

# Pierce County, Georgia



## Hazard Mitigation Plan 2018-2023

### **Including the Cities of Blackshear, Offerman, and Patterson**

This Plan produced for the Pierce 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>
I. Purpose and Need, Authority, and Statement of Problem	<ul style="list-style-type: none"> <li>• Language updated to reflect that this was an update to the existing plan</li> </ul>
II. Local Methodology, Brief Description of the Plan Update Process and Participants in the Update Process	<ul style="list-style-type: none"> <li>• All participating jurisdictions are the same as in the original plan</li> </ul>
III. Description of How Each Section of the Original Plan Was Reviewed and Analyzed and Whether It Was Revised	<ul style="list-style-type: none"> <li>• Planning Committee reviewed each section</li> <li>• Updates made using national, state, and local data</li> </ul>
IV. Organization of Plan	<ul style="list-style-type: none"> <li>• Consistent with original plan</li> </ul>
V. Local Hazard, Risk and Vulnerability (HRV) Summary, Local Mitigation Goals and Objectives	<ul style="list-style-type: none"> <li>• Updates made using national, state, and local data</li> </ul>
VI. Multi-Jurisdictional Special Considerations (HRV, Goals, Special Needs)	<ul style="list-style-type: none"> <li>• No major changes from original plan</li> </ul>
VII. Adoption, Implementation, Monitoring and Evaluation (A General Description of the Processes)	<ul style="list-style-type: none"> <li>• Evaluation method revised and updated.</li> </ul>
VIII. Community Data (Demographics, Census, Commerce, History, Etc.)	<ul style="list-style-type: none"> <li>• Updates made using most recent available Census Bureau 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 original Pierce County Pre-Disaster Mitigation Plan, which was approved by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency on August 24, 2007 and expired on August 23, 2012. The subsequent Plan Update was approved on Dec. 11, 2013 and expires on Dec. 10, 2018.

The purpose of this document is to provide an overview of the natural hazards that may impact Pierce County and the Cities of Blackshear, Offerman, and Patterson. Its purpose is also to outline the Pierce County, City of Blackshear, City of Offerman and City of Patterson plans for the Hazard Mitigation of potential loss of life and damages to property and the economy that may occur with these events.

This Plan is a direct result of research and a planning and public involvement process undertaken by the local government officials and citizens of Pierce County and the Cities of Blackshear, Offerman, and Patterson after they formed the Pierce County Hazard Mitigation Plan Update Committee (hereafter known as the HMPUC). This Plan is the result of their commitment to

reduce the risks of natural hazards and the effects of those natural hazards to their communities. The Cities of Blackshear, Offerman, and Patterson are the only incorporated cities located in Pierce County.

Hazard Mitigation is a means to address the potential damage that may be caused by natural or man-made disasters. This extends to addressing potential loss of life, property, economy, etc. that would not otherwise be addressed.

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

In order to initiate an outreach program to neighboring communities, governments, local and regional agencies, agencies authorized to regulate development, businesses, and the public, two Public Hearing Notices were published in the legal organ of the local newspaper. In addition, e-mail lists 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 and invited to participate in the process. Additionally, several area county Hazard Mitigation Plans were being updated at the same time and an active meeting list was maintained for scheduling purposes.

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

Through all of the above efforts, the multi-jurisdictional Pierce County/ Cities of Blackshear, Offerman, and Patterson Hazard Mitigation Plan was updated, including a comprehensive range of Mitigation Goals, Objectives, and Action Steps (see Chapter 3) which will assist the local governments in emphasizing a more direct approach to Hazard Mitigation. The long-term goal is to reduce potential natural disaster losses to life, property, and the economy through Hazard Mitigation efforts.

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

This Pierce County Hazard Mitigation Plan Update encompasses the jurisdictions of Pierce County and the Cities of Blackshear, Offerman, and Patterson, located in Southeast Georgia. Each of these jurisdictions also participated in the 2007 Hazard Mitigation Plan and the 2012 Hazard Mitigation Plan update. The Southern Georgia Regional Commission provided technical assistance. A Pierce County Hazard Mitigation Plan Update Committee (Pierce County HMPUC) was formed, and a year-long planning effort was undertaken, the final product of which was a Plan Update containing updated Mitigation Goals, Objectives, and Action Steps to reduce or eliminate the potential for loss of life and damage to property and the economy caused by natural disasters (see Chapter 3).

An important part of the planning process is the Organization of Resources. Assessing Risks is also an important step in the development of the Plan. This includes identifying hazards, profiling hazard events, inventorying assets and estimating losses. Developing the Hazard Mitigation Plan, as well as Implementing the Plan and Monitoring Its Progress, are the final key parts of the planning process.

Potential members of the Pierce 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 Pierce County HMPUC. The Pierce County HMPUC was comprised of representatives from Pierce County and the Cities of Blackshear, Offerman, and Patterson and also included representatives from other groups and individuals, as shown below, who attended meetings and/or conducted research:

- Pierce County EMA – Leonard Roberts, Director
- Pierce County Fire Department – Leonard Roberts, Chief
- Pierce County Board of Commissioners – Lanier Walker, Commissioner
- Pierce County – Amy Hitt, County Clerk
- Pierce County EMS – James Spivey, Director
- Pierce County – Steve Layson / Jason Rubenbauer, County Manager
- Pierce County – Dell Brown, Planning Director
- Pierce County – A. J. Griffis, Road Superintendent
- Pierce County Family Connection – Stephanie Bell, Director
- City of Blackshear – Bucky Goble, Fire Chief
- City of Blackshear – Chris Wright, Police Chief
- City of Offerman – Brenda Denison, Mayor
- City of Offerman – Janet Daniels, Clerk
- City of Patterson – Stevie Sweat, Fire and Public Works Superintendent
- Georgia Forestry Commission, Jim Durrance, Forestry Ranger
- Southern Georgia Regional Commission – Ariel Godwin, Planner

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

- Surrounding counties' EMAs and Boards of Commissioners (Appling Bacon, Brantley, Ware, and Wayne Counties)

- Pierce County Board of Education
- Pierce County Sheriff's Department
- Pierce County Health Department
- Georgia Southeast Health District

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

- Kick-off public hearing – September 20, 2016
- First workshop – November 9, 2016
- Second workshop – January 11, 2017
- Third workshop – February 8, 2017
- Fourth workshop – May 17, 2017
- Fifth workshop – June 21, 2017
- Final public hearing – May 1, 2018

Building upon the approved 2012 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 process. 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 2012 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 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 2012 Plan and the draft Plan Update document were also available at the Pierce County Commission, EMA Office, Cities of Blackshear, Offerman, and Patterson, and on the SGRC website.

For the plan update, the Pierce County 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 data sources. The prior plan was used as a basis for the update. The HMPUC reviewed the individual parts of the prior plan (with an emphasis on the hazards, goals, objectives, and action steps) and update 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 Pierce County "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 Pierce County and Cities of Blackshear and Patterson Comprehensive Plan and the City of Offerman Comprehensive Plan (including the current five-year Community Work Programs). Other documents used were the State of Georgia Hazard Mitigation Plan, local Emergence

Operations Plan, the previous (2012-2017) Pierce County 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. Pierce County and the Cities do not have a Flood Mitigation Assistance Plan or a Flood Insurance Study.

### **Public Comment and Participation**

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

The public was invited to attend and comment during two public hearings. The “kick-off” public hearing was held on September 20, 2016 and was advertised in the *Blackshear Times* (see Appendix E). 12 citizens, including staff and members of the Pierce County HMPUC, attended this public hearing, as well as one staff member from the Southern Georgia Regional Commission and one GEMA representative (see Appendix E, Section II). There were no substantive comments other than those complimentary of the planning process itself. Therefore, there was no need to consider or add materials derived from public comments at that time.

A second and final public hearing was held on May 1, 2018 and was advertised in the *Blackshear Times* (see Appendix E). Citizens, including staff and members of the Pierce County 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.

As mentioned above, in order to initiate an outreach program to neighboring communities, governments, agencies and businesses, two Public Hearing Notices were published in the Pierce County legal organ newspaper. In addition, e-mail lists were kept updated and those on them were informed of meetings through e-mails and/or telephone calls.

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

**Pierce County/Cities of Blackshear, Offerman, and Patterson**  
**Hazard Mitigation Plan Update Committee**  
**Mission Statement**

**This committee’s mission is to make Pierce County and the Cities of Blackshear, Offerman, and Patterson, 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.**

**Pierce County/Cities of Blackshear, Offerman, and Patterson**  
**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 Pierce County and Cities of Blackshear, Offerman, and Patterson.**

Due to Pierce County and the Cities of Blackshear, Offerman, and Patterson being such close-knit communities, the Pierce 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 Pierce County and Cities of Blackshear, Offerman, and Patterson infrastructure and agencies, emergency planning, hazard planning, and the running of major departments and emergency services. Through their efforts this Plan was developed.

The Pierce County HMPUC was responsible for identifying natural hazard events and completing a profile, vulnerability assessment, potential loss estimation (please see Chapter 2, Appendix A, and Appendix D), and updating the Georgia Mitigation Information System (GMIS) Critical Facilities Inventory (please see <https://www.itos.uga.edu/gema>). They were also responsible for reviewing and updating the Mitigation Goals, Objectives, and Action Steps (please see Chapter 3), among other responsibilities.

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

For the plan update, the Pierce County Hazard Mitigation Plan Update Committee (HMPUC) reviewed all chapters and sections of the original plan and updated them (if appropriate) using national, state, and local sources. In particular, the Wildfire sections were updated using the Georgia Forestry Commission's Pierce County Community Wildfire Protection Plan; other chapters and sections were updated using the Pierce County and Cities of Blackshear and Patterson Comprehensive Plan, the City of Offerman Comprehensive Plan (including the current five-year Community Work Programs), the local Emergency Operation Plan, the previous (2012-2017) Pierce County Hazard Mitigation Plan, the State of Georgia Hazard Mitigation Plan, and information from the National Climatic Data Center (NCDC).

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

Chapters 1, 2, 4, 6, and 7 have been updated to reflect the new material. Please see the tables at the beginning of the chapters for further information regarding which sections were changed and what items were updated.

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

This Plan focuses on eight natural hazards chosen by the Pierce County HMPUC that may affect and cause damage to Pierce County and the Cities of Blackshear, Offerman, and Patterson. Chapter 2, Chapter 3, and Appendix A are each subdivided into Sections I through VIII; these sections reflect the 8 natural hazards that were chosen. The natural hazards are as follows (in order of priority):

1. Thunderstorm
2. Tornado
3. Hail
4. Flood
5. Drought
6. Severe Winter Storm
7. Wildfire
8. Hurricane

Five of these hazards constitute an equal threat to all geographic areas of the community. Of the remaining three, flood, wildfire, and wind are the only hazards for which the level of risk varies geographically within the county. Flood and wildfire are limited to somewhat smaller areas (see Chapter 2 and Appendix A, Sections IV and VII). Pierce County contains two different wind hazard zones (see Chapter 2, Section I).

Other information regarding these hazards was obtained from GEMA Worksheet 3A: Inventory of Assets, contained in Appendix A, and the National Climatic Data Center Information in Appendix F.

Various wildfire maps and other information have been produced through the Georgia Forestry Commission and included in their “Community Wildfire Protection Plan” for Pierce County (see Appendix C).

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 Pierce County and the Cities of Blackshear, Offerman, and Patterson to warrant their inclusion in the present Hazard Mitigation Planning effort, based on past history and information contained in Appendix F.

This Plan also contains a Hazard, Risk and Vulnerability (HRV) Assessment (see Appendix A), a comprehensive range of Mitigation Goals, Objectives, and Action Steps (Chapter 3), other information on implementation of the Action Plan, monitoring, and plan update and maintenance (see Chapter 4), as well as other FEMA-required items and materials (Various Chapters, Sections and Appendices).

In the future, Pierce County Commissioners and City Council Members of the Cities of Blackshear, Offerman, and Patterson will assign staff to implement the comprehensive range of Mitigation Goals, Objectives, and Action Steps and other pertinent items and reports contained in this Plan.

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

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

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

The Pierce County HMPUC determined that the hazards established in the 2012 plan were still the most significant threats to Pierce County and the Cities of Blackshear, Offerman, and Patterson. However, the order of priority of the hazards has been rearranged (see Chapter 2).

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 web sites, published sources, and personal accounts regarding hazards, their history in the community, and when and where they were active. These may be seen in Appendix A, Appendix D, and Appendix F.

The vulnerability of Pierce County and the Cities of Blackshear, Offerman, and Patterson to natural hazards (including types, numbers, and value of properties) is included in the GEMA Worksheet #3A: Inventory of Assets (contained in Appendix A), the GMIS Critical Facilities Inventory (see Appendix F), and the GEMA Worksheet: Pierce County/Cities of Blackshear, Offerman, and Patterson PDM Hazard Frequencies Table (see Appendix D). Chapter 2, Sections I-VIII contain an overall summary of each hazard and its past and potential effect on the community.

The type and value of the various properties in the communities is obtained as a base value as reported on GEMA Worksheet #3A: Inventory of Assets (contained in Appendix A I-VIII Parts B and adjusted for the coverage of each possible selected hazard). 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) is included in Chapter 3, Sections I-VIII. In Chapter 4, Section I, there is a description related to prioritization of these Mitigation Goals, Objectives, and Action Steps through the use of cost/benefit analysis, STAPLEE (Social, Technical, Administrative, Political, Legal, Economic and Environmental), and other criteria.

In Chapter 4 there are sections on Implementing the Action Plan (see Section I), Evaluation, Monitoring, Updating (see Section II), and Plan Update and Maintenance (see Section III). Each jurisdiction has identifiable comprehensive ranges of Mitigation Goals, Objectives, and Action Steps related to them that are contained in Chapter 3, Sections I-VIII.

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

Pierce County has the eighty-third largest total area of any county in Georgia, which itself is the largest state east of the Mississippi River. Pierce County has approximately 343.90 square miles of total area, according to the Census Bureau (www.census.gov). As such, certain services, including certain emergency services, may be located some distance away from population centers. For instance, the City of Offerman does not have a Police Department and must rely on the Pierce County Sheriff’s Department, located in the City of Blackshear, to provide service.

All of the eleven Fire Department properties in Pierce County and the Cities of Blackshear, Offerman, and Patterson are staffed by volunteers. This and other factors combine to not only affect the overall safety of the residents, but also affect the reporting of the dangerous or hazardous natural conditions that we are attempting to report on, and plan Pre-Disaster Mitigation for, here. The development of the Plan has been a multi-jurisdictional effort (see Chapter 1, Section II).

The following are to the ISO Classes of Pierce County, the City of Blackshear, the City of Offerman, and the City of Patterson.

<b>Station</b>	<b>ISO Class</b>
Bearville Volunteer Fire Department	Class 6
Blackshear Fire Department	Class 3
Hacklebarney Volunteer Fire Department	Class 6
Northside Volunteer Fire Department	Class 6
Offerman-Big Creek Volunteer Fire Department	Class 6
Otter Creek Volunteer Fire Department	Class 6
Patterson Fire Department	Class 6
Pierce County Volunteer Fire Department	Class 6
Southside Volunteer Fire Department	Class 6
Sunset Volunteer Fire Department	Class 6

In Chapter 2 Sections I-VIII, there are risk assessments for Pierce County and the Cities of Blackshear, Offerman, and Patterson, as needed, to reflect unique and varied risks associated with the eight (8) chosen natural hazards.

A description that identifies and analyses a range of Mitigation Goals, Objectives and Action Steps considered to reduce or eliminate the effects of each chosen natural hazard (based on the risk assessments) is included in Chapter 3, Sections I-VIII.

In Chapter 4 Section I, there is a description related to prioritization of these Mitigation Goals, Objectives and Action Steps through the use of cost benefit analysis, STAPLEE and other criteria.

In Chapter 4 are Sections on Implementing of the Action Plan (Section I), Evaluation, Monitoring, Updating (Section II) and Plan Update and Maintenance (Section III). Each

jurisdiction has identifiable Mitigation Goals, Objectives and Action Steps related to them and contained in Chapter 3 Sections I-VIII.

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

Prior to the final public hearing, the final draft plan was submitted to all local governments (Pierce County and the Cities of Blackshear, Offerman, and Patterson) for their final review.

The final draft plan was submitted to GEMA and FEMA for their approval. After their approval, and any recommended changes, resolutions adopting the Plan Update were passed by the local governments after a public hearing for comment and review on May 1, 2018. The plan was adopted by Pierce County on May 1, 2018, by the City of Blackshear on May 13, 2018, by the City of Offerman on May 22, 2018, and by the City of Patterson on May 10, 2018. Copies of the resolutions are available in Appendix E.

The comprehensive range of Mitigation Goals, Objectives, and Action Steps (see Chapter 3, Sections I-VIII), which contains item 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 shall be monitored and evaluated annually by the Pierce County EMA. Incremental accomplishments of Mitigation Goals Objectives and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, etc.).

The method that the Pierce County EMA will use to monitor the plan will be to conduct quarterly telephone interviews of 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.

A new annual evaluation component, starting with the adoption of this plan, will be to conduct a formal public meeting on, or near, the anniversary date of the Plan adoption. At this meeting, the annual evaluation will now take place. The annual evaluation will assess whether goals, objectives and action steps address current and expected conditions; nature or magnitude of risks has changed; current resources are appropriate for implementing the plan; outcomes have occurred as expected; and whether agencies and other parties have participates as originally proposed.

During this annual evaluation meeting, 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 & updates will also be discussed at this time and then added to the online GEMA database as required. New hazards in the area (if any) will be discussed and planned for

and an assessment made as to whether community needs dictate additions to the materials of the plan.

