City, 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.

Lanier County and the City of Lakeland 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, Very High, or Non-burnable. As the following map shows, Lanier County has areas with all these scores except for Very Low. The City of Lakeland has areas scored Low, Moderate, High, and Non-burnable.



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

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

According to Georgia Forestry Commission data (see Appendix F), there are 2,485 reports of wildfires occurring in Lanier County (including the City) between 01/01/1968 and 12/31/2017. The Historic Recurrence Interval is 0.02 years. This is a 4,970% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 21.5, the past 20-year frequency is 37.4, and the past 50-year frequency is 49.7 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, an estimated 67 wildfire events have occurred, with a total of 244 acres burned. According to Georgia Forestry Commission data, 2000 is the year on record in which the largest amount of land was burned by wildfires (1,983 acres). 1974 was the year with the largest number of wildfires (181). In past, wildfires have caused damage to homes, roads, power lines, and other infrastructure, causing power outages and transportation hazards.

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 Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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 Lanier County has more areas rated “High” for Wildfire Hazard Potential than the City, and unincorporated Lanier 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.

Lanier County and the City of Lakeland are served by a consolidated fire department. There are 7 fire stations in the unincorporated County and one (the main station) in the City of Lakeland. All stations are staffed by 100% volunteer firefighters. A small portion of Lanier County on the western edge has been annexed by the City of Ray City, and is served by their fire department.

The following are the ISO Classes of fire districts in Lanier County and City of Lakeland:

<b>Station</b>	<b>ISO Class</b>
Station 1 - Lakeland Headquarters	Class 6
Station 2 - Stockton	Class 6X
Station 3 - Teeterville	Class 6X
Station 4 - Mud Creek	Class 6X
Station 5 - Westside	Class 6X
Station 6 - Goodhope	Class 6X
Station 7 - Eastside	Class 6X
Station 8 - Stockton Southside	Class 6X

A small portion of Lanier County has been annexed by the City of Ray City and is served by their fire department.

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

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

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

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

## **Section VII. Drought**

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

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

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

Crops (including trees) are usually most adversely affected by drought events, along with community residents whose water supplies are restricted or cut off (especially those using individual wells). Residents of unincorporated Lanier County have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time. The City of Lakeland 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"> <li>▪ short-term dryness slowing planting, growth of crops or pastures</li> </ul> Coming out of drought: <ul style="list-style-type: none"> <li>▪ some lingering water deficits</li> <li>▪ pastures or crops not fully recovered</li> </ul>
D1	Moderate Drought	<ul style="list-style-type: none"> <li>▪ Some damage to crops, pastures</li> <li>▪ Streams, reservoirs, or wells low, some water shortages developing or imminent</li> <li>▪ Voluntary water-use restrictions requested</li> </ul>
D2	Severe Drought	<ul style="list-style-type: none"> <li>▪ Crop or pasture losses likely</li> <li>▪ Water shortages common</li> <li>▪ Water restrictions imposed</li> </ul>
D3	Extreme Drought	<ul style="list-style-type: none"> <li>▪ Major crop/pasture losses</li> <li>▪ Widespread water shortages or restrictions</li> </ul>
D4	Exceptional Drought	<ul style="list-style-type: none"> <li>▪ Exceptional and widespread crop/pasture losses</li> <li>▪ Shortages of water in reservoirs, streams, and wells creating water emergencies</li> </ul>

Lanier County and the City of Lakeland are all equally vulnerable to the effects of drought.

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

According to the NOAA Storm Events Database (see Appendix F), there are 24 reports of drought events occurring in Lanier County (including the City) between 01/01/1950 and 04/30/2018. The Historic Recurrence Interval is 2.83 years. This is a 35.29% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 2.3, the past 20-year frequency is 1.2, and the past 50-year frequency is 0.48 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan became effective, 1 drought event has been recorded. This was on Nov. 29, 2016. This was described as D2 drought conditions (Severe Drought) spreading into Lanier County near the end of November and continuing into December of that year.

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 Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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. Despite a global trend of rising temperatures (based on data available online at <https://climate.nasa.gov/vital-signs/global-temperature/>), there has not yet been an identifiable local trend towards more frequent drought periods in Lanier County and the City of Lakeland.

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

Residents of unincorporated Lanier County have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time. The City of Lakeland has a municipal water system.

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 Lanier County and the City of Lakeland, potentially at any time of the year, and most significantly in unincorporated areas not served by municipal water systems. Drought may increase the likelihood of wildfires and flooding. Water shortages can impede firefighting efforts at all levels.