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

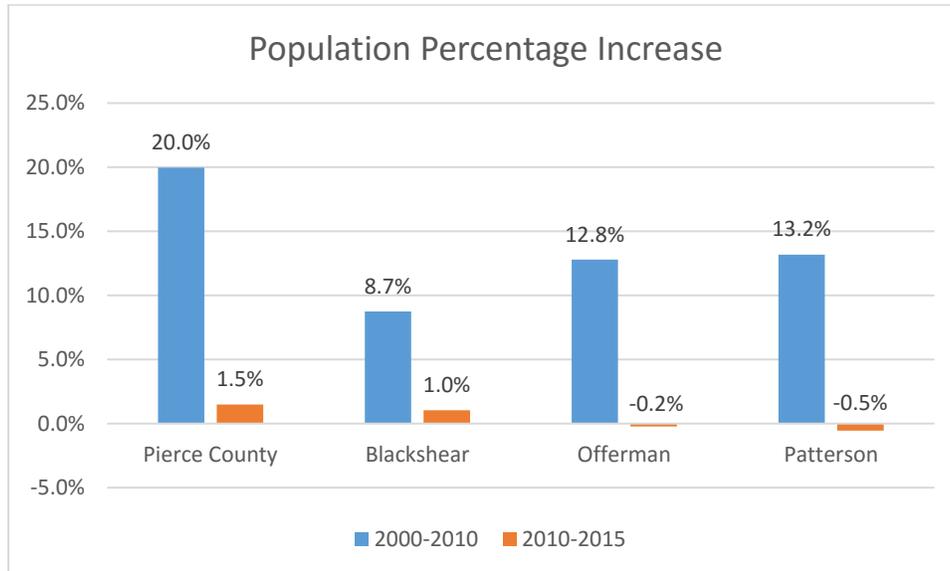
The Plan shall be updated by the Pierce County EMA Director and chosen representatives of all of the local governments every five years (or less), as required by FEMA. All Sections of this Plan will be updated at that time. Specific attention included in the monitoring, evaluation and updating process will be paid to a review of Mitigation Goals, Objectives, and Action Steps in order to list items completed and to list new Mitigation Goals, Objectives, and Action Steps as warranted.

This Plan update will be reviewed by Pierce County and the Cities of Blackshear, Offerman, and Patterson. The requirements of this Hazard Mitigation Plan will be taken into consideration and incorporated into Comprehensive Plans (which include Five-Year Community Work Programs), Capital Improvement Plans, Local Emergency Operations Plans, future updates to the Hazard Mitigation Plan, and all other such Plans as appropriate.

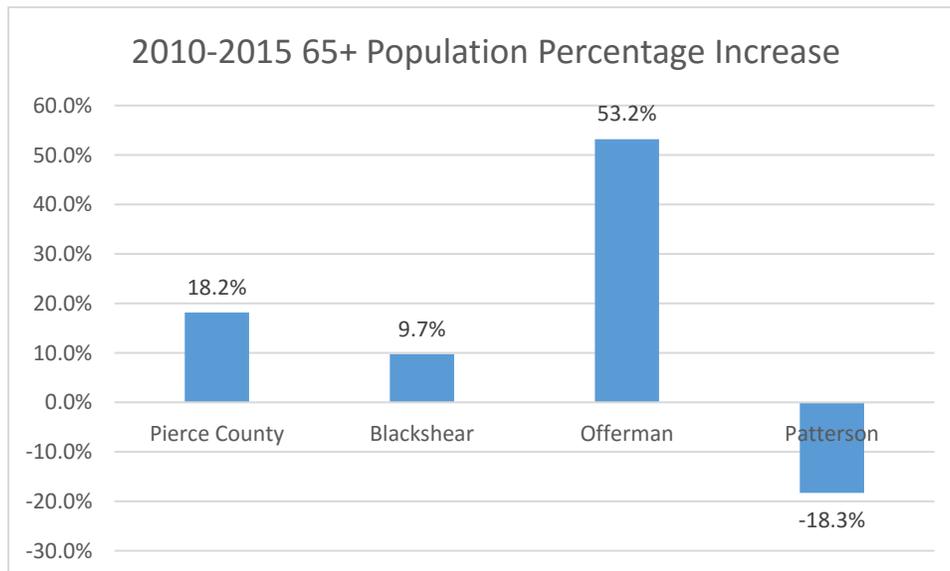
Once this plan is approved, it will be used by the consultants and planning committees responsible for the update process for the County & City Comprehensive Plans, the STWP (Short Term Work Programs), and all other plans that could incorporate the requirements of this plan.

The Plan updating described above will be presented at the fourth Pierce County Commission meeting of every fifth year. This updating process will be publicly advertised and public comment solicited and incorporated as necessary and as appropriate.

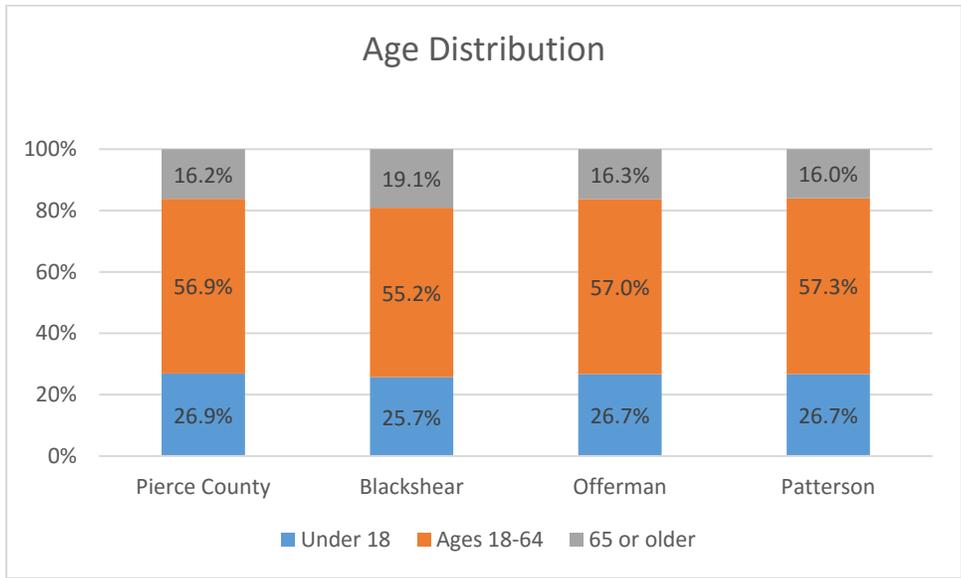
## Section VIII. Community Data



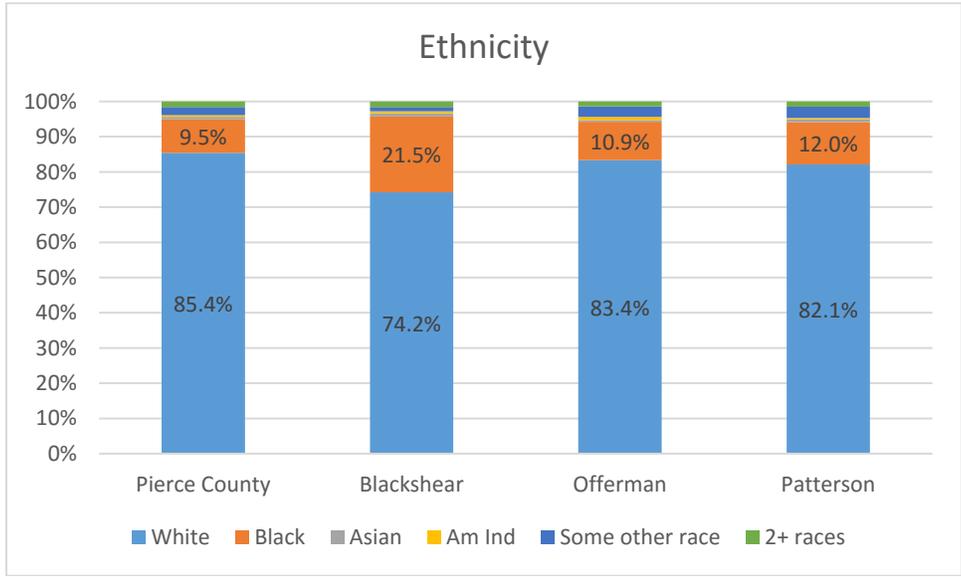
The 2015 population of Pierce County is 18,935, an increase of 1.5% since 2010. The City of Blackshear's 2015 population is 3,522, a 1.0% increase since 2010. The City of Offerman's population is 433, a 0.2% decrease since 2010. The City of Patterson's population is 720, a 0.5% decrease since 2010. All jurisdictions gained population from 2000 to 2010 (20.0% for Pierce County, 8.7% for the City of Blackshear, 12.8% for the City of Offerman, and 13.2% for the City of Patterson).



The percentage of the population aged 65 and older has increased in Pierce County and the City of Blackshear (18.2% and 9.7% respectively), has increased substantially (53.2%) in the City of Offerman, and has decreased by 18.3% in the City of Patterson.

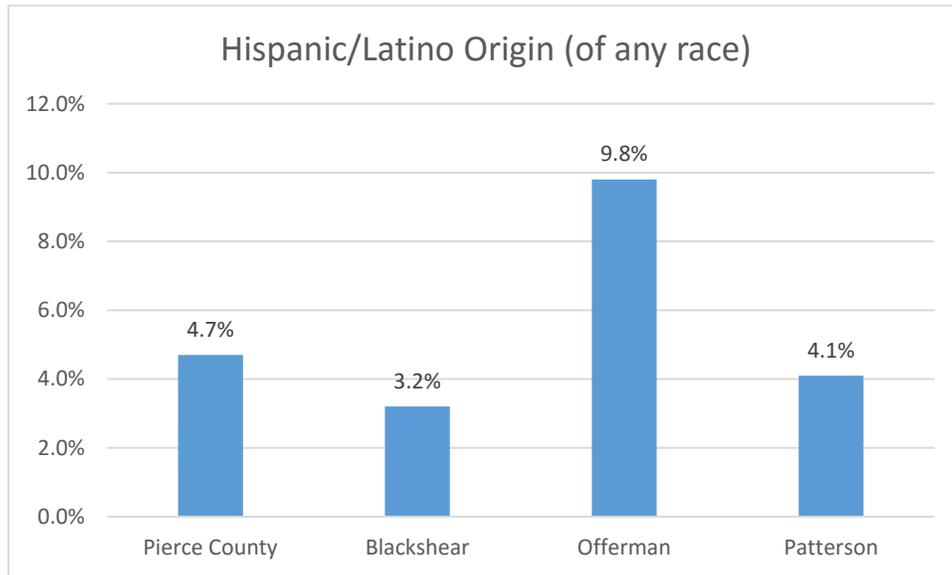


According to 2015 estimates, the age distribution in Pierce County is 16.2% over 65, 56.9% ages 20-64, and 26.9% under 20. In the City of Blackshear, the age distribution is 19.1% over 65, 55.2% ages 20-64, and 25.7% under 20. In the City of Offerman, the age distribution is 16.3% over 65, 57.0% ages 20-64, and 26.7% under 20. In the City of Patterson, the age distribution is 16.0% over 65, 57.3% ages 20-64, and 26.7% under 20. Pierce County’s population is 50.9% female and 49.1% male, the City of Blackshear’s population is 54.0% female and 46.0% male, the City of Offerman’s population is 50.3% female and 49.7% male, and the City of Patterson’s population is 52.1% female and 47.9% male.

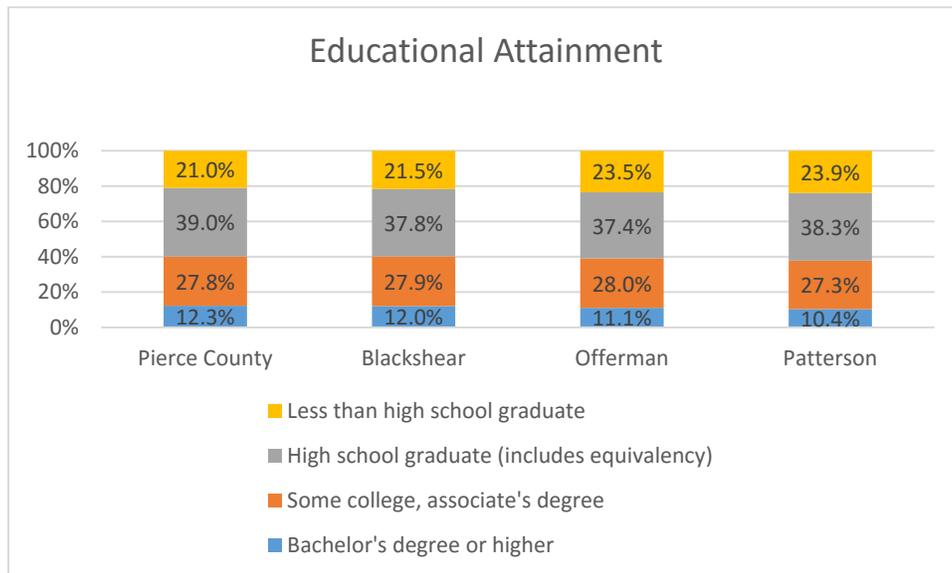


The population of Pierce County is 85.4% White/Caucasian, 9.5% Black/African American, 2.3% some other race, 1.6% two or more races, 0.7% Asian, and 0.5% Native American. The City of Blackshear’s population is 74.2% White/Caucasian, 21.5% Black/African American,

1.6% some other race, 1.2% two or more races, 0.9% Asian, and 0.6% Native American. The City of Offerman’s population is 83.4% White/Caucasian, 10.9% Black/African American, 3.0% some other race, 1.4% two or more races, 0.9% Native American, and 0.5% Asian. The City of Patterson’s population is 82.1% White/Caucasian, 12.0% Black/African American, 3.2% some other race, 1.5% two or more races, 0.8% Asian, and 0.4% Native American.



Pierce County’s population is 4.7% Hispanic/Latino, the City of Blackshear’s population is 3.2% Hispanic/Latino, the City of Offerman’s population is 9.8% Hispanic/Latino, and the City of Patterson’s population is 4.1% Hispanic/Latino.



Among persons aged 25 or older, in Pierce County, 21.0% have no high school diploma, 39.0% are high school graduates (includes equivalency) with no further education, 27.8% have an associate’s degree or some college, and 12.3% have a bachelor’s or higher degree. Among

persons aged 25 or older in the City of Blackshear, 21.5% have no high school diploma, 37.8% are high school graduates (includes equivalency) with no further education, 27.9% have an associate's degree or some college, and 12.0% have a bachelor's or higher degree. Among persons aged 25 or older in the City of Offerman, 23.5% have no high school diploma, 37.4% are high school graduates (includes equivalency) with no further education, 28.0% have an associate's degree or some college, and 11.1% have a bachelor's or higher degree. Among persons aged 25 or older in the City of Patterson, 23.9% have no high school diploma, 38.3% are high school graduates (includes equivalency) with no further education, 27.3% have an associate's degree or some college, and 10.4% have a bachelor's or higher degree.

The median household income in Pierce County is \$41,685, the median household income in the City of Blackshear is \$31,239, the median household income in the City of Offerman is \$37,083, and the median household income in the City of Patterson is \$27,394. An estimated 20.0% of Pierce County's population, 28.8% of the City of Blackshear's population, 25.1% of the City of Offerman's population, and 39.4% of the City of Patterson's population live below the federal poverty level. In Pierce County, 26.7% of persons under age 18 live below the poverty level, in the City of Blackshear 44.1% of persons under age 18 live below the poverty level, in the City of Offerman 68.8% of persons under age 18 live below the poverty level, and in the City of Patterson 50.2% of persons under age 18 live below the poverty level. Pierce County's estimated unemployment rate is 4.8%, the City of Blackshear's unemployment rate is 4.6%, the City of Offerman's unemployment rate is 4.0%, and the City of Patterson's unemployment rate is 5.7%. Among adults aged 16 and older, the rate of labor force participation is 54.8% in Pierce County, 39.8% in the City of Blackshear, 63.0% in the City of Offerman, and 53.1% in the City of Patterson.

*Data source: U.S. Census Bureau ([www.census.gov](http://www.census.gov))*



[Home](#) ~ [Community Profile](#) ~ [Demographics](#) ~ [Economy](#) ~ [Government](#) ~ [Sources](#)

## :: Pierce County ::

### Community Profile

<b>County Formed</b>	December 18, 1857
<b>County Seat</b>	Blackshear
<b>Incorporated Cities</b>	Blackshear and Patterson
<b>Total Area</b>	343.454491 square miles

**History** From its county population in 2000 of 15720 to its current population estimate of 18991, the county has experienced a growth change of 3271.

Pierce County was named for Franklin Pierce, the fourteenth president of the United States and an anti-abolitionist from New Hampshire. The county seat is Blackshear, which was named by the state legislature before the town was created. In 1858 those responsible for choosing a site decided to build the community around a depot constructed in 1857 by the Atlantic and Gulf Railroad.

The Civil War (1861-65) began soon after Pierce County was formed, with the result that many of its healthy young men went to war before they could join in the formation of communities. The few townspeople who remained in the county's 333 households found themselves hosts to a temporary Confederate prisoner-of-war camp from November 1864 through January 1865.

Nearly 5,000 Union captives were brought to Blackshear to prevent their release by Union general William T. Sherman as he marched through the state; the prisoners were subsequently sent on to Savannah for the same reason.

A Confederate prison camp in Pierce County held about 5,000 Union prisoners of war during the last months of the Civil War. Prisoners were transferred to Pierce County from Millen, and possibly Andersonville, so that Sherman's troops would not be able to free them on their march south.

**Points of Interest** The Brantley Brick Warehouse, dating from around 1900, is one of the oldest brick tobacco warehouses in Georgia and has been converted into retail and office space.

The Pierce County Jail, built in 1894, was added to the National Register of Historic Places in 1980. Used until the 1920s and garnering the nickname "Hanging Jail" because of its high tower, it was the third of the county's five jails.

The Heritage Museum, located in the Blackshear Depot, mounts displays pertaining to the lives of the early settlers in the county, with exhibitions on agriculture, church histories, and the Civil War. It also has a large photograph and document collection as well as a genealogical library.