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

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

## **Section VIII. Sinkholes**

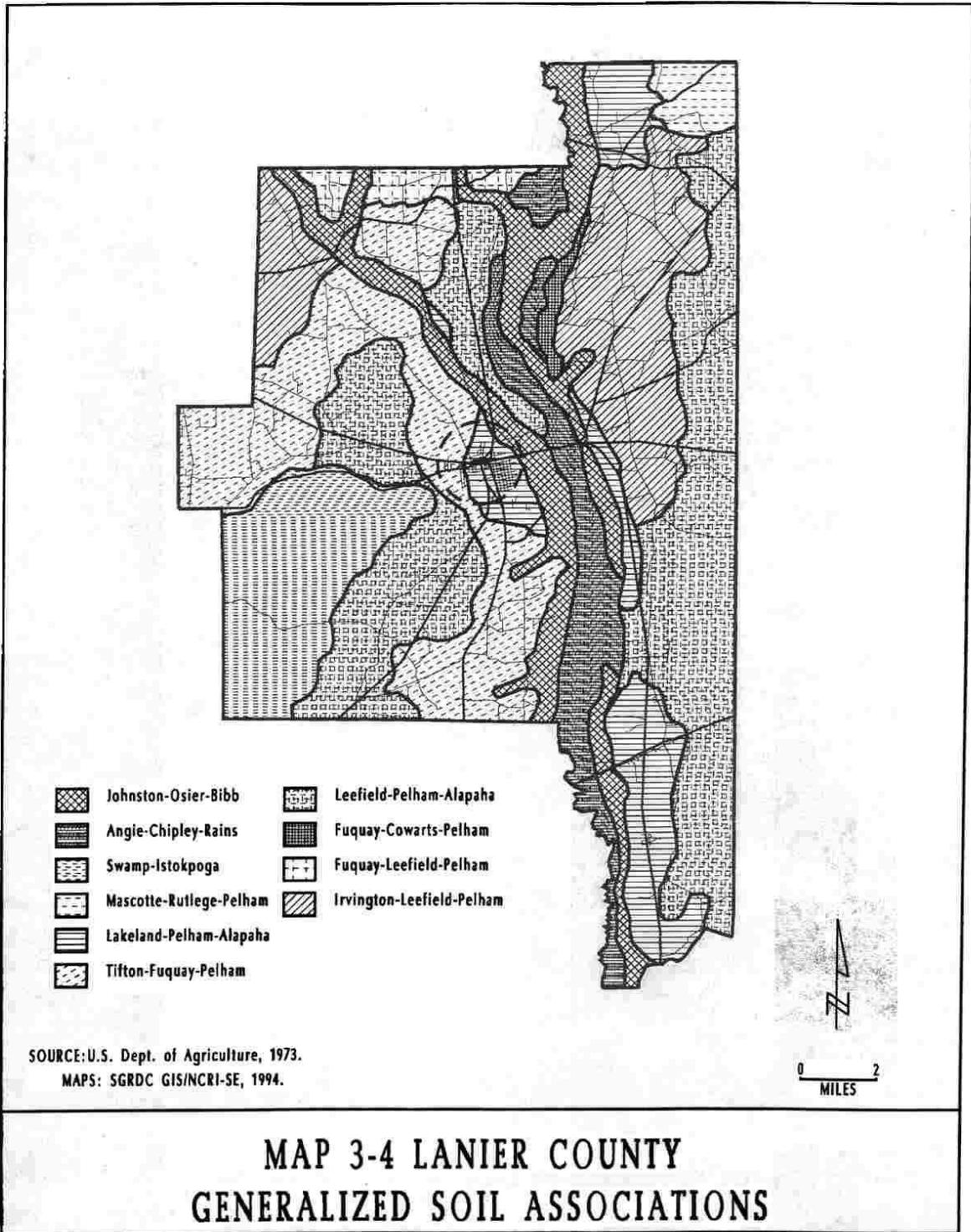
### **A. Identification of Hazard**

The threat of sinkholes has been chosen by the HMPUC as the eighth 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.

Sinkholes are natural depressions in the ground caused by the collapse of the surface into a void. The void is normally attributed to the dissolving of subsurface material by the movement of water. Sinkholes occur more readily in regions with limestone subsurfaces. The final collapse of the ceiling over a cavern, developing a sinkhole, is normally precipitated by heavy rains.

Sinkholes are common where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that can naturally be dissolved by groundwater circulating through them. (Source: U.S. Geological Survey, <https://water.usgs.gov/edu/sinkholes.html>.)

The following map shows the soil types identified in Lanier County and the City of Lakeland. Most soils in the area are of the sandy, loamy, siliceous, and/or kaolinitic type.



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

According to local data sources, two sinkhole events have occurred in the community between 01/01/1950 and 04/30/2018. The Historic Recurrence Interval is 5.00 years. This is a 20.00%

Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.0, the past 20-year frequency is 0.0, and the past 50-year frequency is 0.04 (see the Hazard Frequency Table in Appendix D).

In the recorded history for Lanier County and the City of Lakeland, two sinkhole events have occurred. During one event, in 1986, a sinkhole opened up behind the Fire Department building in Lakeland, creating what is now a 1.1-acre lake with depth measured at 26 feet. During another event, in the late 1980s, a sinkhole on US Highway 221 required road closure and road repairs. There was some damage to power lines and other roadway infrastructure, but no injuries.

Since the previous Hazard Mitigation Plan became effective, no new sinkhole 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 Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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. Before new construction is approved, the terrain is inspected to assess the potential for

sinkhole activity. Therefore, it is considered unlikely that any new construction in the community could agitate sinkholes.

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

Because the location of potential sinkhole formation cannot be predicted with any degree of certainty or accuracy, they remain an equal threat to all jurisdictions.

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

Sinkholes have the potential to harm people and destroy property throughout Lanier County and the City of Lakeland, potentially in any place at any time. The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4. Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## **Section IX. Severe Winter Storms**

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

A severe winter storm is an event in which varieties of precipitation are formed that only occur at low temperatures, such as snow or sleet, or a rainstorm where ground temperatures are low enough to allow ice to form (i.e. freezing rain). Associated outcomes may include ice on roads, snow accumulation, frost on surfaces, and cold temperatures to which local residents are unaccustomed. The threat of Severe Winter Storms has been chosen by the Lanier County HMPUC as the ninth most likely hazard to occur and cause damage in Lanier County and the City of Lakeland, 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 Lanier County and the City of Lakeland, 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 Lanier County (including the City of Lakeland) between 01/01/1950 and 04/30/2018. 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).

Since the previous Hazard Mitigation Plan was adopted, two Severe Winter Storm events have been reported. Most recently, on January 3, 2018, approximately an inch of snow fell on portions of Lanier County. This caused numerous motor vehicle crashes, impassable roads, and downed tree limbs. For this region it was the first winter storm since December 1989. The largest snowstorm in history for the Southeast U.S. coast occurred on Dec. 22-24, 1989. Up to 4 inches of snow accumulation were recorded in Lanier County, with associated power outages, car crashes, and closed roads.

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 Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office. Because data broken down by jurisdiction are not consistently available, it was not possible to break down these worksheets by jurisdiction; therefore, they refer to the entire county, including the city.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County and City experienced rapid population growth during the 2000s, but the growth has been less rapid in the 2010s. The City has seen a slight decrease in population since 2010.

Lanier County and the City of Lakeland have zoning regulations. The County and the City of Lakeland have mandatory building and fire codes which are enforced by a building inspector; the City and the County 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 Lanier County and the City of Lakeland. 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 local economy, and many crops may be affected by severe winter weather. Neither Lanier County nor the City of

Lakeland has any snowplows. No other multi-jurisdictional differences have been identified at this time.

### **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 Lanier County and the City of Lakeland. 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 Lanier County HMPUC recognizes severe winter storms as the ninth 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 Lanier County and the City of Lakeland. 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 Technological Hazard, Risk,** **and Vulnerability (HRV) Summary**

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

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

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

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

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

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

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

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

Not all hazardous materials releases are transportation-related. One specific type of hazardous materials release that has been a source of concern in the community is the potential for illegal methamphetamine labs to explode. In these illicit operations, meth “cooks” produce the drug by isolating ingredients from cold medicine and combining them with a variety of hazardous substances, including drain cleaner, battery acid, and antifreeze (source: <https://drugabuse.com/featured/10-years-of-meth-lab-explosions/>). Explosion events from these labs release corrosive chemicals and can cause those exposed to suffer burn injuries, inhalational injuries, and death (source: <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6433a4.htm>). In 2014, 24 meth lab incidents (including labs, “dumpsites,” and “chemical and glassware” seizures) were reported in Georgia, down from 66 in 2013 (source: <https://www.dea.gov/resource-center/meth-lab-maps.shtml>).

According to the USDOT Pipeline and Hazardous Materials Safety Administration’s Office of Hazardous Materials Safety database (see Appendix F), there is 1 report of Hazardous Materials Release events occurring in Lanier County (including the City) between 01/01/1978 and 04/30/2018. In 1993 while unloading a cargo tank carrier the cap on the outlet pipe split and cracked while spraying the product onto asphalt. The spill was contained. The Historic Recurrence Interval is 30.00 years. This is a 3.33% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.0, the past 20-year frequency is 0.05, and the past 50-year frequency is 0.02 (see the Hazard Frequency Table in Appendix D).

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

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

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

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor’s Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development’s 2016 Georgia Farm Gate Value Report (<http://caes2.caes.uga.edu/center/caed/documents/2016CAEDFarmGateValueReport.pdf>), the total farm gate value of agricultural production in Lanier County is \$43,059,088.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County has seen a slight increase in population over the last few years and the City has seen a slight decrease. The City of Lakeland and Lanier County has zoning regulations. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and City 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**

The facilities most vulnerable to a hazardous materials release are those located within a one-mile buffer of the major highways and railways in the community.