**County** <http://www.piercecountyga.org/>

**Additional County Info** <http://www.georgiaplanning.com/CountyPortal/countyportal.asp?FIPS=13229>



Downtown Blackshear



Depot

Source: Georgia Department of Community Affairs, Georgia County Snapshots.  
<http://www.dca.state.ga.us/CountySnapshotsNet/countysnapshot.aspx?cicoid=1113113>

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

### Summary of changes:

Since the previous plan, the priority of hazards that may affect the community has been re-evaluated by the HMPUC. As a result, this plan includes the same 8 hazards that were covered in the previous plan, but in a different order of priority (shown in the table below).

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

Table 2.1: Overview of updates to Chapter 2

Through the use of GEMA Worksheet #1: Identify The Hazard (copy contained in Appendix D Section I), the FEMA-described methodology, and other factors, various data were collected (see Appendix A, Appendix D, and Appendix F). The Pierce County HMPUC listed all of the natural hazards that may occur. Afterward, they focused on the natural hazards commonly recognized as threats to the jurisdictions that were the most prevalent and most likely to occur and cause damages in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

Five of these hazards constitute an equal threat to all geographic areas of the community. Of the remaining three, flood, wildfire, and wind are the only spatially definable hazards chosen by Pierce County and the Cities of Blackshear, Offerman, and Patterson. Flood and wildfire are limited to somewhat smaller areas (see Chapter 2 and Appendix A, Sections IV and VII). Pierce County contains two different wind hazard zones (see Chapter 2, Section I).

Various wildfire maps and other information have been produced through the Georgia Forestry Commission’s “Community Wildfire Protection Plan” for Pierce County (see Appendix C).

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 significant hazards for Pierce County and the Cities of Blackshear, Offerman, and Patterson, based on past history and information contained in Appendix D, the GMIS Critical Facilities Inventory materials, and maps available in Appendix A of this plan.

## **Section I. Thunderstorms and Wind**

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

The threat of thunderstorms and wind has been chosen by the Pierce County HMPUC as the most likely hazard to occur and cause damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson, 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 frequency of events.

In addition, hazard maps generated by The GMIS Critical Facilities Inventory for wind (see Appendix A) were examined. The values on the map come from the predictive model of the GEMA database.

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

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

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

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

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

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

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

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

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

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

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

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

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

#### THE SUPERCELL STORM:

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

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

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

## Beaufort Wind Scale

### Developed in 1805 by Sir Francis Beaufort of England

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft., whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	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	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	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	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	Violent Storm	Exceptionally high (37-52 ft.) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced	

Source: NOAA

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

## **B. Profile of Thunderstorm and Wind Events, Frequency of Occurrences, Probability:**

The historic record for thunderstorms and wind is spotty at best, with many unreported or underreported events. All of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to thunderstorms and wind due to their unpredictability and random occurrences, but the effects, if any, are usually minimal.

Members of the Pierce County HMPUC have witnessed many unreported and underreported cases of minimal to severe thunderstorm and wind events occurring within Pierce County and the Cities of Blackshear, Offerman, and Patterson.

According to National Climatic Data Center information (NCDC), there have been 88 Thunderstorm/ Wind events reported in Pierce County between Jan 1, 1950 and Dec. 31, 2016. A total of 3 injuries were reported, all during a single event on July 15, 1991. Total property damage was reported as \$284,300. The events involved wind speeds between 40 and 61 knots.

The Historic Recurrence Interval is 0.75 years. This is a 133.33% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 2.1, the past 20-year frequency is 2.4, and the past 50-year frequency is 1.74 (see GEMA PDM Hazard Frequencies Table contained in Appendix D).

Since the previous Hazard Mitigation Plan was completed, there have been a total of 7 thunderstorm/wind events. No injuries were reported from these. Total property damage was reported as \$500,000.00.

All of Pierce County has the same design wind speed of 200 miles per hour for a 3-second gust, as determined by the American Society of Civil Engineers (ASCE). In addition, Pierce County is in a special Hurricane Susceptible Region (see Appendix A).

According to [www.gema.ga.gov](http://www.gema.ga.gov), the MEOW (Maximum Envelope of Wind) for a Georgia Coast Landfall for Pierce County ranges from 39-57 mph in the county (for a Category 1 hurricane with sustained winds of 75 mph and forward speed of 9 mph) to 109-126 mph in the eastern 1/3 of the county and 92-108 mph in the western 2/3 of the county (for a Category 4 hurricane with sustained winds of 144 mph and forward speed of 25 mph).

100% of Pierce County and the Cities of Blackshear, Offerman, and Patterson are included in some wind hazard area. As shown on the wind hazard map (see Appendix A), almost all of Pierce County, as well as all three incorporated cities, are in Hazard Area 3 (100-109 mph wind speed), and a small portion on the western side of the county is in Hazard Area 2 (90-99 mph wind speed). These wind speed areas correspond to basic wind speeds for a 3-second gust with a 50-year return interval, contained in the 2012 International Building Code.

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

The threat of thunderstorms and wind is a constant in Pierce County and the Cities of Blackshear, Offerman, and Patterson due to the unpredictability and random occurrence of the

hazard. When and where they will occur and the potential damage that they will cause is not easy to predict.

In GEMA Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to thunderstorms and wind. Property values were provided by the Pierce County Tax Assessor's Office using the most recent data available.

Approximately 100% of the Residential property (9,335 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$558,080,044. Also approximately 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (2,576 of 2,576) in Pierce County (which includes those property types in the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$480,609,419. The values are based on the most recent available tax roll data for Pierce County and the Cities of Blackshear, Offerman, and Patterson, provided by the Pierce County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 103 Critical Facilities and Infrastructure for Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected by this hazard. All 103 Critical Facilities are located in the 100-109 mph (hazard score of 3) wind area (see GMIS Critical Facilities Inventory Database Reports contained in Appendix F and Maps contained in Appendix A). The total value of these Critical Facilities is \$457,984,494, plus a content value of \$15,510,623.

Damage to crops is not taken into account in any of these figures. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000.

#### **E. Land Use and Development Trends Related to Thunderstorms and Wind:**

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County operates under the International Building Code. The County and Cities operate in compliance with the standards of the 2012 International Building Code. The County and all Cities have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

#### **F. Multi-Jurisdictional Thunderstorm and Wind Differences:**

All of Pierce County and the Cities of Blackshear, Offerman, and Patterson may be equally affected by thunderstorms and wind. No differences between the four jurisdictions in this regard have been determined.

**G. General Overall HRV Summary of Thunderstorms and Wind Events And their Impact On The Community:**

Thunderstorms and wind have the potential to cause damage at any place, at any time, throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. Of course, the cost of the damage and potential loss of life may be higher if thunderstorms and wind occur in populated areas and municipalities, as opposed to if they were to occur in more rural sections of Pierce County. A majority of the thunderstorms and wind that pass through the area, however, cause minimal to no damage.

The Pierce County HMPUC recognizes thunderstorms and wind as the most likely natural hazard to occur and cause damage. They have developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen thunderstorm and wind impact on Pierce County and the Cities of Blackshear, Offerman, and Patterson. These are contained in Chapter 3 Section I.

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. Tornado

### A. Identification of Hazard:

The threat of a tornado has been chosen by the Pierce County HMPUC as the second most likely hazard to occur and cause damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson, 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 a violently rotating column of air extending to the ground. Tornadoes are one of nature’s most destructive forces. Tornadoes can generate wind speeds of up to 318 miles per hour. A tornado’s damage path can be more than a mile wide and fifty miles in length.

**ENHANCED FUJITA WIND DAMAGE SCALE**

<b>Number</b>	<b>Wind Speed</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 mph 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 mph 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 mph 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 mph 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	Above 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.

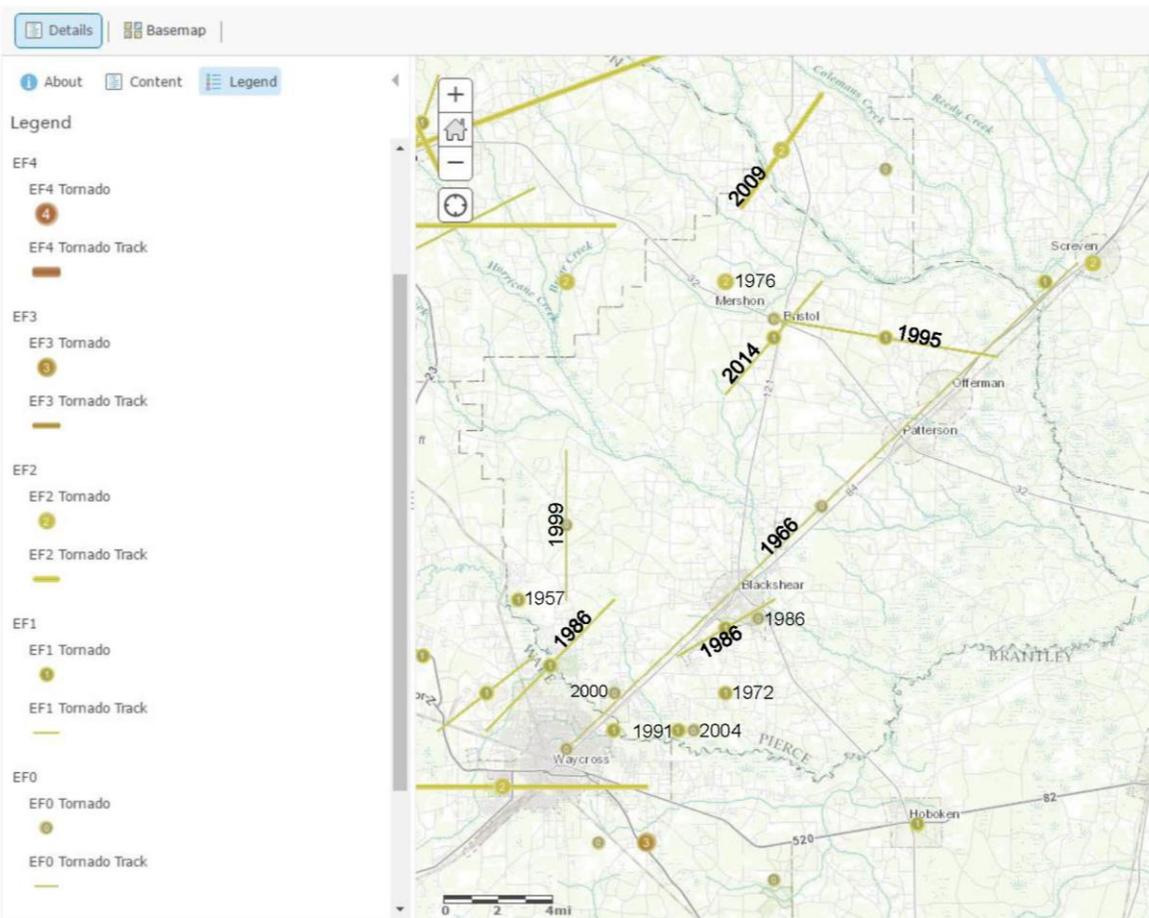
Tornadoes may occur at any time of year and may develop quickly. Tornadoes can occur due to inclement weather conditions, as a result of a passing front, or as part of thunderstorm or hurricane/tropical storm events. Tornado season in Georgia is typically from March through August. Tornadoes are most likely to occur between 3:00 p.m. and 9:00 p.m. Hurricane/tropical cyclone season (June 1 to November 30th) is another time during which tornadoes are more likely to occur. 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.

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

The historic record for tornadoes is spotty at best with many unreported or underreported tornado events. All of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to tornadoes due to their unpredictability and random occurrences. The effects of this hazard are usually substantial and occur with little to no warning. Members of the Pierce County HMPUC have witnessed many unreported and underreported cases of tornado events occurring within Pierce County and the Cities of Blackshear, Offerman, and Patterson.

According to National Climatic Data Center information (see Appendix F), there are 13 reports of tornadoes occurring in Pierce County (including the Cities) between 01/01/1950 and 12/31/2016. Of these, at least four cases were considered major events with costs exceeding \$250,000. Total injuries reported were 32. The total cost reported has been \$3,376,000. The record does not show any fatalities. 20 of the injuries during this timeframe were from a F-1 tornado that struck on March 3<sup>rd</sup>, 1991 in a limited area in the south of the County. Other significant tornadoes occurred on Feb. 10<sup>th</sup>, 1986 (F-1, 7 injuries, with a path of about 4 miles passing through part of the City of Blackshear), and Nov. 7<sup>th</sup>, 1995 (F-1, 4 injuries, with a path about 8 miles long passing from Bristol to near Offerman). The map below shows tornado tracks in Pierce County from 1966 to the present day.



Source: NOAA data via ArcGis; <https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=ae96a522f2824552b20cdf53a30d3c1>

The Historic Recurrence Interval is 5.08 years. This is a 19.70% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.3, the past 20-year frequency is 0.35, and the past 50-year frequency is 0.26 (See GEMA PDM Hazard Frequencies Table contained in Appendix D).

Since the previous plan was completed, one tornado event has occurred, in the community of Bristol, on Dec. 24, 2014. This was an EF-1 tornado. Property damage and injuries were both reported as zero.

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

The threat of tornadoes is a constant in Pierce County and the Cities of Blackshear, Offerman, and Patterson due to their unpredictability and random occurrence. In GEMA Worksheet 3A: Inventory of Assets, appearing in Appendix A, we estimate that all of Pierce County and the Cities of Blackshear, Offerman, and Patterson are equally vulnerable to tornadoes.

Approximately 100% of the Residential property (9,335 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$558,080,044. Also approximately 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (2,576 of 2,576) in Pierce County (which includes those property types in the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$480,609,419. The values are based on the most recent available tax roll data for Pierce County and the Cities of Blackshear, Offerman, and Patterson, provided by the Pierce County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 103 Critical Facilities and Infrastructure for Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected by this hazard. All 103 Critical Facilities are located in the 100-109 mph (hazard score of 3) wind area (see GMIS Critical Facilities Inventory Database Reports contained in Appendix F and Maps contained in Appendix A). The total value of these Critical Facilities is \$457,984,494, plus a content value of \$15,510,623.

Damage to crops is not taken into account in any of these figures. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000.

#### **E. Land Use and Development Trends Related to Tornadoes**

Typically, mobile/manufactured homes are most vulnerable to tornado damage. According to 2015 Census Bureau data, there are 2,463 mobile homes in Pierce County (30.9% of all housing units). This figure includes 60 mobile homes that are in the City of Offerman (31.1% of housing units) and 28 that are in the City of Patterson (7.7% of housing units). According to Census data, there are no mobile homes in the City of Blackshear. Countywide, the Census Bureau reports that 31.0% of occupied housing units are mobile homes.

The estimated population of average household size in Pierce County is 2.73 persons per household, according to 2015 Census Bureau estimates. Extrapolating this figure to the numbers of mobile homes, it is estimated that there are approximately 5,875 people residing in mobile homes countywide, which includes an estimated 126 people in the City of Offerman, 11 people in the City of Patterson, and none in the City of Blackshear.

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County operates under the International

Building Code. The County and Cities operate in compliance with the standards of the 2012 International Building Code. The County and all Cities have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

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

According to Census data, there is a higher prevalence of mobile homes in unincorporated Pierce County and in the City of Offerman. Because mobile homes are disproportionately affected by tornado damage, it is expected that these jurisdictions would be more vulnerable to tornadoes than the Cities of Blackshear and Patterson, which have few or no mobile homes.

Tornadoes can inflict severe damage not only on mobile homes but on all types of homes and buildings. Generally speaking, due to the higher population density within the Cities of Blackshear, Offerman, and Patterson, a direct hit from a powerful tornado in those areas would likely cause more damage and casualties than in the less populous areas of unincorporated Pierce County.

#### **G. General Overall HRV Summary of Tornado Events And their Impact On The Community:**

Tornadoes have the potential to cause damage at any place, at any time, throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. The cost of the damage and potential loss of life may be higher if the tornado occurs in a more densely populated areas as opposed to a sparsely populated or unpopulated area. Most tornadoes do cause substantial damage.

The Pierce County HMPUC recognizes tornadoes as the second most likely natural hazard to occur and cause damage. They have developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impact of tornadoes on Pierce County and the Cities of Blackshear, Offerman, and Patterson. These are contained in Chapter 3.

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

## Section III. Hail

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

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

Hail is precipitation in the form of lumps of ice that form in some storms. They are usually round and vary from the size of a grain of millet all the way up to grapefruit size. Hailstones generally form in thunderstorms between currents of rising air called the updraft and the current of air descending toward the ground called the downdraft. Large hailstones indicate strong updrafts in storms. The larger the hail, the stronger the updraft needed to hold it aloft in the storm.

In storms that cause tornadoes, hail often falls directly to the northeast or east of the path of the tornado. The strong updraft is associated with the part of the storm that produces the tornado. Fortunately, hail very rarely kills anyone. However, a couple of dozen people are injured by hailstones each year. The best way to keep safe during a hailstorm is to seek shelter immediately.

Hailstorms cause an enormous amount of damage to property and crops across the U.S. every year. In just two years (1993 and 1994), hail caused over \$500 million in damages. In May 1995, a severe thunderstorm struck the Dallas/Fort Worth metro area, causing between 1 and 2 billion dollars' worth of damage, much of it due to hail and flooding.

Individual hail events, although they can be destructive, tend to be relatively short in duration. They can occur at any time of year, but are more likely to occur during tornado season in Georgia, which is typically from March through August, or during hurricane/tropical storm season, which is typically June 1 through November 30.

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

The historic record for hail is spotty at best, with many unreported or underreported hail events. All of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to hail due to its unpredictability and random occurrence, but the damage effects, if any, vary with the storm. Members of the Pierce County HMPUC have witnessed many unreported and underreported hail events occurring in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

According to National Climatic Data Center information (see Appendix F), there were 33 reports of Hail occurring in Pierce County (including the Cities) between 01/01/1950 and 12/31/2016. The total cost reported has been \$0. Total injuries were reported as zero. Sizes ranged between 0.75 inches and 1.75 inches. The Historic Recurrence Interval is 2.00 years. This is a 50.00% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 1.1, the 20-

year frequency is 1.45, and the past 50-year frequency is 0.66 (See the GEMA PDM Hazard Frequency Table contained in Appendix D).

Since the previous Hazard Mitigation Plan was adopted, there have not been any recorded hail events in the community. The last hail event, according to NCDC data, was on June 4<sup>th</sup>, 2012, shortly before the adoption of the previous plan.

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

The threat of hail is a constant in Pierce County and the Cities of Blackshear, Offerman, and Patterson due to the unpredictability and the random occurrence of the hazard, however it may occur more frequently during tornado season (March through August) or during hurricane/tropical storm season (June 1 through November 30). When and where it will occur and the potential damage that it will cause is not easy to predict. In addition, hail may move randomly from place to place and miss entire areas completely.

Approximately 100% of the Residential property (9,335 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$558,080,044. Also approximately 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (2,576 of 2,576) in Pierce County (which includes those property types in the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$480,609,419. The values are based on the most recent available tax roll data for Pierce County and the Cities of Blackshear, Offerman, and Patterson, provided by the Pierce County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 103 Critical Facilities and Infrastructure for Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected by this hazard (see GMIS Critical Facilities Inventory Database Reports contained in Appendix F and Maps contained in Appendix A). The total value of these Critical Facilities is \$457,984,494, plus a content value of \$15,510,623.

Damage to crops is not taken into account in any of these figures. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000. Agricultural production is an important sector of the Pierce County economy. This economic asset is particularly vulnerable to hail due to the potential reduction in crop harvest that a destructive hail storm could cause.

### **E. Land Use and Development Trends Related to Hail:**

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place. The County and Cities all have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

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

All of Pierce County and the Cities of Blackshear, Offerman, and Patterson have an equal chance of being affected by hail. No differences between the four jurisdictions have been identified at this time.

#### **G. General Overall HRV Summary of Hail Events And their Impact On The Community:**

Hail has the potential to cause damage at any place, at any time, throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. The cost of the damage will vary depending on the size and quantity of hailstones and where they land. Damage to vehicles (especially roof dents) is one of the most widespread effects of major hailstorms; injuries to people are rarer but not unheard of. The damage effects of hail, if any, vary with the storm.

The Pierce County HMPUC recognizes hail as the third most likely natural hazard to occur and cause damage. They developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen hail impacts on Pierce County and the Cities of Blackshear, Offerman, and Patterson. These are contained in Chapter 3, Section III.

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. Flood**

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

The threat of a flood has been chosen by the Pierce County HMPUC as the fourth most likely hazard to occur and cause damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson 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 frequency of events. For further information, see the HAZUS Report in Appendix G.

In addition, hazard maps generated by the GMIS Critical Facilities Inventory for Flood (see Appendix A) were examined. Complete inventory information is contained at <https://www.itos.uga.edu/gema>. These map values come from the predicted model of the GEMA database.

Floods may occur at any time, in many cases without warning, and may cause widespread destruction. Drainage ditches and canals that are improperly cleaned or maintained may exacerbate flooding, causing homeowners to experience hours, if not days, of water-filled yards as well as water damage.

There are several different kinds of floods, three of which can occur in Georgia: River floods, coastal floods, and urban floods. Most flash floods are caused by rain from slow moving thunderstorms, storms repeatedly moving over the same area, or heavy rains from hurricane/tropical storm events.

Flash floods are the number one weather-related killer in the United States, and flooding accounts for the majority of natural hazard damages. Six inches of fast moving water can knock a person off of his or her feet. Two feet of water can float a full-sized automobile. More than half of flood victims are in vehicles that moving water sweeps away.

Pierce County and the Cities of Blackshear, Offerman, and Patterson are all members of the National Flood Insurance Program. All local governments have some part of their jurisdictions located within a floodplain. As of late 2017, all jurisdictions are in compliance with NFIP requirements. All jurisdictions intend to remain in compliance by enforcing flood plain ordinances which prohibit or severely limit development in floodplains. The Pierce County Development Code, which applies to the County as well as all the incorporated Cities, defines a Flood Hazard District (Section 914) in which development is limited and additional restrictions are imposed.

Pierce County and the Cities of Blackshear, Offerman, and Patterson do not participate in the Community Rating System (CRS) program. As of October 2016, they were not eligible, according to FEMA (<http://www.fema.gov/library/viewRecord.do?id=3629>).

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

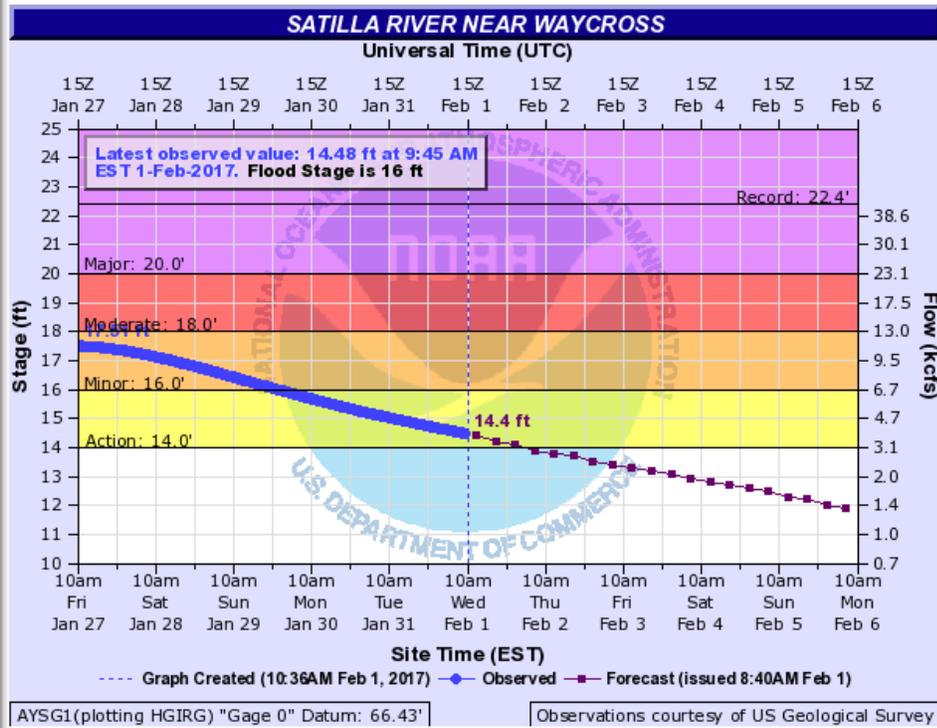
The historic record for floods is spotty at best, with many unreported or underreported flood events. Members of the Pierce County HMPUC have witnessed many unreported and underreported cases of minor to major flooding occurring within Pierce County and the Cities of Blackshear, Offerman, and Patterson, some lasting for days at a time, following large rain events. However, only certain areas of Pierce County and the Cities of Blackshear, Offerman, and Patterson are usually vulnerable to major flooding.

Many of these major flooding areas are located on or adjacent to the Satilla River, Big Satilla Creek, the Little Satilla River, and the Alabaha River, Hurricane Creek, as well as numerous smaller creeks and streams and low-lying areas in the eastern part of the county. In the City of Blackshear, certain areas surrounding the Alabaha River are subject to flooding.

Base flood elevations are provided by FEMA in their floodplain maps. Within Pierce County, the base flood elevations range between 64 feet above sea level and 93 feet above sea level. The charts on the following pages, generated on the NOAA website ([water.weather.gov](http://water.weather.gov)), show flood stages and recent and historic crests for (1) the Satilla River near Waycross, (2) the Alabaha River at Georgia Highway 203 near Blackshear, and (3) the Little Satilla River near Offerman. The record crest is 22.4 feet on the Satilla River on April 4, 1948.

According to the National Climatic Data Center (NCDC), there are 5 Flood events reported (including Flash Flood) occurring in Pierce County between Jan 1, 1950 and Dec. 31, 2016. Three events were countywide, one affected the City of Blackshear, and one near the unincorporated community of Owen in Pierce County. Three of these events were Flood events and two were Flash Flood events. The estimated total property damage from these events was \$35,000. Total injuries were reported as zero.

Since the previous plan was completed, 2 flood events have taken place, both in 2016, associated with Hurricane Hermine in September 2016 and Hurricane Matthew in October 2016. These two events are not currently included in the NCDC database. Adding these two additional events to those that are recorded in the NCDC database, we find with the best information available that there have been a total of 7 flood events between Jan 1, 1950 and Dec. 31, 2016. The Historic Recurrence Interval is 9.43 years. This is a 10.61% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.4, the past 20-year frequency is 0.35, and the past 50-year frequency is 0.14.



- Flood Categories (in feet)**
- Major Flood Stage: 20
  - Moderate Flood Stage: 18
  - Flood Stage: 16
  - Action Stage: 14

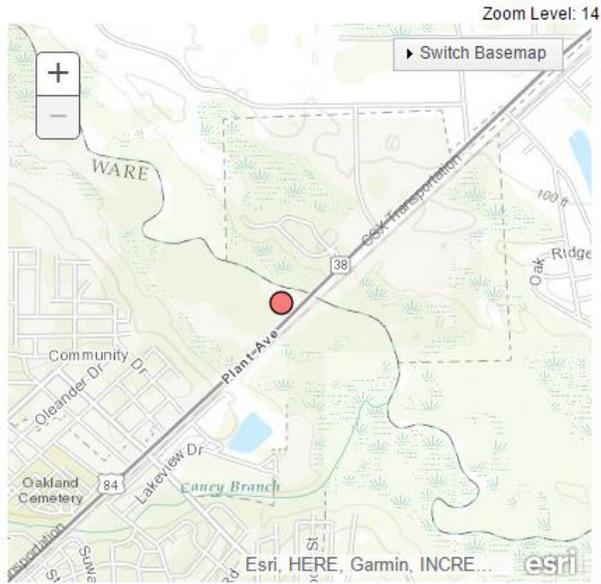
- Historic Crests**
- (1) 22.40 ft on 04/04/1948
  - (2) 22.36 ft on 04/05/2009
  - (3) 22.20 ft on 05/01/1928
  - (4) 21.52 ft on 03/06/1991
  - (5) 20.29 ft on 03/10/1984
  - (6) 20.23 ft on 03/12/1998
  - (7) 20.10 ft on 12/08/1964
  - (8) 20.03 ft on 02/13/1986
  - (9) 19.77 ft on 02/02/1991
  - (10) 19.72 ft on 04/08/1960
- [Show More Historic Crests](#)

(P): Preliminary values subject to further review.

- Recent Crests**
- (1) 17.53 ft on 01/27/2017
  - (2) 17.39 ft on 04/06/2016
  - (3) 18.43 ft on 02/08/2016
  - (4) 15.67 ft on 03/03/2015
  - (5) 17.11 ft on 12/28/2014
  - (6) 17.68 ft on 04/23/2014
  - (7) 16.30 ft on 04/12/2014
  - (8) 15.54 ft on 03/22/2014
  - (9) 16.41 ft on 08/22/2013
  - (10) 16.94 ft on 07/10/2013
- [Show More Recent Crests](#)

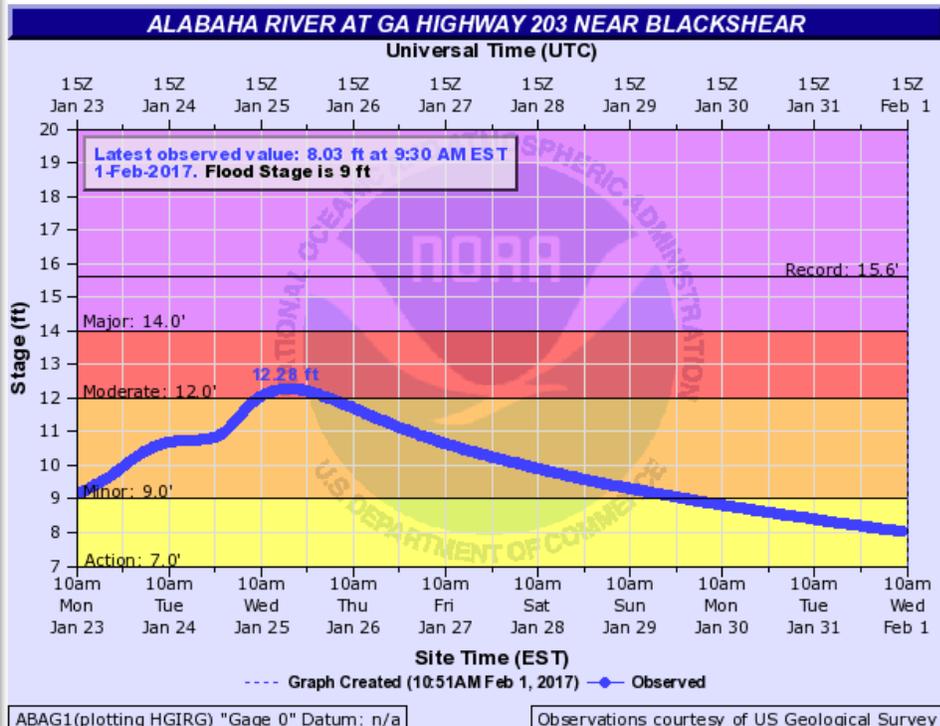
(P): Preliminary values subject to further review.

- Low Water Records**
- (1) 3.72 ft on 07/26/2008
  - (2) 3.74 ft on 09/17/2011
  - (3) 3.98 ft on 11/26/2010
  - (4) 3.99 ft on 12/14/2007
  - (5) 4.03 ft on 11/25/2012
- [Show More Low Water Records](#)



**Gauge Location** ●      [Disclaimer](#)

Latitude/Longitude Disclaimer: The gauge location shown in the above map is the approximate location based on the latitude/longitude coordinates provided to the NWS by the gauge owner.



**Flood Categories (in feet)**

- Major Flood Stage: 14
- Moderate Flood Stage: 12
- Flood Stage: 9
- Action Stage: 7

**Historic Crests**

- (1) 15.60 ft on 04/05/1948
  - (2) 14.30 ft on 03/19/1929
  - (3) 12.36 ft on 09/26/1953
  - (4) 12.28 ft on 01/25/2017
  - (5) 11.83 ft on 08/21/2013
  - (6) 11.77 ft on 02/27/2013
  - (7) 11.63 ft on 02/07/2016
  - (8) 10.77 ft on 01/26/2010
  - (9) 10.76 ft on 12/28/2014
  - (10) 10.71 ft on 04/20/2014
- [Show More Historic Crests](#)

(P): Preliminary values subject to further review.

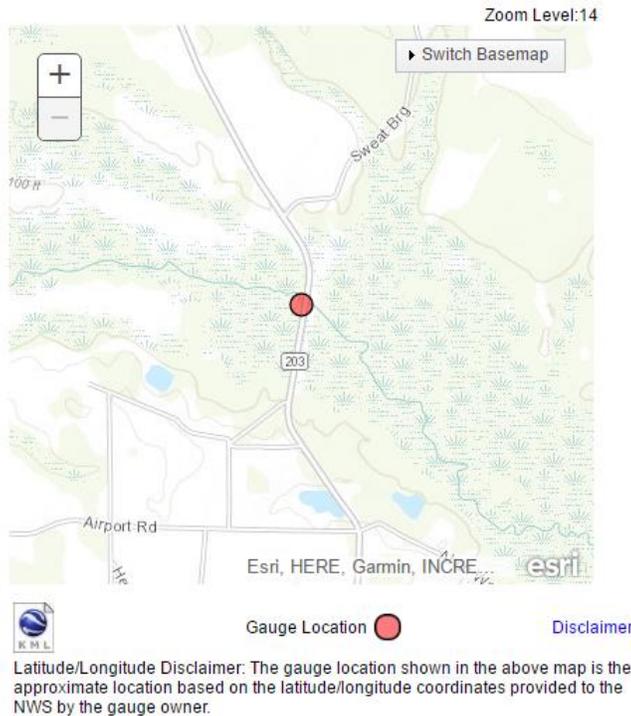
**Recent Crests**

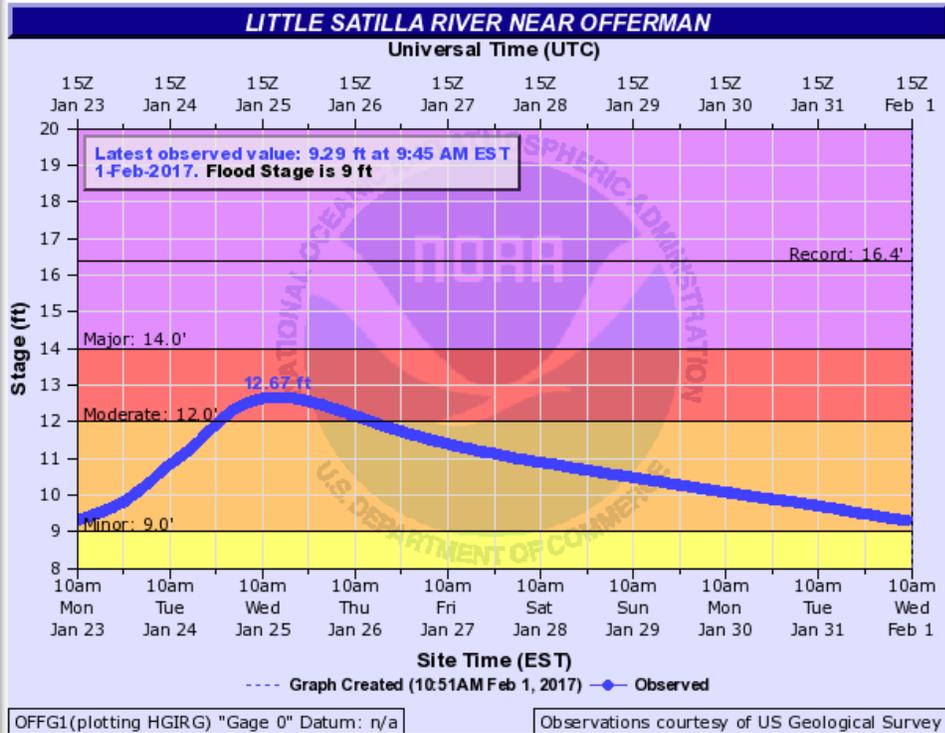
- (1) 12.28 ft on 01/25/2017
  - (2) 10.36 ft on 04/06/2016
  - (3) 10.19 ft on 04/03/2016
  - (4) 11.63 ft on 02/07/2016
  - (5) 9.89 ft on 03/02/2015
  - (6) 9.05 ft on 01/29/2015
  - (7) 9.07 ft on 01/25/2015
  - (8) 10.76 ft on 12/28/2014
  - (9) 9.03 ft on 11/27/2014
  - (10) 7.46 ft on 09/17/2014
- [Show More Recent Crests](#)

(P): Preliminary values subject to further review.