State highways carrying truck traffic pass through all the jurisdictions. US-84, a 4-lane highway, passes from east to west through the southern portion of the county. US 129/SR 31/SR 125 intersect when entering Lanier County. A short line railroad operated by CaterParrott Railnet runs through the far western portion of the County.

### **G. Overall HRV Summary**

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

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

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

## Section II. Public Health Emergency

### A. Identification of Hazard

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

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

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

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

Some examples of recent public health emergencies include:

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

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

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

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

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County has seen a slight increase in population over the last few years and the City has seen a slight decrease. The City of Lakeland and Lanier County has zoning regulations. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. The County and City 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**

The impact of a disease event will be more severe in places with higher population density due to more people being exposed and higher potential for person-to-person transmission. As such, the City of Lakeland could be more vulnerable to certain types of public health emergencies than unincorporated Lanier County. No other multi-jurisdictional differences have been identified at this time.

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

For most of the last century, disease outbreaks have been rare in the United States due to the presence of an advanced health care system, effective vaccination programs, and coordination between the CDC, other federal agencies, state and local health departments, and health care providers. However, the potential remains for a disease outbreak to harm people throughout Lanier County and the City of Lakeland. The HMPUC has developed a comprehensive range of

Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 5.

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

## **Section III. CBRNE**

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

The threat of a Chemical, Biological, Radiological, Nuclear, or Explosive (CBRNE) attack has been chosen by the HMPUC as the third most likely human-caused hazard to occur and cause damage in the community.

In pursuit of the community's goals of local preparedness, it is essential for Lanier County and the City of Lakeland to have reliable chemical, biological, radiological, nuclear, and explosives (CBRNE) countermeasures and equipment that can be used with confidence for the protection of life, health, property and commerce.

**Chemical weapons** have been used by terrorists in the recent past, and it is likely to happen again. A very large number of casualties could be expected in a successful chemical attack. Chemical agents can enter the body by inhalation of the chemical agents, absorption through the skin or eyes, injection into the body by flying glass or shrapnel, or by ingesting with food or water. A likely delivery method is in the form of a gas or as an aerosol spray. (Source: <http://www.disasters.org/dera/library/Heyer%20WMD.pdf>)

Chemical weapons include the following categories (source: <http://www.disasters.org/dera/library/Heyer%20WMD.pdf>)

- **Nerve Agents:** Nerve agents attack the victim's nervous system. Most belong to the family of chemicals known as organophosphates. Many common pesticides belong to this family of chemicals.
- **Blister Agents:** Blister agents, also known as vesicants, attack the skin of the victim, resulting in blisters and skin burns. Mustard gas and Lewisite are common blister agents.
- **Blood Agents:** Blood agents attack the ability of the blood to hold and deliver oxygen. The victim suffocates. Cyanide gases and compounds are the most common types of these agents.
- **Choking Agents:** These chemicals attack the lungs causing them to fill with fluid. Chlorine gas and phosgene are typical choking agents.
- **Incapacitating Agents:** These agents usually irritate the skin, mucous membranes, eyes, nose, lips and mouth. They may cause vomiting or intolerable pain. While they may lead to serious medical situations such as seizures or heart attacks, they are not designed to kill or cause permanent harm. Used alone, the intention is to temporarily incapacitate or harass the target, or force them to evacuate the area. However, incapacitating agents may be used in combination with other agents to force responders to remove their gas masks and other protective gear, so that they will be exposed to lethal doses of the other agent. Examples of incapacitating agents are pepper spray, tear gas, riot control agents and several military chemicals from different nations.

**Biological weapons** present a serious challenge for response planning. There is risk that a biological attack may not be detected until days or even weeks after it happens. First responder resources, therefore, may be of little use at a bioterrorism incident unless it is detected promptly.

The following are the two main types of biological weapons:

- **Pathogens:** These are disease-causing organisms, some of which can reproduce and keep spreading long after the attack. The potential for many thousands of casualties is possible, but the more likely number is much less because of the difficulty of efficiently delivering the pathogenic agents to large numbers of people.
- **Toxins:** These are poisonous substances produced by living things. Many toxins are extremely lethal and small quantities can kill very large numbers of people. In many ways a toxin attack is more like a chemical attack than a biological one. Some possible toxin weapons are ricin, botulism toxin, and aflatoxin. Again, the difficulty for the terrorist is in finding an effective way to disperse or distribute the toxin.

(Source: <http://www.disasters.org/dera/library/Heyer%20WMD.pdf>)

**Radiological** weapons are weapons that produce radiation without detonation of a nuclear device. A radiological incident can cause victims to have contamination and/or exposure. Examples of radiological weapons include:

- **Radiological Dispersal Devices (RDDs)**, which cause the purposeful dissemination of radioactive material without a nuclear detonation. One type of RDD is known as a “dirty bomb,” which uses a conventional explosive to produce radioactive and nonradioactive shrapnel and radioactive dust, thereby causing radiation contamination and possibly some degree of radiation exposure, as well as physical injury and burns. (Source: <https://www.remm.nlm.gov/rdd.htm>)
- **Radiological Exposure Devices (REDs)**, otherwise known as a Hidden Sealed Radioactive Source. These cause exposure but typically not contamination. The dose from exposure and specific effect on people depends on the source properties (isotope, activity, and amount), proximity of each person to the source, length of exposure time, and portion of the body exposed. (Source: <https://www.remm.nlm.gov/red.htm>)

**Nuclear** incidents involve a nuclear explosion (nuclear fission). A possible example is an attack from an improvised nuclear device (IND), which consists of an illicit nuclear weapon bought, stolen, or otherwise originating from a nuclear state, or a weapon fabricated by a terrorist group from illegally obtained fissile nuclear weapons material that produces a nuclear explosion. Detonation of such a weapon results in catastrophic loss of life, destruction of infrastructure, and contamination of a very large area.

(Source: <https://www.remm.nlm.gov/nuclearexplosion.htm#ind>)

**Explosives** can pack a very powerful punch and can bring down large buildings. The casualties could number in the hundreds in this type of attack. One example of this type weapon was the fuel oil-fertilizer bomb used to attack the Murrah Federal Building in Oklahoma City.

First responders should be alert to the potential for structure collapse as well as secondary explosive devices in the area.

Great caution should be used if the explosion seems to do little damage. A small explosive device might be used to disperse chemical, biological or even radioactive agents. Another purpose of a small device might be to bring large numbers of first responders, who are then subjected to a larger secondary device.

Another immediate problem for responders and victims is the potential for asbestos exposure. Older buildings may contain asbestos as insulation, pipe coverings, siding or roofing, flooring, adhesives, floor or ceiling tile and wall panels. Any explosion or collapse may cause this asbestos to become airborne in hazardous levels.

(Source: <http://www.disasters.org/dera/library/Heyer%20WMD.pdf>)

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

According to the best data available, there have not been any CBRNE events in Lanier County and the City of Lakeland. However, the entire community is equally vulnerable to this hazard and an attack could happen at any place at any time.

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

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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

The County has seen a slight increase in population over the last few years and the City has seen a slight decrease. The City of Lakeland and Lanier County has zoning regulations. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. There is no planning commission. The County and City 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.

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

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

The impact of a CBRNE event will be more severe in places with higher population density due to more people being in danger. Response times may be longer in remote areas. No other multi-jurisdictional differences have been identified at this time.

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

A CBRNE event has the potential to harm people throughout the County and the City of Lakeland. The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

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

## **Section IV. Active Shooter**

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

As we are all aware, the risk of an active shooter is real and it can happen in any place at any given time. Taking steps now to prepare and implement a plan can better prepare those to react quickly when every second counts. The shootings are unpredictable and can evolve quickly.

Training opportunities for law enforcement officers are offered by the Georgia Public Safety Training Center (<https://www.gpstc.org/>).

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

According to the best data available, there have not been any Active Shooter events in Lanier County and the City of Lakeland. However, the entire community is equally vulnerable to this hazard and an attack could happen at any place at any time. Mass shootings have occurred in nearby communities, such as Valdosta and Waycross (source: <http://www.gunviolencearchive.org/>).

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

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Lanier County and the City of Lakeland are equally vulnerable to this hazard.

An estimated 100% of the Residential property (3,944 of 3,944) in Lanier County (including the City of Lakeland) could be affected by this hazard, with a total value of \$249,400,501. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (1,583 of 1,583) in the community may be affected, with a total value of \$371,511,462. The values are based on the most recent available tax roll data for Lanier County and the City of Lakeland, provided by the Lanier County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 62 Critical Facilities and Infrastructure for Lanier County (including the City of Lakeland) could be affected by this hazard. The total value of these Critical Facilities is \$155,539,298.

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The County has seen a slight increase in population over the last few years and the City has seen a slight decrease. The City of Lakeland and Lanier County has zoning regulations. All jurisdictions have mandatory building and fire codes which are enforced by a building inspector. There is no planning commission. The County and City 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.

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The impact of an Active Shooter event will be more severe in places with higher population density due to more people being in danger. Response times may be longer in remote areas. No other multi-jurisdictional differences have been identified at this time.

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

An Active Shooter event has the potential to harm people throughout Lanier County and the City of Lakeland. The HMPUC has developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impacts from this hazard. These are contained in Chapter 4.

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

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

### Summary of Changes:

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

<b>Chapter 4 Section</b>	<b>Updates to Section</b>
I. 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)
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. 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)
IV. Windstorm/Hailstorm/ Lightning	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
V. Extreme Heat	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
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. 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)
VIII. Sinkholes	New for this plan update
IX. Severe Winter Storms	New for this plan update

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

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

This plan, as a joint effort between Lanier County and the City of Lakeland, will serve as a comprehensive mitigation plan. The mitigation strategies, hazard identification, and other information identified in this plan will be integrated into all comprehensive Lanier County plans, as well as all municipality plans in the future. Incorporation of these strategies will occur, as necessary, throughout this planning cycle covered by this Hazard Mitigation Plan Update. In particular, aspects of this plan will be integrated into the Lanier County Comprehensive Plan during the next planning cycle.

Identified hazards and mitigation strategies of the previous Lanier County Hazard Mitigation plan were integrated into the Local Emergency Operations Plan, multiple County and City SOPs and SOGs, and future planning and zoning plans. Lanier County will integrate mitigation strategies identified in this plan into the Lanier County Comprehensive Plan, Community Wildfire Protection Plan, Continuity of Operations Plan (when applicable), and other future plans. Strategies identified in the previous plan were applied to grant applications, building and zoning requirements, and development planning considerations for Lanier County and the City of Lakeland. Many of these strategies will be applied using previously identified policies and ordinances. All jurisdictions have the authority to adopt locally binding ordinances and policies to enhance the mitigation strategies in their jurisdiction.

The Legal and Regulatory Capability Survey (below) describes the authorities available to the jurisdictions and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local jurisdictions to implement hazard mitigation activities. These authorities were reviewed by the Planning Committee prior to inclusion in this plan. Information used from these documents included data and statistics, overall community issues, needs, and goals, and information about state, federal, and local policies and programs.

Regulatory Tools/Plans	Regulatory Type: Ordinance, Resolution, Codes, Plans, Etc.	Local Authority	State Prohibited	Higher Authority
<b>Building Codes</b>	County/Municipal Code	Yes	No	No
<b>Capital Improvements Plan</b>	Lanier County and the City of Lakeland Comprehensive Plan	Yes	No	No
<b>Comprehensive Plan</b>	Lanier County and the City of Lakeland Comprehensive Plan	Yes	No	No
<b>Economic Development Plan</b>	Lanier County and the City of Lakeland Comprehensive Plan	Yes	No	Yes

<b>Emergency Response Plan</b>	Lanier County Local Emergency Operations Plan (LEOP)	Yes	No	Yes
<b>Zoning Ordinances</b>	City of Lakeland Land Development Code Lanier County Land Development Code	Yes	No	No

The City of Lakeland offers many administrative and technical services to the community. City departments include: Administrative, Public Works, Water and Sewer, Garbage, Licensing and Permits, Police Department, and Fire Department.

Opportunities to integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified. Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the Lanier County Hazard Mitigation Planning Committee to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

While Lanier County and the City of Lakeland 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 Lanier County Commission as a result of their execution of the Grantee-Subgrantee Agreement for the Lanier County Hazard Mitigation Grant Program (HMGP) Planning Project; and by the City of Lakeland, located in Lanier County, through their participation in the planning project. The Lanier County Emergency Management Agency is authorized to oversee emergency management within Lanier County and the City of Lakeland.

The jurisdictions have many current policies and programs related to hazard mitigation, which are described in detail in the goals, objectives, and action steps contained in Chapter 4 of this

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

This chapter contains a description of the comprehensive range of Mitigation Goals, Objectives, and Action Steps that were developed by the HMPUC to reduce damages and improve safety through Hazard Mitigation. These have been arranged by the natural hazards contained in Chapter 2. There is particular emphasis on emergency preparedness and infrastructure.

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

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

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

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

In Chapter 6, Sections I-III, there is a description of the planning process involved in selecting the comprehensive range of Mitigation Goals, Objectives, and Action Steps. The Action Steps are given a rating of High, Medium, or Low Priority by the HMPUC based on a number of factors (with a primary emphasis on prioritized cost versus benefit review) identified in Chapter 6, Section I. "High" priority indicates actions that are of great importance to the community and that efforts will be made to accomplish these actions, depending on available funding, prior to accomplishing the other listed action steps. "Medium" priority indicates those items that are important to the community but should receive funding and resources only after sufficient funding and resources have been devoted to accomplishing "High" priority action steps. "Low" priority action steps are those that, while still important to the community, will be accomplished

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

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

Action steps in this plan that are listed as ongoing are those that have not been completed either due to lack of funding or budgetary means.