**Low Water Records**

- (1) 1.16 ft on 11/26/2010
  - (2) 1.18 ft on 08/01/2014
  - (3) 1.21 ft on 12/10/2010
  - (4) 1.23 ft on 10/27/2010
  - (5) 1.24 ft on 07/22/2014
- [Show More Low Water Records](#)





**Flood Categories (in feet)**

Major Flood Stage:	14
Moderate Flood Stage:	12
Flood Stage:	9
Action Stage:	7

- Historic Crests**
- 16.40 ft on 04/06/1948
  - 14.50 ft on 09/29/1953
  - 14.49 ft on 04/04/2009
  - 13.76 ft on 03/06/1991
  - 13.47 ft on 09/08/2004
  - 13.40 ft on 04/18/1961
  - 13.30 ft on 03/08/1984 (P)
  - 13.25 ft on 01/29/1984
  - 13.25 ft on 05/15/1979
  - 13.20 ft on 12/07/1964
- [Show More Historic Crests](#)

(P): Preliminary values subject to further review.

- Recent Crests**
- 12.67 ft on 01/25/2017
  - 10.98 ft on 04/06/2016
  - 10.57 ft on 04/04/2016
  - 12.13 ft on 02/07/2016
  - 10.46 ft on 06/12/2015
  - 10.25 ft on 05/04/2015
  - 10.06 ft on 04/22/2015
  - 10.57 ft on 04/16/2015
  - 10.18 ft on 04/15/2015
  - 10.91 ft on 03/02/2015
- [Show More Recent Crests](#)

(P): Preliminary values subject to further review.

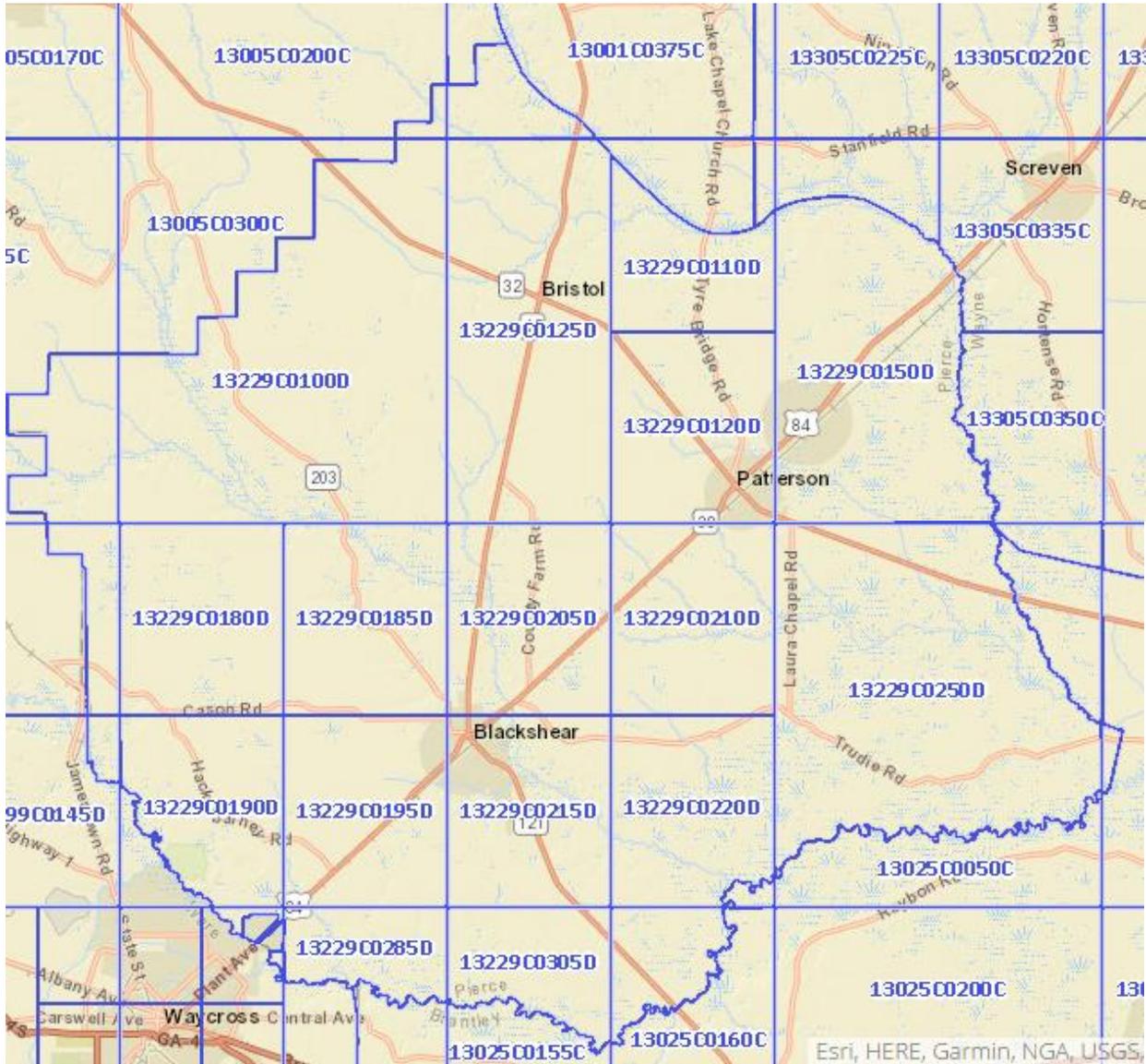
- Low Water Records**
- 1.54 ft on 10/02/2008
  - 1.54 ft on 06/03/2011
  - 1.58 ft on 11/22/2010



Gauge Location [Disclaimer](#)

Latitude/Longitude Disclaimer: The gauge location shown in the above map is the approximate location based on the latitude/longitude coordinates provided to the NWS by the gauge owner.

Flood Insurance Rate Maps (FIRMs) in effect for Pierce County and the Cities of Blackshear, Offerman, and Patterson include maps 13229C0100D, 13229C0125D, 13229C0110D, 13229C0120D, 13229C0150D, 13229C0180D, 13229C0185D, 13229C0205D, 13229C0210D, 13229C0250D, 13229C0190D, 13229C0195D, 13229C0215D, 13229C0220D, 13229C0285D, and 13229C0205D (effective Sept. 25, 2009; see index map below).



Flood Insurance Rate Maps for Pierce County and the Cities of Blackshear, Offerman, and Patterson. Data Source: FEMA website, msc.fema.gov.

The GMIS Critical Facilities Inventory Database Reports contained in Appendix F show that certain areas of Pierce County and the Cities of Blackshear, Offerman, and Patterson fall within the Flood Hazard Area. Complete inventory information is contained at <https://www.itos.uga.edu/gema>. Since the previous plan was completed, no changes have occurred that would affect the community's overall vulnerability to this hazard.

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

To determine what assets in Pierce County and the Cities of Blackshear, Offerman, and Patterson are potentially exposed to flooding, a GIS analysis was conducted using FEMA flood zone data, tax roll data from the Pierce County Tax Assessor's Office, and Critical Facilities data housed in the GMIS database (corresponding to the Critical Facilities Inventory which is provided in Appendix F). Approximately 20.9 percent of the total area of Pierce County (45,800 acres) is within a flood zone (17.2% in the A zone, 3.6% in the AE zone, and 0.1% in the 0.2 percent annual chance flood hazard zone). Approximately 8.5 percent of the City of Blackshear, 8.1% of the City of Offerman, and 5.7% of the City of Patterson are within a flood zone.

Despite the delineation of these flood zones, exactly when and where floods will occur and the potential damage that they will cause cannot be predicted with any high level of confidence due to the variation in the strength levels of the causes that may trigger the occurrence.

Approximately 5.0% of the Residential property (465 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) lies at least partly within a flood zone and therefore may be affected, with a total value of \$35,287,341. Also, approximately 13.4% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (344 of 2,576) in Pierce County (which includes those property types in the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$77,648,219. The values are based on the most recent available tax roll data for Pierce County and the Cities of Blackshear, Offerman, and Patterson, provided by the Pierce County Tax Assessor's Office.

According to the inventory database reports and maps, 3 of the 103 Critical Facilities and Infrastructure for Pierce County (including the Cities of Blackshear, Offerman, and Patterson) are located in a Flood Hazard Area (all with a Hazard Score of 3). The total value of these Critical Facilities is \$90,000, plus a content value of \$300,000.

Damage to crops is not taken into account in any of these figures. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000.

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

The GMIS reports do not list any Repetitive Loss/NFIP properties in Pierce County or the Cities of Blackshear, Offerman, and Patterson.

### **E. Land Use and Development Trends Related to Floods:**

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County operates under the International Building Code. The County and Cities operate in compliance with the standards of the 2012 International Building Code. The County and all Cities have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

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

All local governments have some part of their jurisdiction located within a floodplain. As mentioned above, according to GIS analysis conducted by SGRC Staff, 20.9 percent of the total area of Pierce County (45,800 acres) is within a flood zone (17.2% in Zone A, 3.6% in Zone AE, and 0.1% in the 0.2 percent annual chance flood hazard zone). Approximately 8.5 percent of the City of Blackshear, 8.1% of the City of Offerman, and 5.7% of the City of Patterson are within a flood zone.

Pierce County has a Flood Hazard District (section 914 of the Pierce County Development Code). This district was created to ensure continuance of natural floodplains, streams, channels, and natural protective barriers which accommodate floodwaters. According to the GMIS database, there are no Repetitive Loss properties in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

#### **G. General Overall HRV Summary of Flood Events And their Impact On the Community:**

Floods have the potential to cause damage in any flood-prone area, at any time throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. Of course, the cost of the damage and potential loss of life may be higher if the Flood were to occur in more densely populated areas. Damage caused by flooding can vary depending on the amount of flooding and severity, among other factors.

The Pierce County HMPUC recognizes Floods as the fourth most likely natural hazard to occur and cause damage. They have developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen Floods impact on Pierce County and the Cities of Blackshear, Offerman, and Patterson. These are contained in Chapter 3, Section IV.

Pierce County and the Cities of Blackshear, Offerman, and Patterson completed a comprehensive mapping of the community's environmentally sensitive areas and performed a historic resource survey within the community. Since the previous plan was approved, there are no new changes that would increase or decrease the community's overall vulnerability to this hazard.

## **Section V. Drought**

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

The threat of a drought has been chosen by the Pierce County HMPUC as the fifth most likely hazard to occur and cause damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson, 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 frequency of events. In addition, hazard maps generated by The GMIS Critical Facilities Inventory were examined.

What is known as drought is usually the result of several factors that come together to gradually increase dry conditions in the community until they reach a severe and extreme level. These factors could be related to weather patterns, lack of rainfall, wind conditions, lack of water from rivers and upstream areas, or other factors.

Although drought is usually associated with the summer months due to its more visible effects, it can occur at any time and its effects can last throughout the year and continue from year to year. These effects may range from agricultural losses, to increased wildfire and fire risk, to lack of water for citizens and firefighting, to increased flooding risk (because dry land can be less absorbent of rainfall), as well as 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 Pierce County and the City of Offerman (which does not have its own water system) have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time.

The *Palmer Z Index* measures short-term drought on a monthly scale. The *Palmer Crop Moisture Index (CMI)* measures short-term drought on a weekly scale and is used to quantify drought's impacts on agriculture during the growing season.

The *Palmer Drought Severity Index (PDSI)* (known operationally as the *Palmer Drought Index (PDI)*) attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns plus the cumulative patterns of previous months. Since weather patterns can change practically overnight from a long-term drought pattern to a long-term wet pattern, the PDSI (PDI) can respond fairly rapidly.

The hydrological impacts of drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop and it takes longer to recover from them. The *Palmer Hydrological Drought Index (PHDI)*, another long-term drought index, was developed to quantify these hydrological effects. The PHDI responds more slowly to changing conditions than the PDSI (PDI).

The U.S. Drought Monitor (<http://droughtmonitor.unl.edu>) is produced in partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration and has been used to determine some of information in this section.

The U.S. Drought Monitor utilizes a variety of sources, including the Palmer Index(s), to rate an area as D0 (Abnormally Dry), D1 (Moderate Drought), D2 (Severe Drought), D3 (Extreme Drought) and D4 (Exceptional Drought). Any area rated at D0 or above was considered to be in a drought for the purposes of this plan.

There have been cases in Pierce County and the Cities of Blackshear, Offerman, and Patterson where some level of drought conditions have persisted for years in a row.

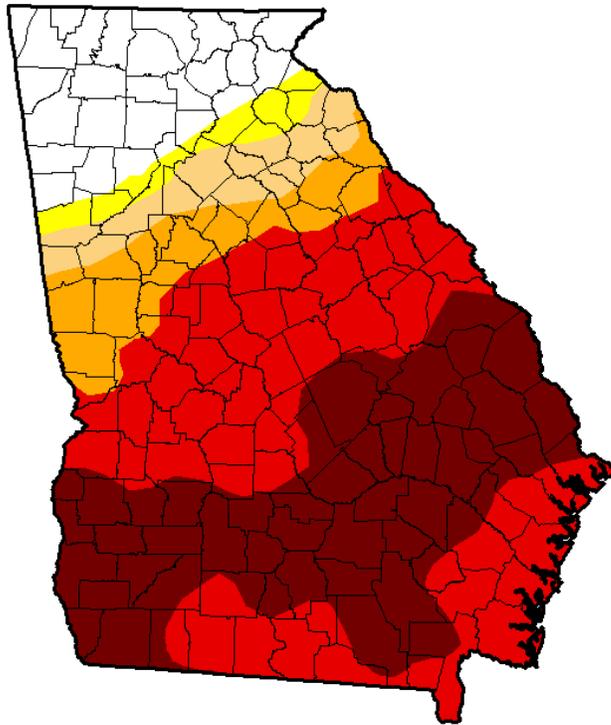
### **B. Profile of Drought Events, Frequency of Occurrences, Probability:**

The historic record for drought is spotty at best, especially prior to the year 2000, with many unreported or underreported drought events. All of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to drought due its unpredictability and widespread coverage. The effects vary depending on the severity of the drought and the length of time that it has occurred. Members of the Pierce County HMPUC have witnessed many unreported and underreported cases of drought events occurring within Pierce County and the Cities of Blackshear, Offerman, and Patterson.

According to National Climatic Data Center information (see Appendix F), there were zero reports of Drought occurring in Pierce County (including the Cities) between 01/01/1950 and 12/31/2016. However, the U.S. Drought Monitor (<http://droughtmonitor.unl.edu>) offers more complete data, reporting that some level of drought occurred in Pierce County in the majority of years between 2000 and 2016. While most of these events were D0 (Abnormally Dry) and D1 (Moderate Drought), there were D4 events (Exceptional Drought) reported in January and February of 2012, as well as D3 events (Extreme Drought) in 2000, 2002, 2007, 2011, and 2012, as well as many years with some instance of D2 events (Severe Drought). The map below (source: U.S. Drought Monitor, <http://droughtmonitor.unl.edu>) shows the extent of drought during one of the most recent Exceptional Drought events, in February 2012. As can be seen in the map, approximately half of Pierce County was under D4 (Exceptional Drought) conditions, and the remainder of the County was under D3 (Extreme Drought) conditions.

# U.S. Drought Monitor Georgia

**February 14, 2012**  
(Released Thursday, Feb. 16, 2012)  
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	13.88	86.12	83.12	77.55	69.01	34.06
<b>Last Week</b> <i>2/7/2012</i>	14.41	85.59	83.07	77.55	68.97	29.54
<b>3 Months Ago</b> <i>11/15/2011</i>	4.77	95.23	91.50	85.16	64.61	0.00
<b>Start of Calendar Year</b> <i>1/3/2012</i>	12.07	87.93	85.36	81.00	63.92	0.00
<b>Start of Water Year</b> <i>9/27/2011</i>	5.62	94.38	90.72	85.56	78.76	0.00
<b>One Year Ago</b> <i>2/15/2011</i>	0.00	100.00	76.22	21.87	6.18	0.00

*Intensity:*

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

**Author:**

*Richard Tinker  
CPC/NOAA/NWS/NCEP*



<http://droughtmonitor.unl.edu/>

**Drought map for Feb. 14, 2012 (source: U.S. Drought Monitor)**

According to US Drought Monitor data, a total of 480 drought events (D0, D1, D2, D3, and D4) are recorded for the 2000–2016 timeframe. The Historic Recurrence Interval is 0.03 years. This is a 3,000% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 29.0, the past 20-year frequency is 24.0, and the past 50-year frequency is 9.6. (However, it should be noted that no drought events are recorded prior to the year 2000 in the available data.) For further information, see Appendix A and Appendix F.