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

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

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

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

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

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

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

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

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

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

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

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

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

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

#### **Goal 1: Minimize damage caused by high wind events.**

##### **Objective 1: Protect life, health and property of residents from high winds.**

<b>Action Step 1: Educate homeowners and builders on individual safe rooms.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 2: Distribute programs on personal emergency preparedness, e.g. emergency survival kits.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$1,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 3: Contract with the American Red Cross to teach the Citizen's Disaster Course on a frequent basis.</b>	
<b>Responsible Department</b>	EMA, ARC
<b>Anticipated Cost</b>	\$2,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 4: Encourage businesses to develop emergency plans.</b>	
<b>Responsible Department</b>	EMA, Industrial Authority
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 5: Increase public awareness of the NOAA weather radios, and available community safe shelters by publishing articles in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools.</b>	
<b>Responsible Department</b>	EMA, local media
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 6: Trim tree lines around roads, homes, utilities and businesses.</b>	
<b>Responsible Department</b>	EMA, Lanier County/Lakeland Public Works, Georgia Power, Colquitt EMC, Slash Pine EMC
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 7: Increase awareness of the Code Red system through social media, notices sent home with children through the schools, notices in property tax bills or utility bills, newspapers, tables at events/festivals, community gatherings, and robo-calls.</b>	
<b>Responsible Department</b>	EMA, local media
<b>Anticipated Cost</b>	\$3,000/year
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 8: Develop and maintain the EMA website</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$1,000/year
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 9: Continue to maintain partnership with local amateur radio operators in order to ensure redundancy in case of communication system failure.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 10: Install redundant communication radio network (e.g. CB) for the tri-county 911 system.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds, grants
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 11: Conduct information outreach to inform the public of what weather and warning apps, websites, and data resources are most appropriate and accurate to use.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

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

<b>Action Step 1: Assess all public buildings, particularly public schools, for wind resistance</b>	
<b>Responsible Department</b>	Building Inspections Office, Lanier County/Lakeland Schools
<b>Anticipated Cost</b>	\$10,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 2: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.</b>	
<b>Responsible Department</b>	Building Inspections Office
<b>Anticipated Cost</b>	\$10,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 3: Retrofit any public structures that are deemed insufficient to resist high wind damage.</b>	
<b>Responsible Department</b>	Lanier County/Lakeland Schools, Lanier County Commission, Lakeland City Council
<b>Anticipated Cost</b>	\$500,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 4: Install auxiliary portable and fixed generators (including transfer switches) for all critical facilities, shelters, water systems, and wherever else they are needed.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$100,000 per generator
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 5: Provide NOAA weather radios (or comparable devices) to all households in Lanier County and the City of Lakeland.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$50,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds, grants
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

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

### **Completed Action Steps**

*(Note: The previous plan did not have numbered action steps.)*

#### **Goal 1, Objective 1**

- Review building codes for proper wind strength and safety regulations and for consistency with state and federal regulations.

### **New Action Steps**

#### **Goal 1, Objective 1**

- Action Step 7: Increase awareness of the Code Red system through social media, notices sent home with children through the schools, notices in property tax bills or utility bills, newspapers, tables at events/festivals, community gatherings, and robo-calls.
- Action Step 8: Develop and maintain the EMA website
- Action Step 9: Continue to maintain partnership with local amateur radio operators in order to ensure redundancy in case of communication system failure.
- Action Step 10: Install redundant communication radio network (e.g. CB) for the tri-county 911 system.
- Action Step 11: Conduct information outreach to inform the public of what weather and warning apps, websites, and data resources are most appropriate and accurate to use.

#### **Goal 1, Objective 2**

- Action Step 5: Provide NOAA weather radios (or comparable devices) to all households in Lanier County and the City of Lakeland.

### **Deleted Action Steps**

(none)

**Action Steps Considered but Ultimately Not Added**

(none)

## **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 Lanier County and the City of Lakeland. 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, Subsection E.

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

#### **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 2: Minimize damage caused by tornadoes.**

**Objective 1: Protect life, health and property of residents from tornadoes.**

<b>Action Step 1: Educate homeowners and builders on individual safe rooms.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 2: Distribute programs on personal emergency preparedness, e.g. emergency survival kits.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$1,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 3: Contract with the American Red Cross to teach the Citizen’s Disaster Course on a frequent basis.</b>	
<b>Responsible Department</b>	EMA, ARC
<b>Anticipated Cost</b>	\$2,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 4: Encourage businesses to develop emergency plans.</b>	
<b>Responsible Department</b>	EMA, Industrial Authority
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 5: Increase public awareness of the NOAA weather radios, and available community safe shelters by publishing articles in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools.</b>	
<b>Responsible Department</b>	EMA, local media
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 6: Trim tree lines around roads, homes, utilities and businesses.</b>	
<b>Responsible Department</b>	EMA, Lanier County/Lakeland Public Works, Georgia Power, Colquitt EMC, Slash Pine EMC
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 7: Increase awareness of the Code Red system through social media, notices sent home with children through the schools, notices in property tax bills or utility bills, newspapers, tables at events/festivals, community gatherings, and robo-calls.</b>	
<b>Responsible Department</b>	EMA, local media
<b>Anticipated Cost</b>	\$3,000/year
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 8: Develop and maintain the EMA website</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$1,000/year
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 9: Continue to maintain partnership with local amateur radio operators in order to ensure redundancy in case of communication system failure.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 10: Install redundant communication radio network (e.g. CB) for the tri-county 911 system.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds, grants
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 11: Conduct information outreach to inform the public of what weather and warning apps, websites, and data resources are most appropriate and accurate to use.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

**Objective 2: Minimize damages from tornadoes to institutional/public buildings in Lanier County.**

<b>Action Step 1: Assess all public buildings, particularly public schools, for wind resistance</b>	
<b>Responsible Department</b>	Building Inspections Office, Lanier County/Lakeland Schools
<b>Anticipated Cost</b>	\$10,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 2: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.</b>	
<b>Responsible Department</b>	Building Inspections Office
<b>Anticipated Cost</b>	\$10,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 3: Retrofit any public structures that are deemed insufficient to resist high wind damage.</b>	
<b>Responsible Department</b>	Lanier County/Lakeland Schools, Lanier County Commission, Lakeland City Council
<b>Anticipated Cost</b>	\$500,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 4: Install auxiliary portable and fixed generators (including transfer switches) for all critical facilities, shelters, water systems, and wherever else they are needed.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$100,000 per generator
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 5: Provide NOAA weather radios (or comparable devices) to all households in Lanier County and the City of Lakeland.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	\$50,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds, grants
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

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

*Note: The previous plan included, by reference, all the action steps from the Hurricane/Tropical Storm section and made them also applicable for Tornadoes.*

### **Completed Action Steps**

#### **Goal 1, Objective 1**

- Review building codes for proper wind strength and safety regulations and for consistency with state and federal regulations.

### **New Action Steps**

#### **Goal 1, Objective 1**

- Action Step 7: Increase awareness of the Code Red system through social media, notices sent home with children through the schools, notices in property tax bills or utility bills, newspapers, tables at events/festivals, community gatherings, and robo-calls.
- Action Step 8: Develop and maintain the EMA website
- Action Step 9: Continue to maintain partnership with local amateur radio operators in order to ensure redundancy in case of communication system failure.
- Action Step 10: Install redundant communication radio network (e.g. CB) for the tri-county 911 system.
- Action Step 11: Conduct information outreach to inform the public of what weather and warning apps, websites, and data resources are most appropriate and accurate to use.

#### **Goal 1, Objective 2**

- Action Step 5: Provide NOAA weather radios (or comparable devices) to all households in Lanier County and the City of Lakeland.

### **Deleted Action Steps**

(none)

**Action Steps Considered but Ultimately Not Added**

(none)

## **Section III. Floods**

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

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

The major flooding sources in Lanier County are the Alapaha River sub-basin and Withlacoochee sub-basin of the Suwannee River and runs south through the county. Due to these facts, the Lanier 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 Lanier County and the City of Lakeland. Banks Lake, which is a National Wildlife Refuge, is also located in Lanier County but it is a blackwater shallow lake and poses no potential flooding problems.

### **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 III, Subsection E.

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

#### **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: Minimize flood damage in Lanier County and the City of Lakeland.**

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

<b>Action Step 1: Continue to identify areas in Lakeland and Lanier County that experience repetitive localized flooding.</b>	
<b>Responsible Department</b>	EMA, Lakeland City Council, Lanier County Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 2: Review data on storm events to determine where repetitive localized flooding occurs as a result of inadequate drainage infrastructure.</b>	
<b>Responsible Department</b>	EMA, Lakeland City Council, Lanier County Commission
<b>Anticipated Cost</b>	\$5,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 3: Identify and pursue grant opportunities to upgrade deficient drainage systems.</b>	
<b>Responsible Department</b>	EMA, Lakeland City Council, Lanier County Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 4: Implement infrastructure improvements for flood mitigation, including a box culvert on Old Stockton Road, upgraded 30” sewer lines on Tyler Road, additional sewer lines on Cross Creek Road, new sewer lines on Pascal Road and Teeterville Road, and upgraded sewer lines on Simpson Road, plus other improvements as needed.</b>	
<b>Responsible Department</b>	Lanier County
<b>Anticipated Cost</b>	\$150,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds, Grants
<b>Jurisdiction</b>	Lanier County
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

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

<b>Action Step 1: Monitor comprehensive land use plans to ensure mapping of lands to be permanently protected.</b>	
<b>Responsible Department</b>	Planning Commission
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 2: Monitor existing subdivision regulations to promote conservation of floodplains, wetlands, and groundwater recharge areas.</b>	
<b>Responsible Department</b>	Lanier County Commission, Lakeland City Council
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 3: Seek funding from private foundations, individuals, federal and state grants, and local communities to leverage available green space grant funds.</b>	
<b>Responsible Department</b>	Lanier County Commission, Lakeland City Council
<b>Anticipated Cost</b>	\$300,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA, State, local, private foundations and individual assistance
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 4: Educate public and private organizations on methods for preserving parks and recreation areas, such as grants, community cleanup events, conservation easements, and encouraging landowners to dedicate their land to the public.</b>	
<b>Responsible Department</b>	Lanier County Commission, Lakeland City Council
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

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

<b>Action Step 1: Petition the National Weather Service, US Geological Survey, or other agencies to place and maintain river gauges at identified locations along the Alapaha River in Lanier County.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds, grants
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 2: Continue membership in the NFIP by adopting updated ordinances and FIRM maps as updates are available, and continue to enforce floodplain regulations County.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GEMA/FEMA Homeland Security
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	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, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

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

### **New Action Steps**

#### **Goal 1, Objective 1**

- Action Step 4 is new.

### **Completed Action Steps**

#### **Goal 1, Objective 1**

- Petition FEMA to update Lakeland FIRM maps and to develop FIRM maps for unincorporated areas of the county

#### **Goal 1, Objective 3**

- Petition FEMA to map unincorporated county.

### **Discontinued Action Steps**

#### **Goal 1, Objective 1**

- Utilize GIS data to determine possible locations for flood containment areas. *(No longer deemed necessary.)*
- Identify and pursue funding to acquire potential flood containment areas. *(No longer deemed necessary.)*

### **Action Steps Considered but Ultimately Not Added**

(none)

## **Section IV. Hailstorm/Lightning/Windstorm**

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

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in the County and the City of Lakeland. Hail, lightning 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 IV, Subsection E.

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

#### **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: Protect Citizens of Lanier County from the threat of lightning strikes, wind, and hail.**

**Objective 1: Provide tools necessary for warning of lightning strikes, wind, and hail.**

<b>Action Step 1: Provide every public outdoor recreation facility and every public school outdoor recreation facility with automatic warning device, if feasible.</b>	
<b>Responsible Department</b>	EMA, Lanier County/Lakeland Schools
<b>Anticipated Cost</b>	\$25,000
<b>Existing &amp; Potential Funding Sources</b>	OHS-GEMA/FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 2: Make lightning warning system information available to other entities having significant outdoor activities, such as golf courses, businesses, airport, etc.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 3: Educate public on the risks of lightning, wind, and hail.</b>	
<b>Responsible Department</b>	EMA, Schools
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 4: Provide news media with press releases concerning lightning, wind, and hail.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	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, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

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

*No changes.*

#### **Completed Action Steps**

(none)

#### **Deleted Action Steps**

(none)

#### **Action Steps Considered but Ultimately Not Added**

(none)

## **Section V. Extreme Heat**

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

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

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

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

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

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

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

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

#### **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 5: Prevent or reduce damage from Extreme Heat to the health of the citizens of Lanier County and the City of Lakeland.**

Objective 1: Ensure that adequate warning systems and resources are available to minimize the impact of Extreme Heat events in the community.

<b>Action Step 1: Identify County facilities for “comfort station” locations</b>	
<b>Responsible Department</b>	EMA, Lanier County
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 2: Continue to work with the faith-based community, the American Red Cross, and other community institutions to make “comfort station” locations and/or shelters (including animal shelter facilities) available in case of extreme heat events.</b>	
<b>Responsible Department</b>	EMA, local non-governmental organizations
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

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

### **Completed Action Steps**

- The Director, Lanier County EMA, request assistance from the National Weather Service, using National Weather Service historical information and computer programming, to determine the number of “Heat Stress” days per year in Lanier County.
- The Director, Lanier County Emergency Management Center, request assistance from the National Weather Service.

### **New Action Steps**

- Action Step 1: Identify County facilities for “comfort station” locations
- Action Step 2: Continue to work with the faith-based community and other community institutions to make “comfort station” locations and/or shelters (including animal shelter facilities) available in case of extreme heat events.

### **Deleted Action Steps**

(none)

### **Action Steps Considered but Ultimately Not Added**

(none)

## **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 Lanier County and the City of Lakeland. 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, Subsection E.

#### **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. Lanier County Auditorium and Grammar School was added to the National Register of Historic Places in 1986.

#### **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 damage resulting from wildfires in Lanier County, reduce the threat of wildfires, and protect the life and property of residents.**

**Objective 1: Minimize the threat of wildfires to persons and properties in Lanier County.**

<b>Action Step 1: Request the Greater Lanier County Planning Commission to consider the use of Urban/Wildland Interface in the development of its comprehensive plan.</b>	
<b>Responsible Department</b>	Lanier County Commission, Lakeland City Council
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County, City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 2: Implement “1-2-3” (formerly known as Firewise) program in Lanier County and the City of Lakeland.</b>	
<b>Responsible Department</b>	Georgia Forestry Commission
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Georgia Forestry Commission
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 3: Hold a regular Community Clean-up Day to cut, prune, and mow vegetation in shared community spaces.</b>	
<b>Responsible Department</b>	Residential homeowners and community stakeholders, GFC, Lanier and Lakeland Fire Departments
<b>Anticipated Cost</b>	\$3,000
<b>Existing &amp; Potential Funding Sources</b>	Community and Business donations
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	Ongoing