Since the previous Hazard Mitigation Plan was adopted, there have been an estimated 98 drought events in Pierce County. Four of these were D2 events, 27 were D1 events, and 67 were D0 events.

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

The threat of a drought is a constant in Pierce County and the Cities of Blackshear, Offerman, and Patterson due to the unpredictability and widespread coverage of the hazard. Drought events tend to be area-wide and will likely not be limited to certain areas of the community, although the effect on residents will depend on the infrastructure and services available (for example, the depth of wells).

Approximately 100% of the Residential property (9,335 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$558,080,044. Also approximately 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (2,576 of 2,576) in Pierce County (which includes those property types in the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$480,609,419. The values are based on the most recent available tax roll data for Pierce County and the Cities of Blackshear, Offerman, and Patterson, provided by the Pierce County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 103 Critical Facilities and Infrastructure for Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected by this hazard (see GMIS Critical Facilities Inventory Database Reports contained in Appendix F and Maps contained in Appendix A). The total value of these Critical Facilities is \$457,984,494, plus a content value of \$15,510,623.

However, it should be noted that damage to buildings and other structures is not usually the most significant effect seen from drought. As described above, the major hazards from drought are ensuing wildfires, water shortages, and crop damage. Damage to crops is not taken into account in any of these figures. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000. Agricultural production is an important sector of the Pierce County economy. This economic asset is particularly vulnerable to drought due to the potential reduction in crop harvest that a drought could cause.

#### **E. Land Use and Development Trends Related to Drought:**

The dry conditions caused by drought can be conducive to a further hazard covered in this Plan, namely wildfire. During periods of drought, the community must be on high alert for wildfire hazards. This hazard is exacerbated due to the fact that new construction in Pierce County and the Cities of Blackshear, Offerman, and Patterson continues to take place in areas bordered by pine tree production and other naturally growing trees. These homeowners enjoy the beauty of the environment, but face the real danger of wildfires. This is not a new phenomenon, but has always been the case. The trend is for this is to continue.

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County operates under the International Building Code. The County and Cities operate in compliance with the standards of the 2012

International Building Code. The County and all Cities have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

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

Due to the area-wide nature of drought events, all of Pierce County and the Cities of Blackshear, Offerman, and Patterson are at equal risk. However, households in unincorporated Pierce County and the City of Offerman are served by well water, while the Cities of Blackshear and Patterson operate their own water and sewer systems. Due to the capacity of the municipal water systems, it is predicted that households in the Cities of Blackshear and Patterson will be better protected from drought-related water shortages than households in the unincorporated county and the City of Offerman, which must rely on their own local wells for water. Data regarding the depth of individual wells are not currently available.

#### **G. General Overall HRV Summary of Drought Events And their Impact On The Community:**

Drought has the potential to cause damage at any place, at any time, throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. The cost of the damage may be higher if the drought occurs at certain critical times of the year that would exacerbate its impact on agricultural production.

The Pierce County HMPUC recognizes drought as the fifth most likely natural hazard to occur and cause damage. They have developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen the impact of drought on Pierce County and the Cities of Blackshear, Offerman, and Patterson. These are contained in Chapter 3. Due to continued population growth, increased water usage has the potential to put a strain on the municipal water systems and on public and private wells, which can become dry under drought conditions.

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. Severe Winter Storm**

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

The threat of a severe winter storm has been chosen by the Pierce County HMPUC as the sixth most likely hazard to occur and cause damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson, 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 frequency of events.

Although this natural hazard did not rank high in any dataset of occurrences or damages happening in Pierce County or the Cities of Blackshear, Offerman, and Patterson, undocumented personal accounts of the Pierce County HMPUC members rated this hazard as likely to occur and cause damage. In addition, because of the infrequency of severe winter storms in this region, residents of Pierce County and the Cities of Blackshear, Offerman, and Patterson 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. 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, and (as mentioned above) crop damage and vehicle crashes.

### **B. Profile of Severe Winter Storm Events, Frequency of Occurrences, Probability:**

The historic record for severe winter storms is spotty at best, with many unreported or underreported events. All of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to severe winter storms, but the effects of most such events are minimal. Severe winter storms can occur at any time during winter months, usually with some warning being given in advance.

According to National Climatic Data Center information (see Appendix F), there are 2 reports of a Severe Winter Storms (Frost/Freeze, Cold/Wind Chill, Winter Weather, Winter Storm, Blizzard, Heavy Snow, Ice Storm, and Sleet) occurring in Pierce County (including the Cities, as part of area wide events) between 01/01/1950 and 12/31/2016. The total cost reported has been \$5,000,000.00 in crop damage. Total injuries were reported as zero. Additional reports from the local community include 4 severe winter storm events that are not included in the NCDC database. During a storm event that affected much of Georgia in January 2014, small amounts of sleet and ice and snow accumulation (less than 1/8 inch) were reported in Pierce County. Slippery road conditions were reported as well as isolated power outages. Temperatures were in the low 20s. In total, according to the best information available, there have been 6 severe winter storm events between 01/01/1950 and 12/31/2016. The Historic Recurrence Interval is 11.0 years. This is a 9.09% Historic Frequency Chance per year. The past

10-year Record Frequency Per Year is 0.6, the past 20-year frequency is 0.3, and the past 50-year frequency is 0.12 (see GEMA PDM Hazard Frequencies Table contained in Appendix D).

Since the previous Hazard Mitigation Plan was completed, there has only been one severe winter storm event. This event occurred on Jan. 29, 2014.

### **C./D.: Inventory of Assets Exposed and Potential Loss to Severe Winter Storms:**

Approximately 100% of the Residential property (9,335 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$558,080,044. Also approximately 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (2,576 of 2,576) in Pierce County (which includes those property types in the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$480,609,419. The values are based on the most recent available tax roll data for Pierce County and the Cities of Blackshear, Offerman, and Patterson, provided by the Pierce County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 103 Critical Facilities and Infrastructure for Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected by this hazard. All 103 Critical Facilities are located in the 100-109 mph (hazard score of 3) wind area (see GMIS Critical Facilities Inventory Database Reports contained in Appendix F and Maps contained in Appendix A). The total value of these Critical Facilities is \$457,984,494, plus a content value of \$15,510,623.

However, it should be noted that damage to buildings and other structures is not usually the most significant effect seen from severe winter storms. As described above, the major hazards from severe winter storms are vehicle crashes and crop damage, as well as frozen/burst water pipes, power outages, overtaxed emergency services, and roadway blockages. It is very rare for Pierce County to see any significant accumulation of snow or ice; however, some severe winter storms in past have been accompanied by .75 inch to .88 inch size hail. The community's main vulnerability is economic, since the blueberry crop is a very important part of the local economy and can easily be damaged by severe winter storms.

Damage to crops is not taken into account in the above estimates. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000.

### **E. Land Use and Development Trends Related to Winter Storms:**

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County operates under the International Building Code. The County and Cities operate in compliance with the standards of the 2012 International Building Code. The County and all Cities have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

#### **F. Multi-Jurisdictional Severe Winter Storm Differences:**

All of Pierce County and the Cities of Blackshear, Offerman, and Patterson have an equal chance of being affected by severe winter storms. In the event of icy roads, hazards would be greater along high-traffic corridors (especially US-84) and in more densely populated areas (mainly the Cities of Blackshear, Offerman, and Patterson). The impact in terms of crop damage would likely be more severely felt in unincorporated Pierce County, where more of the land is devoted to agriculture.

#### **G. General Overall HRV Summary of Severe Winter Storm Events And their Impact On The Community:**

Severe winter storms have the potential to cause damage at any place, at any time during the winter months, throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. The cost of the damage may be higher in terms of vehicle crashes in the Cities of Blackshear, Offerman, and Patterson and other population centers, and higher in terms of crop damage in the agricultural areas of the county. A majority of the severe winter storms that pass through the area cause minimal to no damage.

The Pierce County HMPUC recognizes severe winter storms as the sixth 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 Pierce County and the Cities of Blackshear, Offerman, and Patterson. These are contained in Chapter 3, Section VI.

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. Wildfire**

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

The threat of wildfire has been chosen by the Pierce County HMPUC as the seventh most likely hazard to occur and cause damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson, based on past experience, the FEMA described methodology, and other factors.

Historic data have been examined from various sources (see Appendix A) 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.

In addition, hazard maps generated by The GMIS Critical Facilities Inventory for wildfire (see Appendix A) were examined. Complete inventory information is contained at <https://www.itos.uga.edu/gema>. These map values come from the predicted model of the GEMA database.

Nationwide, approximately 80 percent of wildfires are caused by people. Smoking in forested areas and improperly extinguishing campfires are two common causes of wildfire. Lightning is also a major igniter of fires. Between 1960 and 2015, according to the National Interagency Fire Center ([www.nifc.gov](http://www.nifc.gov)), an average of 4.5 million acres each year were burned in wildfires in the United States. Over 10 million acres burned in 2015 alone in the U.S. Although wildfires occur naturally and serve important functions for forest ecosystems, they also present a danger to human life and property. In Pierce County, where a significant portion of the land is used for forestry, wildfires can have an economic impact. At the same time, periodic controlled burns may be necessary to maintain healthy forest ecosystems.

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 forest or brush fires. A high fuel load (i.e. the accumulation of dead vegetation), in combination with the above, also provides for the kindling and spread of forest or brush fires. Much of Pierce County (the unincorporated County including some areas near the Cities) is forested with commercial and free-growing pine trees and other trees. These trees can and do catch fire frequently in both small and large fire events.

Wildfires often begin unnoticed. They spread quickly and can change direction rapidly, igniting brush, trees, and homes. Also, fire may smolder for weeks at a time in the underbrush and then ignite some distance away from where it started, resisting efforts to eradicate it and spreading quickly throughout the area. Surface fires are the most common type of wildfires, moving slowly and burning along the forest floor, killing and damaging vegetation. Ground fires, another type, are usually started by lightning and burn on or below the forest floor through the root systems. The final type, crown fires, spread by wind moving quickly along the tops of trees.

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

The historic record for minor to major wildfire is spotty at best, with many unreported or underreported events. All of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to wildfires due to their unpredictability and random occurrences. The effects can range from minimal damage to severe and widespread damage. Wildfires can occur at any time of the year. Members of the Pierce County HMPUC have witnessed many unreported and underreported cases of minor to major wildfire events occurring in Pierce County and the Cities of Blackshear, Offerman, and Patterson, some lasting for days, weeks, or months at a time.

Most of Pierce County has a wildfire hazard score of 1. Some areas throughout the county have a score of 0. Limited areas around the central area of the county, especially around the Cities of Blackshear, Offerman, and Patterson, have a hazard score of 2. No areas have a score higher than 2. A map of wildfire hazard areas with critical facilities is shown in Appendix A and the Community Wildfire Protection Plan is included in Appendix C. According to the Georgia Forestry Commission, debris burning caused 48 percent of wildfires and 53 percent of acres burned from 1992 to 2012.

In Pierce County (including the Cities of Blackshear, Offerman, and Patterson), according to data supplied by the Georgia Forestry Commission, there were 3,256 wildfires between Jan. 1, 1967 and Dec. 31, 2016. During this time period, an average of 250 acres burned each year. In 2016 alone, 296 acres burned. The Historic Recurrence Interval is 0.02 years. The Historic Frequency Chance is 6,512% per year. The past 10-year Record Frequency Per Year is 47.5, the past 20-year frequency is 54.1, and the past 50-year frequency is 65.12.

Since the previous Hazard Mitigation Plan was completed, there have been an estimated 131 wildfire events in Pierce County.

The Pierce County Fire Department and the Georgia Forestry Commission, in their “Community Wildfire Protection Plan” (see Appendix C), have determined through Hazard Ratings that the following areas have a Low, Moderate, or High level of probability concerning wildfire:

Blackshear	Low
Patterson	Low
Offerman	High
Hacklebarney	Moderate
Walkerville	Moderate
Otter Creek	Moderate
Bearville	Moderate
Sunset	Moderate
Southside	Moderate
Northside	Moderate

As can be seen from the above information, there are several sources of information that have different determinations of wildfire risks, although all place certain areas of Pierce County and the Cities of Blackshear, Offerman, and Patterson within wildfire hazard areas.

Since the previous plan was completed, no changes have occurred that would affect the community's overall vulnerability to this hazard.

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

From a fire management perspective, the Wildland-Urban Interface (WUI) is commonly defined as an area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. As fire is dependent on a certain set of conditions, the National Wildfire Coordinating Group has defined the wildland-urban interface as a set of conditions that exists in or near areas of wildland fuels, regardless of ownership. This set of conditions includes type of vegetation, building construction, accessibility, lot size, topography and other factors such as weather and humidity. When these conditions are present in certain combinations, they make some communities more vulnerable to wildfire damage than others. This "set of conditions" method is perhaps the best way to define wildland-urban interface areas when planning for wildfire prevention, mitigation, and protection activities.

There are three major categories of wildland-urban interface. Depending on the set of conditions present, any of these areas may be at risk from wildfire. A wildfire risk assessment can determine the level of risk. These three categories are:

- 1) "Boundary" Wildland-Urban Interface is characterized by areas of development where homes, especially new subdivision, press against the public and private wildlands, such as private or commercial forest land or public forests or parks. This is the classic type of wildland-urban interface, with a clearly defined boundary between the suburban fringe and the rural countryside.
- 2) "Intermix" Wildland-Urban Interface areas are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just beginning to go through the transition from rural to urban land use.
- 3) "Island" Wildland-Urban Interface, also called occluded interface, are areas of wildland within predominantly urban or suburban areas. As cities or subdivisions grow, islands of undeveloped land may remain, creating remnant forests. Sometimes these remnants exist as parks, or as land that cannot be developed due to site limitations, such as wetlands.

Approximately 89% of Critical Facilities are in a wildfire hazard area (i.e. an area with a wildfire hazard score of 1 or 2; no areas have higher scores in Pierce County). This 89% figure has been extrapolated as an estimate for all properties in the community. Therefore, it is estimated that 89% of Residential property (8,308 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$496,691,236. Also, approximately 89% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (2,293 of 2,576) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$427,742,383.

Of the 103 Critical Facilities in Pierce County, 92 are located in a wildfire hazard area, according to the most recent available data. 27 of the Critical Facilities and Infrastructure for Pierce County

(including the Cities of Blackshear, Offerman, and Patterson) are located in a wildfire hazard area with a Hazard Score of 2; the total value of these Critical Facilities is \$161,841,515, plus a content value of \$7,848,510. 65 of the Critical Facilities are located in a wildfire hazard area with a Hazard Score of 1; the total value of these Critical Facilities is \$277,793,647, plus a content value of \$7,374,442.

Damage to crops is not taken into account in any of these figures. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000.

### **E. Land Use and Development Trends Related to Wildfire:**

Development continues to take place in Pierce County and the Cities of Blackshear, Offerman, and Patterson, with a large amount of new construction taking place in areas bordered by pine tree production and other naturally growing trees. More and more people are making their homes in woodland settings in or near forest or in rural areas. These homeowners enjoy the beauty of the environment, but face the real danger of wildfires. This is not a new phenomenon, but has always been the case. The trend is for this is to continue.

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County operates under the International Building Code. The County and Cities operate in compliance with the standards of the 2012 International Building Code. The County and all Cities have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

Georgia law requires that a permit be issued for most types of outdoor burning. To request a permit, users can contact the local Georgia Forestry Commission or visit [www.gatrees.org](http://www.gatrees.org) to apply online. If conditions are favorable for burning, a permit will be granted. According to Georgia law, burning without a permit is a misdemeanor punishable by fines up to \$1,000.

### **F. Multi-Jurisdictional Wildfire differences:**

The Pierce County Fire Department has 8 fire stations, the city of Blackshear has 2 fire stations, and the City of Patterson has 1 fire station. Fire services in the City of Offerman are provided by Pierce County. All fire stations in Pierce County and the Cities of Blackshear, Offerman, and Patterson are staffed by volunteer forces.

The fire stations in Pierce County and the City of Patterson all have an ISO rating of 6, while the 2 fire stations in the City of Blackshear have an ISO rating of 3.

The ISO classes of the fire stations in Pierce County and the Cities of Blackshear, Offerman, and Patterson are as follows:

<b>Station</b>	<b>ISO Class</b>
Bearville Volunteer Fire Department	Class 6
Blackshear Fire Department	Class 3
Hacklebarney Volunteer Fire Department	Class 6
Northside Volunteer Fire Department	Class 6
Offerman-Big Creek Volunteer Fire Department	Class 6
Otter Creek Volunteer Fire Department	Class 6
Patterson Fire Department	Class 6
Pierce County Volunteer Fire Department	Class 6
Southside Volunteer Fire Department	Class 6
Sunset Volunteer Fire Department	Class 6

### **G. General Overall HRV Summary of Wildfire Events And their Impact On The Community:**

Wildfire has the potential to cause damage in any wildfire-prone area, at any time, throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. The cost of the damage and the potential loss of life may be higher if a wildfire occurs in the more densely populated areas. The effects could range from minimal damage to severe and widespread damage. Wildfires can occur at any time of the year.

The Pierce County HMPUC recognized wildfire as the seventh most likely natural hazard to occur and cause damage. They have developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen wildfire impact on Pierce County and the Cities of Blackshear, Offerman, and Patterson, which are contained in Chapter 3, Section VII.

Pierce County and the Cities of Blackshear, Offerman, and Patterson have completed a comprehensive mapping of the community’s environmentally sensitive areas and performed a historic resource survey within the community. The County and City have completed their Community Wildfire Protection Plan, which contains goals and objectives to decrease the community’s overall vulnerability to this hazard.

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. Hurricanes/Tropical Storms

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

The threat of hurricanes/tropical storms has been chosen by the Pierce County HMPUC as the eighth most likely hazard to occur and cause damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson, 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 frequency of events. For further information, see the HAZUS Report in Appendix G.