<b>Action Step 4: Allow for adequate emergency vehicle access by making sure that vertical and horizontal driveway/right-of-way clearance is provided and adequate lengths of culverts are installed.</b>	
<b>Responsible Department</b>	Lanier County Fire Department
<b>Anticipated Cost</b>	\$40,000
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 5: Identify needed road improvements; as roads are upgraded, widen to minimum standards with at least 60-foot diameter cul-de-sacs or turn-arounds.</b>	
<b>Responsible Department</b>	County Road Department, Lanier and Lakeland Fire Departments, City and County Governments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 6: Encourage prescribed burning for private landowners and industrial timberlands particularly adjacent to residential areas.</b>	
<b>Responsible Department</b>	Georgia Forestry Commission
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 7: Seek grant for mowing or prescribed burning in Wildland-Urban Interface areas</b>	
<b>Responsible Department</b>	Georgia Forestry Commission
<b>Anticipated Cost</b>	\$35/acre
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 8: Clean/ re-harrow existing fire lines</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments, County Road Department, City and County Governments
<b>Anticipated Cost</b>	\$35/acre
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 9: Inspect, maintain and improve access to existing dry hydrants. Add signage along road to mark the hydrants.</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments
<b>Anticipated Cost</b>	\$5,000/year
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 10: Locate additional dry hydrants or drafting locations as needed</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments, County Road Department, City and County Governments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 11: Locate and pre-clear helicopter dip sites</b>	
<b>Responsible Department</b>	Georgia Forestry Commission
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 12: Map locations of dry hydrants</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments, County Road Department, City and County Governments
<b>Anticipated Cost</b>	\$2,500
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 13: Seek grants or other funding for Wildland hand tools and lightweight Wildland PPE gear</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments, County Road Department, City and County Governments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 14: Investigate need for fulltime position for the county fire department</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments, County Road Department, City and County Governments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 15: Ensure timely replacement of missing road signs; install “Dead End” or “No Outlet” Tags on Road Signs.</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments, County Road Department, City and County Governments
<b>Anticipated Cost</b>	\$2,500
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 16: Obtain Wildland Fire Suppression training for Fire Personnel</b>	
<b>Responsible Department</b>	Georgia Forestry Commission, City and County Fire Departments, County Road Department, City and County Governments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Assistance to Firefighters grant
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

<b>Action Step 17: Purchase 5 new fire trucks/brush trucks</b>	
<b>Responsible Department</b>	Fire Dept.
<b>Anticipated Cost</b>	\$50,000 each
<b>Existing &amp; Potential Funding Sources</b>	Grants/Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

**F. Changes from the Previous Plan**

**Completed Action Steps**

**Goal 1, Objective 1**

- The chiefs of the fire departments, in cooperation with the Geographical Information System Department at the South Georgia Regional Development Center, develop a comprehensive map of Lanier County showing the risk of wildfire to personal property.
- Identify specific mitigation projects for funding assistance.
- Create minimum of 30-feet of defensible space around all structures by trimming shrubs/vines, overhanging limbs etc.
- Reduce structural ignitability by cleaning flammable vegetative material from roofs and gutters, store firewood appropriately, install skirting around raised structures, store water hoses for ready access and replace pine straw and mulch with less flammable landscaping materials.
- Work with road department to improve standards for new culvert installation and replacement sufficient to allow access by firefighting equipment.

- Amend and enforce existing building codes, Set minimum culvert size to allow safe access of emergency equipment to private drives. Review Subdivision and development ordinances for public safety concerns.

**New Action Steps**

- Action Step 17: Purchase 5 new fire trucks/brush trucks

**Deleted Action Steps**

(none)

**Action Steps Considered but Ultimately Not Added**

(none)

## **Section VII. Drought**

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

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

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

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

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

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

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

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

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

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

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

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

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

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

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

<b>Action Step 1: Develop a tiered plan from the comprehensive study of underground water supplies serving the public and domestic water system to provide temporary water supplies for domestic consumption as needed.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	Ongoing

<b>Action Step 2: Investigate effects of deep agricultural well drilling on local aquifer(s)</b>	
<b>Responsible Department</b>	EMA, Health Dept.
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

**F. Changes from the Previous Plan**

**New Action Steps**

- Action Step 2: Investigate effects of deep agricultural well drilling on local aquifer(s)

**Discontinued Action Steps**

- Develop a comprehensive study that will allow community leaders to understand when public and domestic underground water systems' water-levels are threatened. (no longer necessary)

**Action Steps Considered but Ultimately Not Added**

(none)

## **Section VIII. Sinkholes**

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

As previously indicated in Chapter 2, sinkholes may cause substantial economic, property, and personal damage in Lanier County and the City of Lakeland, including damage to roads and destruction of homes. The HMPUC believes that, due to the damage sinkholes 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 VIII, Subsection E.

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

#### **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. Protect Lanier County and the City of Lakeland from the threat of Sinkholes.**

Objective 1. Minimize losses of life, property, and infrastructure from Sinkholes.

<b>Action Step 1: Conduct ground study of areas identified as being at risk for potential sinkhole formation.</b>	
<b>Responsible Department</b>	Public Works depts.
<b>Anticipated Cost</b>	\$40,000
<b>Existing &amp; Potential Funding Sources</b>	Grants, local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	New

<b>Action Step 2: Include sinkhole study information in planning phase of new developments which may be affected by potential sinkhole formation.</b>	
<b>Responsible Department</b>	Public Works
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Grants, local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Low
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

**F. Changes from the Previous Plan**

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

**Action Steps Considered but Ultimately Not Added**

(none)



## **Section IX. 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 Lanier County and the City of Lakeland. The HMPUC believes that, due to the damage these winter storms 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 IX, Subsection E.

#### **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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

#### **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 9: Prevent or reduce damage caused by Severe Winter Storms in Lanier County and the City of Lakeland.**

**Objective 1:** Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Severe Winter Storms.

#### **Action Steps:**

<b>Action Step 1: Wrap exposed piping with insulation and install new insulation layers at critical facilities in Lanier County and the City of Lakeland.</b>	
<b>Responsible Department</b>	Public Works depts.
<b>Anticipated Cost</b>	\$3,000 per project
<b>Existing &amp; Potential Funding Sources</b>	Grants, local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 2: Disseminate information to the public concerning Severe Winter Storms, champion new construction being built to appropriate low temperature ratings and existing buildings being retrofitted Lanier County and the City of Lakeland.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local operating funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

<b>Action Step 3: Continue to work with the faith-based community, the American Red Cross, and other community institutions to make “comfort station” locations and/or shelters (including animal shelter facilities) available in case of extreme cold and winter storm events.</b>	
<b>Responsible Department</b>	EMA, local non-governmental organizations
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code

Red, web pages (including the EMA website, lanierema.com), 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 6.

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

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

#### **Action Steps Considered but Ultimately Not Added**

(none)

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

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

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

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

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

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

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

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

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

### Section I. Hazardous Materials Release

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

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

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

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

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

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

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

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

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

### 4. New Buildings and Infrastructure:

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

### 5. Existing Buildings and Infrastructure:

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

## C. Mitigation Strategy and Recommendations

### Goal 1: Protect the health and safety of residents of Lanier County.

Objective 1.1: Enhance the ability of the Lanier County Emergency Management Agency to coordinate effectively and efficiently the emergency response during and after a hazardous materials release.