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

A tropical disturbance is a discrete tropical weather system of apparently organized convection originating in the tropics or subtropics, having a non-frontal migratory character, and maintaining its identity for 24 hours or more.

A tropical depression is defined as an organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 mph.

A tropical storm is defined as an organized system of strong thunderstorms with a defined circulation and maximum sustained winds of 39 to 73 mph.

A hurricane is defined as an intense tropical weather system with a well-defined circulation and maximum sustained winds of 74 mph or higher. Hurricanes are categorized as Category 1 through Category 5, as described in the table below.

### **SAFFIR-SIMPSON HURRICANE SCALE**

<i>Category</i>	<i>Wind Speed</i>	<i>Damage</i>
1	74-95 mph	Minimal, no real damage to building structures. Unanchored mobile homes, shrubbery and trees damaged. Also some coastal road flooding and minor pier damage.
2	96-110 mph	Moderate, some damage to roofs, door and windows. Considerable damage to vegetation, mobile homes and piers.
3	111-130 mph	Extensive, some structural damage to small residences and utility buildings. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris.
4	131-155 mph	Extreme, some complete roof failure on small residences. Major erosion of beach areas. Major damage to lower floors of structures near the shore.

5	>155 mph	Catastrophic, complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away.
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Hurricane/tropical storm season in Georgia is officially from June 1 through November 30, but they may occur slightly before or after 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, Pierce County and the Cities of Blackshear, Offerman, and Patterson 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 Pierce County and the Cities of Blackshear, Offerman, and Patterson. 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 Hurricane/Tropical Storm Events, Frequency of Occurrences, Probability:**

The historic record for hurricanes/tropical storms is spotty at best, with many unreported and underreported events. All of Pierce County and the Cities of Blackshear, Offerman, and Patterson are vulnerable to hurricanes/tropical storms due to their proximity to the coasts of both the Atlantic Ocean and the Gulf of Mexico. The effects of the hazard are usually substantial.

Members of the Pierce County HMPUC have witnessed many unreported and underreported tropical events occurring in Pierce County and the Cities of Blackshear, Offerman, and Patterson. Some hurricane/tropical storm events over the past 100 years appear on several websites (See Appendix A), but in most cases it is not clear of the exact dates or names of those events.

According to National Climatic Data Center information (see Appendix F), there are 3 reports of Tropical Storms occurring in Pierce County (including the Cities) between 01/01/1950 and 12/31/2016. Most recently, in September 2016, Pierce County was affected by Hurricane Hermine, which resulted in downed trees, debris, power outages, wind gusts in excess of 50 mph, and one reported injury. . The Historic Recurrence Interval is 22.00 years. This is a 4.55% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.1, the past 20-year frequency is 0.15, and the past 50-year frequency is 0.06 (see PDM Hazard Frequencies Table contained in Appendix D).

All of Pierce County has the same design wind speed of 200 miles per hour for a three-second gust as determined by the American Society of Civil Engineers (ASCE), plus it is in a special Hurricane Susceptible Region (see Appendix A).

According to [www.gema.ga.gov](http://www.gema.ga.gov), the MEOW (Maximum Envelope of Wind) for a Georgia Coast Landfall for Pierce County ranges from 39-57 mph in the county (for a Category 1 hurricane

with sustained winds of 75 mph and forward speed of 9 mph) to 109-126 mph in the eastern 1/3 of the county and 92-108 mph in the western 2/3 of the county (for a Category 4 hurricane with sustained winds of 144 mph and forward speed of 25 mph).

The GMIS Critical Facilities Inventory does not address hurricanes/ tropical storms but does address wind (see Appendix A). This model has determined that all of Pierce County and the Cities of Blackshear, Offerman, and Patterson are all within the wind hazard area. This model also attempts to determine certain wind speed areas for the hazard of wind, and has identified wind speeds of 90 to 99 mph and 100 to 109 mph exist. 100% of Pierce County and the Cities of Blackshear, Offerman, and Patterson are included in some wind hazard area. Complete inventory information is contained at <https://www.itos.uga.edu/gema>.

Since the previous plan was completed, no changes have occurred that would affect the community's overall vulnerability to this hazard.

#### **C./D.: Inventory of Assets Exposed and Potential Loss to Hurricanes/Tropical Storms:**

In Worksheet 3A: Inventory of Assets appearing in Appendix A, Section VIII, we estimate that all of Pierce County and the Cities of Blackshear, Offerman, and Patterson are equally vulnerable to hurricanes/tropical storms.

Approximately 100% of the Residential property (9,335 of 9,335) in Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$558,080,044. Also approximately 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (2,576 of 2,576) in Pierce County (which includes those property types in the Cities of Blackshear, Offerman, and Patterson) may be affected, with a total value of \$480,609,419. The values are based on the most recent available tax roll data for Pierce County and the Cities of Blackshear, Offerman, and Patterson, provided by the Pierce County Tax Assessor's Office.

According to the inventory database reports and maps, all of the 103 Critical Facilities and Infrastructure for Pierce County (including the Cities of Blackshear, Offerman, and Patterson) may be affected by this hazard. All 103 Critical Facilities are located in the 100-109 mph (hazard score of 3) wind area (see GMIS Critical Facilities Inventory Database Reports contained in Appendix F and Maps contained in Appendix A). The total value of these Critical Facilities is \$457,984,494, plus a content value of \$15,510,623.

Damage to crops is not taken into account in any of these figures. According to the most recent estimate (2012) available on the University of Georgia's GeorgiaData website ([www.georgiadata.org](http://www.georgiadata.org)), the total farm gate value of agricultural production in Pierce County is \$66,078,000.

#### **E. Land Use and Development Trends Related to Hurricanes/Tropical Storms:**

Countywide, slight population growth has occurred in the last few years since the 2010 U.S. Census. Population has decreased very slightly in two of the cities. The 2015 population of Pierce County (the most recent figure currently available) is estimated at 18,934, a 1.5% increase

since 2010. The 2015 population of Blackshear is estimated at 3,522, a 1.0% increase since 2010. The 2015 population of Offerman is 433, a decrease of 0.2% since 2010. The 2015 population of Patterson is 720, a 0.5% decrease since 2010.

According to the Pierce County planning department, there are currently no land use or development trends that are associated with natural hazards. All local governments participate in the Pierce County Joint Planning Commission. Pierce County operates under the International Building Code. The County and Cities operate in compliance with the standards of the 2012 International Building Code. The County and all Cities have zoning. No other trends regarding the relationship between land use/development and this hazard have been identified at this time.

#### **F. Multi-Jurisdictional Hurricane/Tropical Storm Differences:**

All of Pierce County and the Cities of Blackshear, Offerman, and Patterson may be affected by hurricanes/tropical storms. Such events are normally area-wide and no difference in the severity is expected between Pierce County and the Cities of Blackshear, Offerman, and Patterson. However, the impact of a hurricane/tropical storm will likely 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.

Pierce County and the Cities of Blackshear, Offerman, and Patterson are all members of the National Flood Insurance Program. Pierce County and the Cities of Blackshear, Offerman, and Patterson do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible, according to FEMA (<http://www.fema.gov/library/viewRecord.do?id=3629>).

#### **G. General Overall HRV Summary of Hurricanes/Tropical Storms Events And Their Impact On The Community:**

Hurricanes/tropical storms have the potential to cause damage at any place, at any time, throughout Pierce County and the Cities of Blackshear, Offerman, and Patterson. 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 Pierce County HMPUC recognizes hurricanes/tropical storms as the eighth most likely natural hazard to occur and cause damage. They have developed a comprehensive range of Mitigation Goals, Objectives, and Action Steps to lessen hurricane/tropical storm impacts on Pierce County and the Cities of Blackshear, Offerman, and Patterson. These are contained in Chapter 3, Section VIII. Since the previous plan was approved, there have not been any new developments, regulations, programs, or other changes in the community that would either increase or decrease the community's overall vulnerability to this hazard.

## **Chapter 3: Local 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 3 Section</b>	<b>Updates to Section</b>
I. Thunderstorm/Wind	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
II. Tornado	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
III. Hail	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
IV. Flood	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
V. 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)
VI. Severe Winter Storm	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
VII. 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)
VIII. 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)

Table 4.1: Overview of updates to Chapter 3: Local Natural Hazards, Mitigation Goals and Objectives

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

While Pierce County and the Cities of Blackshear, Offerman, and Patterson 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, Pierce County and the Cities of Blackshear, Offerman, and Patterson 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 has remained relatively unchanged. The hazards and risks associated with each have not changed, and many of the action steps identified during previous versions of this plan are still relevant and remain a priority in this plan as well.

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

The four 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 Sections I through VIII of Chapter 3 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 four 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 the comprehensive range of Mitigation Goals, Objectives, and Action Steps that were developed by the Pierce County HMPUC to reduce damage and improve safety through Hazard Mitigation. These Goals, Objectives, and Action Steps have been arranged by the natural hazards contained in Chapter Two, Sections I-VIII. The intent of these specific Mitigation Goals, Objectives, and Action Steps is to reduce the effects of each hazard. There is particular emphasis on emergency preparedness and infrastructure. The Action Steps are listed by Goal and Objective, organized by hazard, in Subsection C of each Section (I through VIII) of this chapter.

The Pierce County HMPUC discussed and identified the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Chapter 3 of this Plan after identifying the hazards noted in Chapter 2 Sections I-VIII of this Plan. All areas of Pierce County and the Cities of Blackshear, Offerman, and Patterson 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 Pierce County HMPUC, as well as from others within the community. Members of the Pierce County HMPUC prioritized the identified comprehensive range of Mitigation Goals, Objectives, and Action Steps based on what would be perceived as most beneficial to the community. The benefits were all determined to be greater than the costs involved (if any).

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

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

In Chapter 4, Sections I-III, there is a description of the planning process involved in selecting the comprehensive range of Mitigation Goals, Objectives, and Action Steps. The Action Steps are given a rating of High, Medium, or Low Priority by the Pierce County HMPUC based on a number of factors (with a primary emphasis on prioritized cost versus benefit review) identified in Chapter 4 Section I.

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

## **Section I. Thunderstorms and Wind**

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

As previously indicated in Chapter 2, thunderstorms and wind may cause substantial damage to life, property, and the economy in Pierce County and the Cities of Blackshear, Offerman, and Patterson. Thunderstorms and wind are unpredictable and could 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 the threat of thunderstorm and wind damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

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

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

Structural options in this plan include retrofitting Critical Facilities for wind resistance and upgrading critical infrastructure for improved disaster resilience.

Non-structural options include increasing public awareness of sources of emergency warning information and dissemination of other information to the public, surveying right-of-way, and purchasing generators.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

The County and all Cities participate in the National Flood Insurance Program. They do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible according to FEMA (<http://www.fema.gov/library/viewRecord.do?id=3629>).

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.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to mitigating thunderstorm/wind damage involving wind retrofitting on historic buildings. The Pierce County Courthouse and other historic Critical Facilities should be considered potentially eligible for the National Register.

Worksheet #4: STAPLEE Criteria was completed for each Action Step (see Appendix D).

#### 4. New Buildings and Infrastructure:

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

#### 5. Existing Buildings and Infrastructure:

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

### C. Mitigation Strategy and Recommendations:

**Goal #1: Prevent or reduce damage caused by Thunderstorms and Winds in Pierce County and in the Cities of Blackshear, Offerman, and Patterson.**

**Objective #1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Thunderstorms and Winds.**

**Action Step #1:** Increase public awareness of weather radios, shelters, emergency procedures, and the use of WKUB as the emergency broadcast system station in Pierce County and in the Cities of Blackshear, Offerman, and Patterson through public safety announcements, publications, and other means.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Survey unknown right-of-way areas owned by the Pierce County Commission and the Cities of Blackshear, Offerman, and Patterson in order to establish tree maintenance schedules.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Road Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

**Action Step #3:** Determine wind ratings and plan to wind retrofit Critical Facilities in Pierce County and in the Cities of Blackshear, Offerman, and Patterson as funds become available to do so.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

**Action Step #4:** Disseminate information to the public concerning wind ratings, champion new construction being built to those minimum wind standards, and champion the wind retrofitting of existing buildings in Pierce County and in the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County EMA/Pierce County Joint Planning Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

**Action Step #5:** Maintain, improve, and upgrade critical infrastructure to avoid/mitigate loss of power.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	\$750,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #6:** Purchase portable and stationary generators sufficient to maintain power at critical facilities and accessories as needed.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	\$500,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

**F. Completed And Deleted Action Steps:**

Objective 1

None.

**G. Unchanged Action Steps:**

Objective 1

- Action Step #1
- Action Step #2
- Action Step #3
- Action Step #4

## **Section II. Tornado**

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

As previously indicated in Chapter 2, tornadoes may cause substantial damage to life, property, and the economy in Pierce County and the Cities of Blackshear, Offerman, and Patterson. Tornadoes are unpredictable and could happen at any place and at any time. The Pierce County HMPUC believes that, because these tornadoes may be extremely powerful and cause great damage, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce the threat of tornado damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

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

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

Structural options in this plan include ensuring adequate tie-downs on manufactured homes.

Non-structural options include identifying areas where tornadoes occur frequently, preparing public service announcements, and promoting safe shelter rooms.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

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.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to mitigating damage involving wind retrofitting on historic buildings. The Pierce County Courthouse and other historic Critical Facilities should be considered potentially eligible for the National Register.

Worksheet #4-STAPLEE Criteria was completed for each Action Step. Please see worksheets contained in Appendix D.

#### **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 #1: Prevent or reduce damage caused by Tornadoes in Pierce County and in the Cities of Blackshear, Offerman, and Patterson.**

**Objective #1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Tornadoes.**

**Action Step #1:** Use building inspection program to inspect for adequate tie-downs on new and existing manufactured housing in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Building & Codes Department
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Identify areas in Pierce County and the Cities of Blackshear, Offerman, and Patterson where tornadoes occur frequently.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #3:** Plan for pre-disaster mitigation in Tornado & other hazard seasons by preparing public service announcements and brochures. Solicit business participation in distributing information.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #4:** Promote safe shelter rooms in new and existing buildings in areas of Pierce County and the Cities of Blackshear, Offerman, and Patterson where Tornadoes and other disasters frequently occur.

<b>Responsible Department</b>	Pierce County EMA/Pierce County Joint Planning Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #5:** Secure funding for a hazardous weather alert system such as: sirens, weather radios, Code Red, reverse call systems, etc., in the Cities of Blackshear, Offerman, and Patterson and in populated areas of Pierce County.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

**F. Completed And Deleted Action Steps:**

Objective 1

None

**G. Unchanged Action Steps:**

Objective 1

- Action Step #1
- Action Step #2
- Action Step #3
- Action Step #4
- Action Step #5

## **Section III. Hail**

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

As previously indicated in Chapter 2, hail may cause substantial economic, property, and personal damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson. Hail is unpredictable and could happen at any place and at any time. The Pierce County HMPUC believes that, due to the damage hail may cause, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce the threat of hail damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

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

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

Structural options in this plan include installing storm windows and/or ballistic film on new and existing critical facilities.

Non-structural options include encouraging the public to include hail damage under insurance coverage and to store equipment and vehicles under shelters.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

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.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to mitigating damage to historic buildings. The Pierce County Courthouse and other historic Critical Facilities should be considered potentially eligible for the National Register.

Worksheet #4-STAPLEE Criteria was completed for each Action Step. Please see worksheets contained in Appendix D.

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

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

## 5. Existing Buildings and Infrastructure:

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

### C. Mitigation Strategy and Recommendations

**Goal #1: Prevent or reduce damage caused by Hail in Pierce County and in the Cities of Blackshear, Offerman, and Patterson.**

**Objective #1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Hail.**

**Action Step #1:** Install storm windows and/or ballistic film on new and existing critical facilities and promote their installation on new and existing private buildings in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$150,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security/Red Cross
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Encourage the public to include hail damage under insurance coverage and to store equipment and vehicles under shelters in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources,

each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

**F. Completed And Deleted Action Steps:**

Objective 1

None

**G. Unchanged Action Steps:**

Objective 1

- Action Step #1
- Action Step #2

## **Section IV. Flood**

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

As previously indicated in Chapter 2, flooding may cause substantial damage to life, property and the economy in Pierce County and the Cities of Blackshear, Offerman, and Patterson. Floods are unpredictable and could happen at any time in any flood prone area.

Many of these major flooding areas are located on or adjacent to the Satilla River, Big Satilla Creek, the Little Satilla River, and the Alabaha River, Hurricane Creek, as well as numerous smaller creeks and streams and low-lying areas in the eastern part of the county. In the City of Blackshear, certain areas surrounding the Alabaha River are subject to flooding. Due to these facts, the Pierce 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 Pierce County and the Cities of Blackshear, Offerman, and Patterson.

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

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

Structural options in this plan include maintaining drainage canals, improving roadway drainage, planning flood and drainage projects in areas of need, and replacing drainage pipes.

Non-structural options include alleviating evacuation and emergency access problems, purchasing vehicles for use during a flood emergency, continuing participation in NFIP, and conducting analysis of properties affected by flooding.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

The County and all Cities participate in the National Flood Insurance Program. They do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible according to FEMA (<http://www.fema.gov/library/viewRecord.do?id=3629>).

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.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges in regards to potential Hazard Mitigation Flood Planning Activities involving historic buildings. The Pierce County Courthouse and others are Critical Facilities that either already are on, or should be considered

potentially eligible for, the National Register of Historic Places. The comprehensive range of Mitigation Goals, Objectives, and Action Steps for this hazard are outlined below.

There are no Critical Facilities that are also historic properties that appear in the floodplain, according to GMIS. The GMIS reports do not list any Repetitive Loss/NFIP properties in Pierce County or the Cities of Blackshear, Offerman, and Patterson.

There are 3 Critical Facilities that appear in the floodplain, according to GMIS. All of these are Wastewater Lift Stations. These may pose a danger of overflow and/or sewage contamination of the surrounding area should they be flooded. However, their current locations and function are essential to the efficient operation of the wastewater system; moving them is not recommended.