<b>Action Step 1: Continue to train Hazmat responders</b>	
<b>Responsible Department</b>	EMA, City & County Managers
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

Objective 1.2: Minimize the effect of hazardous material spills.

<b>Action Step 2: Maintain HazMat response training</b>	
<b>Responsible Department</b>	EMA, City and County Managers, Fire Departments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 3: Seek funding to expand HazMat training to first responders (fire, police, sheriff, EMS), including training applicable to drug lab explosions</b>	
<b>Responsible Department</b>	EMA, City and County Managers, Fire Departments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	FEMA, GEMA, DHS and local budget
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 4: Increase public awareness and procedures to follow if a hazardous material spill event occurs by publishing articles in the local newspaper, holding town hall meetings, radio announcements and providing bulletins to local churches and schools.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds, GEMA, FEMA
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 5: Train local government officials on proper response procedures for hazardous material spill events.</b>	
<b>Responsible Department</b>	Local Emergency Operations Planning Committee, EMA, Fire Departments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 6: Review and update Standard Operating Procedures (SOP) for responding to a hazardous material spill event.</b>	
<b>Responsible Department</b>	Local Emergency Operations Planning Committee, EMA, Fire Departments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 7: Provide workplace training on decontamination steps.</b>	
<b>Responsible Department</b>	Local Emergency Operations Planning Committee, EMA, Fire Departments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 8: Review annually all hazardous material transportation routes (relocate routes if necessary)</b>	
<b>Responsible Department</b>	Local Emergency Operations Planning Committee, EMA, GDOT
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

**F. Changes from the Previous Plan**

Previous plan included no action steps for this hazard; all are new as of this plan update.

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

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

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

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

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

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

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

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 3, Section 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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

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

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

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

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

### C. Mitigation Strategy and Recommendations

#### Goal 1: Protect the population of Lanier County and the City of Lakeland from the effects of a disease outbreak.

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

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

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

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

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

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

<b>Action Step 6: Acquire or construct/install a unit/facility/equipment for the cold storage of bodies in the event of a mass casualty.</b>	
<b>Responsible Department</b>	EMA, Health Department, County, City
<b>Anticipated Cost</b>	\$500,000
<b>Existing &amp; Potential Funding Sources</b>	Grants, General Funds
<b>Jurisdiction</b>	Lanier County, City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

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

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

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

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

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

**F. Changes from the Previous Plan**

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

## Section III. CBRNE

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

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

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

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

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

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

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 3, Section 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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

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

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

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

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

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

#### **Goal 1: Protect the health and safety of residents of Lanier County and the City of Lakeland from CBRNE events.**

Objective 1. Enhance the ability of the Lanier County Emergency Management Agency to coordinate effectively and efficiently the emergency response during and after a CBRNE event.

<b>Action Step 1: Implement the “Community Emergency Response Team” (CERT) Program.</b>	
<b>Responsible Department</b>	EMA, County Manager
<b>Anticipated Cost</b>	\$5,000
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 2: Encourage businesses to develop emergency plans.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	Medium
<b>Status</b>	New

<b>Action Step 3: Increase public awareness of the Early Warning Communication/Notification System, NOAA weather radios, and available community safe shelters by publishing articles in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools.</b>	
<b>Responsible Department</b>	EMA, Media
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 4: Train local government officials on proper response procedures for CBRNE events.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 5: Investigate, implement and train in methods to relocate residents if event occurs.</b>	
<b>Responsible Department</b>	EMA, Sheriff's Dept, Fire Dept., Police Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Lanier County, City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 6: Review and update Standard Operating Procedures (SOP) for responding to a CBRNE event.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Lanier County, City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

**F. Changes from the Previous Plan**

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

## **Section IV. Active Shooter**

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

As previously indicated in Chapter 3, an Active Shooter may cause substantial injury and loss of life in Lanier County and the City of Lakeland. Such events can occur without warning, giving the community no time to prepare or respond. The HMPUC believes that, because these events have the potential to cause great damage, injury, and loss of life, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce this hazard's potential impact on the community.

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

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

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

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

Chapter 2 of this plan contains information regarding existing policies, regulations, ordinances, and land use that are relevant to this hazard. For more information, see Chapter 3, Section 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. For example, Lanier County Auditorium and Grammar School is a historic building in the community; it was added to the National Register of Historic Places in 1986.

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

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

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

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

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

#### **Goal 1: Protect residents of Lanier County from shootings and gun-related injury and death.**

Objective 1.1: Enhance the ability of the Lanier County Emergency Management Agency to coordinate effectively and efficiently the emergency response during and after an Active Shooter event.

<b>Action Step 1: Ensure that all law enforcement officials have Active Shooter training.</b>	
<b>Responsible Department</b>	Sheriff's Dept., Police Dept.
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 2: Ensure that all public schools in the community have an adequately trained resource officer on hand</b>	
<b>Responsible Department</b>	Board of Education
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

<b>Action Step 3: Conduct a public outreach campaign to increase awareness of how to respond in an active shooter situation.</b>	
<b>Responsible Department</b>	EMA
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	Local Operating Funds
<b>Jurisdiction</b>	Lanier County and City of Lakeland
<b>Timeframe</b>	2019-2024
<b>Priority</b>	High
<b>Status</b>	New

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

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

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

All sections of the Plan shall be monitored and evaluated annually by the County Emergency Management Agency. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (news media, social media, Code Red, web pages (including the EMA website, lanierema.com), 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 6.

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

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

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

### **Summary of changes:**

- Revised and updated language.

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

#### **A. Administrative Actions**

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

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

The Lanier County Commission and the City of Lakeland 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 Lanier 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 Lanier County and the City of Lakeland. 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 Lanier County Commission and the City of Lakeland will provide a copy of this Plan to the persons and/or committees responsible for writing and updating plans. Both jurisdictions have the same integration process. Lanier County and the City of Lakeland work closely together and have many joint plans (for example, the Comprehensive Plan). Specifically, action items, community issues, needs, and goals from this plan will be integrated into other plans (most importantly the Comprehensive plan, which is updated every 5 years).

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

### **A. Method**

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

- The Lanier 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 Lanier County and City of Lakeland residents, it is imperative that public involvement be an integral part of the planning process.

Since adoption of the original Lanier 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 7:** **Conclusion**

### Summary of changes:

- Revised and updated language.

Lanier County and the City of Lakeland 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 Lanier 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, Lanier County and City of Lakeland 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, Lanier County and the City of Lakeland have a realistic perspective on the hazards to which the community is exposed. With the mitigation strategy outlined in Chapter 4 and the implementation plan included in Chapter 6, the local leaders have an "action plan" to follow when allocating resources to reduce their community's vulnerability to such hazards.

## **References**

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

Lanier County website (<http://www.laniercountyvoc.com>)

City of Lakeland website (<http://www.lakelandgov.net>)

Lanier County Flood Insurance Study  
(<http://www.georgiadfirm.com/pdf/panels/13173CV000A.pdf>)

Center for Agribusiness & Economic Development. 2015 Georgia Farm Gate Value Report.  
([http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015\\_DEC16.pdf](http://caes2.caes.uga.edu/center/caed/documents/GAFGVR2015_DEC16.pdf))

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

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

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

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

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

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

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

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

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

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

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

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

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