Worksheet #4: STAPLEE Criteria was completed for each Action Step (see Appendix D).

**4. New Buildings and Infrastructure:**

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

**5. Existing Buildings and Infrastructure:**

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

**C. Mitigation Strategy and Recommendations:**

**Goal#1: Prevent or reduce damage caused by Flood in Pierce County and in the Cities of Blackshear, Offerman, and Patterson.**

**Objective #1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Flooding.**

**Action Step #1:** Maintain and clean drainage canals in Pierce County and in the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$500,000 each
<b>Existing &amp; Potential Funding Sources</b>	General Funds/HUD CDBG
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Plan flood and drainage projects in Blackshear near Carter’s Fried Chicken (U.S. 84/121) and in other areas as needed.

<b>Responsible Department</b>	City of Blackshear Public Works Department
<b>Anticipated Cost</b>	\$350,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/HUD CDBG
<b>Jurisdiction</b>	City of Blackshear
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #3:** Plan flood and drainage projects in Offerman at Railroad Lane, Gardenia Drive (more work needed), Mayberry Road, Shellie Trail, Armor Road, Carter Drive, and in areas lacking adequate drainage.

<b>Responsible Department</b>	City of Offerman Public Works Department
<b>Anticipated Cost</b>	\$500,000.00 each
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/HUD CDBG
<b>Jurisdiction</b>	City of Offerman
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #4:** Plan flood and drainage projects in Patterson on Peach Ave., Pear Ave., Dallas St., Dempsey Trailer Park area, and in other areas as needed.

<b>Responsible Department</b>	City of Patterson Public Works Department
<b>Anticipated Cost</b>	\$500,000.00 each
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/HUD CDBG
<b>Jurisdiction</b>	City of Patterson
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #5:** Plan flood and drainage projects in Pierce County on Taylor Farm Road, Bennett Road, Bailey Road (off Dean Still), parts of North Bowen Road, Cross Swamp Road, Hackelbarney Road (at Whitney Lake and other areas), Turkey Ridge, Sandy Bottom, Mill Creek, Winky Trail, Twin Oaks Drive (at Cason Road), Sinclair Road, Golf Course Rd., Floyd Dr., Satilla Acres Subdivision retention area, and other flood-prone areas.

<b>Responsible Department</b>	Pierce County Public Works Department
<b>Anticipated Cost</b>	\$500,000.00 each road
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/HUD CDBG
<b>Jurisdiction</b>	Unincorporated Pierce County
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #6:** Replace drainage pipes in Pierce County, Blackshear, Offerman, and Patterson with 18” minimum size pipes, as needed.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$2,500 each
<b>Existing &amp; Potential Funding Sources</b>	General Funds/HUD CDBG
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #7:** Attempt to take precautions at water facilities in unincorporated Pierce County and in the Cities of Blackshear, Offerman and Patterson to ensure flood protection, as funds become available to do so.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$500,000.00 each
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/HUD CDBG
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #8 (formerly #9):** Enact subdivision ordinance in Pierce County and the Cities of Blackshear, Offerman, and Patterson requiring subdivision impact studies and 2 separate exits from subdivision areas if a subdivision exceeds a certain number of home sites.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Planning Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #9 (formerly #10):** Work to alleviate present evacuation & emergency access problems in Satilla Acres, behind Farr’s, around Golf Course area, Blue Lake, Hacklebarney Village, Oakridge, and others in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Road Departments
<b>Anticipated Cost</b>	\$1,500,000 each project
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/HUD CDBG/GDOT
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #10 (formerly #11):** Purchase UTV/ATV vehicle, flat bottomed boat, motor, and trailer for evacuation purposes.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	\$50,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Deferred from 2006-2007 due to cost

**Action Step #11 (formerly #12):** Conduct routine storm-water drainage repair & cleaning, constant yard debris collection, and obtain signage and posts for 25 “Street Closed” and 25 “Water Over Road” signs in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$6,500.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #12 (formerly #13):** After flood events or other hazard events in Pierce County and the Cities of Blackshear, Offerman, and Patterson, attempt to perform analysis on properties affected to determine if events have occurred in the past and attempt to mitigate or purchase, if necessary.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Low
<b>Status</b>	Ongoing

**Action Step #13 (formerly #14):** Continue participation in NFIP and enforce floodplain and building ordinances and regulations. Work towards database to record depth of flooding to determine extent of potential damage.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #14 (formerly #15):** Build up roadway and improve drainage affected by 2009 floods in Okefenokee Golf Course Area (250+ homes affected) and work with FEMA to update FIRMs covering later phases possibly in floodplains.

<b>Responsible Department</b>	Pierce County Road Department
<b>Anticipated Cost</b>	\$1,000,000 each
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #15 (formerly #16):** Make improvements to roadway and drainage on roads affected by 2009 floods in Pierce County including Yellow Bluff Road, Voight Bridge Road, Turkey Ridge Road, Bell Road, Moneyhole Road, Hammock Drive, and in River Woods Subdivision.

<b>Responsible Department</b>	Pierce County Road Department
<b>Anticipated Cost</b>	\$500,000.00 each
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County
<b>Timeframe</b>	2017-2022
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

#### **F. Completed And Deleted Action Steps:**

##### Objective 1

- Action Step #8 (Work to preserve wetland areas in Pierce County and the Cities of Blackshear, Offerman, and Patterson to ensure that excess water can be captured) has been completed.

- Action Step #17 (Initiate ordinance requiring setbacks of farm ponds from county roads and secondary berms on existing ponds using county road ROWs as primary berms) was deleted because farm pond setbacks and berms are now handled by NRCS.
- Action Step #18 (Continue to implement and enforce newly adopted River Corridor Protection Ordinance to designate the Little Satilla River and the Satilla River as Protected Rivers) was deleted because river corridor protection is now handled by EPD.

## **G. Unchanged Action Steps:**

### Objective 1

- Action Step #1
- Action Step #2
- Action Step #3
- Action Step #4
- Action Step #5
- Action Step #6
- Action Step #7
- Action Step #9 (renumbered to #8)
- Action Step #10 (renumbered to #9)
- Action Step #11 (renumbered to #10)
- Action Step #12 (renumbered to #11)
- Action Step #13 (renumbered to #12)
- Action Step #14 (renumbered to #13)
- Action Step #15 (renumbered to #14)
- Action Step #16 (renumbered to #15)

## **Section V. Drought**

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

As previously indicated in Chapter 2, drought may cause substantial economic, property, and personal damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson, 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 Pierce County 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 the impact of drought on Pierce County and the Cities of Blackshear, Offerman, and Patterson.

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

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

Structural options in this plan include replacing antiquated water and sewer lines and equipment prone to failure, promoting the installation of private water systems, and promoting the paid extension of city water lines into areas of need.

Non-structural options include limiting water usage, promoting increased usage of surface water, and distributing literature related to best management practices.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

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.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to mitigating damage to historic buildings. The Pierce County Courthouse and other historic Critical Facilities should be considered potentially eligible for the National Register.

Worksheet #4-STAPLEE Criteria was completed for each Action Step. Please see worksheets contained in Appendix D.

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

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

**5. Existing Buildings and Infrastructure:**

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

**C. Mitigation Strategy and Recommendations**

**Goal #1: Prevent or reduce damage caused by Drought in Pierce County and in the Cities of Blackshear, Offerman and Patterson.**

**Objective #1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Drought.**

**Action Step #1:** Seek input from State and Federal agencies to enact procedures during Drought to limit water usage in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Replace antiquated water & sewer lines and equipment prone to failure in unincorporated Pierce County and in the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$4,000,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/HUD CDBG
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #3:** Work with County Extension Agent to distribute literature related to best management practices in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Low
<b>Status</b>	Ongoing

**Action Step #4:** Promote increased usage of surface water and surface artesian flow for agriculture and industry instead of well systems in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Low
<b>Status</b>	Ongoing

**Action Step #5:** Promote the installation of private water systems instead of individual wells in Pierce County.

<b>Responsible Department</b>	Pierce County Public Works Department
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Low
<b>Status</b>	Ongoing

**Action Step #6:** Promote the paid extension of city water lines into areas of individual wells and/or new subdivisions in the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	City of Blackshear, City of Offerman, City of Patterson
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Low
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

#### **F. Completed And Deleted Action Steps:**

##### Objective 1

- Action Step #7 (Continue to enforce and implement newly adopted Groundwater Recharge Area Protection Ordinance consistent with the Environmental Planning Criteria to ensure more control over new development) was deleted because these matters are now handled by EPD.
- Action Step #8 (Continue to enforce and implement newly adopted Water Supply Watershed Protection Ordinance consistent with Georgia's Environmental Planning Criteria limiting imperviousness within the watershed to less than 25%) was deleted because these matters are now handled by EPD.

#### **G. Unchanged Action Steps:**

##### Objective 1

- Action Step #1
- Action Step #2
- Action Step #3
- Action Step #4
- Action Step #5
- Action Step #6

## **Section VI. Severe Winter Storm**

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

As previously indicated in Chapter 2, severe winter storms may cause substantial economic, property, and personal damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson. Severe winter storms are usually predictable ahead of time, but they can happen in any part of Pierce County and the Cities of Blackshear, Offerman, and Patterson during the period surrounding the winter months.

Severe winter storms may cause substantial problems. Pierce County and the Cities of Blackshear, Offerman, and Patterson do not have the specialized equipment used during severe winter storms that most northern counties and cities possess. The Pierce County HMPUC believes that, due to the damage these severe winter storms have the potential to cause, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce the threat of severe winter storm damage in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

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

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

Structural options in this plan include wrapping exposed piping, championing the building of new construction to appropriate low temperature ratings, and championing the retrofitting of existing structures.

Non-structural options include keeping temperatures above 32 degrees in government facilities, heating fire stations, keeping fire vehicles heated, and disseminating information to the public concerning the hazards associated with severe winter storms.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

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.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to mitigating damage to historic buildings. The Pierce County Courthouse and other historic Critical Facilities should be considered potentially eligible for the National Register.

Worksheet #4-STAPLEE Criteria was completed for each Action Step. Please see worksheets contained in Appendix D.

**4. New Buildings and Infrastructure:**

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

**5. Existing Buildings and Infrastructure:**

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

**C. Mitigation Strategy and Recommendations**

**Goal #1: Prevent or reduce damage caused by Severe Winter Storms in Pierce County and the Cities of Blackshear, Offerman, and Patterson.**

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

**Action Step #1:** Continue the policy of wrapping exposed piping with insulation and installing new insulation layers at Critical Facilities in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$3,000.00 per year
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Maintain temperatures above 32 degrees to prevent freezing in government-owned occupied and unoccupied structures in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #3:** Identify solutions for heating unmanned fire stations and preventing the freezing of water tanks in the fire vehicles in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Fire Departments
<b>Anticipated Cost</b>	Staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #4:** Disseminate information to the public concerning Severe Winter Storms and champion new construction being built to appropriate low temperature ratings and existing structures being retrofitted in Pierce County and in the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Medium
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

**F. Completed And Deleted Action Steps:**

Objective 1  
None

**G. Unchanged Action Steps:**

Objective 1

- Action Step #1
- Action Step #2
- Action Step #3
- Action Step #4

## Section VII. Wildfire

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

As previously indicated in Chapter 2, wildfire may cause substantial damage to life, property, and the economy in Pierce County and the Cities of Blackshear, Offerman, and Patterson. Wildfire is unpredictable and could happen at any place and at any time in the community. The Pierce County HMPUC believes that, due to the great damage wildfire may cause, a comprehensive range of Mitigation Goals, Objectives, and Action Steps (contained in Section C below) should be implemented to reduce the threat of wildfire damage in the community.

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

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

Structural options in this plan include various measures to reduce structural ignitability, building new fire stations, improving existing fire stations, encouraging underground power lines, widening some roads to meet minimum standards, and improving signage.

Non-structural options include providing additional first responder training, supporting prescribed burns, promoting “Firewise” knowledge in the community, reducing the ignitable fuel load, updating the fire master plan, safety zones around fuel tanks, maintaining emergency vehicles access, enforcing building codes, controlling traffic during emergencies, and encouraging railroad right-of-way maintenance.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

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 Community Wildfire Protection Plan outlines strategies for mitigating wildfire damage in the community.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to mitigating damage to historic buildings. The Pierce County Courthouse and other historic Critical Facilities should be considered potentially eligible for the National Register.

Worksheet #4-STAPLEE Criteria was completed for each Action Step. Please see worksheets contained in Appendix D.

#### 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 #1: Prevent or reduce damage caused by Wildfire in Pierce County and in the Cities of Blackshear, Offerman, and Patterson.**

**Objective #1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, and woodlands due to Wildfire.**

**Action Step #1 (formerly #2):** Provide additional first responder training, air units, air unit chargers, Class A Pumper & Fire Knocker trucks, and other equipment to all Pierce County Volunteer Fire Departments for Wildfire use.

<b>Responsible Department</b>	Pierce County EMA, Pierce County FD
<b>Anticipated Cost</b>	\$2,000,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security
<b>Jurisdiction</b>	Unincorporated Pierce County
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2 (formerly #3):** Provide additional first responder training, air units, air unit chargers, Class A Pumper & Fire Knocker trucks, and other equipment to City of Blackshear Volunteer Fire Departments for Wildfire use.

<b>Responsible Department</b>	Pierce County EMA, Blackshear FD
<b>Anticipated Cost</b>	\$1,000,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security
<b>Jurisdiction</b>	City of Blackshear
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #3 (formerly #4):** Provide additional first responder training, air units, air unit chargers, Class A Pumper & Fire Knocker trucks, and other equipment to City of Patterson Volunteer Fire Departments for Wildfire use.

<b>Responsible Department</b>	Pierce County EMA, Patterson FD
<b>Anticipated Cost</b>	\$1,000,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security
<b>Jurisdiction</b>	City of Patterson
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #3 (formerly #5):** Trim tree lines and create fire buffers around critical facilities and infrastructure in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$100,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #5 (formerly #6):** Encourage agencies and private property owners to trim tree lines and create fire buffers around new and existing homes, businesses, and utilities in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #6 (formerly #7):** Support and enforce GA Forestry Commission burn ordinances and bans and promote hazardous fuel reduction by prescribed burning, mechanical treatment, or chemical treatment carried out and promoted by the GA Forestry Commission in Pierce County and the Cities of Blackshear, Offerman, and Patterson.

<b>Responsible Department</b>	Pierce County Fire Department, Blackshear Fire Department, GA Forestry Commission
<b>Anticipated Cost</b>	\$100,000, plus staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #7 (formerly #8):** Pierce County and the Cities of Blackshear, Offerman and Patterson should become “Firewise” Communities and conduct “How to Have a Firewise Home” workshops for residents and community leaders.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	\$5,000, plus staff time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #8 (formerly #9):** Identify fire coverage areas in Pierce County and the Cities of Blackshear, Offerman and Patterson, reevaluate and possibly relocate stations to more strategic locations for full benefit of fire coverage and fire rating.

<b>Responsible Department</b>	Pierce County EMA & all fire departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #9 (formerly #10):** Plan to acquire property for the new addition of Pierce County Volunteer Fire Stations including Otter Creek District, 911/Central Fire Station, Cason/Hackelbarney Area and others.

<b>Responsible Department</b>	Pierce County EMA & all fire departments
<b>Anticipated Cost</b>	\$200,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #10 (formerly #11):** Plan to make modifications to existing Pierce County and the Cities of Blackshear, Offerman and Patterson Volunteer Fire Stations as needed.

<b>Responsible Department</b>	Pierce County EMA & all fire departments
<b>Anticipated Cost</b>	\$2 million each
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #11 (formerly #12):** Identify funding sources and plan for a full time paid fire department in Pierce County.

<b>Responsible Department</b>	Pierce County EMA, Pierce County Fire Department
<b>Anticipated Cost</b>	\$2 million per year
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #12 (formerly #13):** Purchase shower equipment, containment area, suits and rigs for exposure to chemicals and other hazardous materials while fighting fires in agricultural areas in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County EMA & all fire departments
<b>Anticipated Cost</b>	\$500,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #13 (formerly #14):** Pass a subdivision ordinance in Pierce County and the Cities of Blackshear, Offerman and Patterson requiring that any subdivision over X number of lots requires 500 GPM capacity water pressure and fire hydrants.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Building & Codes Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #14 (formerly #15):** Conduct a tree survey on Pierce County and the Cities of Blackshear, Offerman and Patterson right-of-ways to locate diseased and damaged trees in order to reduce available fuel.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

**Action Step #15 (formerly #16):** Continue to update the Volunteer Fire Department Master Plans as needed.

<b>Responsible Department</b>	Pierce County EMA, Blackshear/Offerman/Patterson FDs
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Objective #2: Implement priorities, projects and recommendations contained in GA Forestry Commission’s “Community Wildfire Protection Plan”.**

**Action Step #1:** Create a minimum of 30 feet of defensible space around all governmental structures and recommend to homeowners & community stakeholders that they create same space through the trimming of shrubs and vines, overhanging limbs, replacement of flammable plants with less flammable varieties and remove vegetation around chimneys.

<b>Responsible Department</b>	Pierce County EMA, Pierce County/ Blackshear/ Patterson Fire Depts. & Pierce County/City of Blackshear/City of Offerman/City of Patterson Public Works Depts.
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Reduce structural ignitability by cleaning flammable vegetative materials from roofs and gutters, store firewood appropriately, install skirting around raised structures, store water hoses for easy access and replace pine straw and mulch around plantings with less flammable landscaping materials around all governmental structures and recommend same to homeowners and community stakeholders.

<b>Responsible Department</b>	Pierce County/City of Blackshear/City of Offerman/City of Patterson Public Works Depts.
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #3:** Work with GA Power and EMCs to encourage new underground service to rural homes; Adopt standards for safety zone around propane distribution tanks.

<b>Responsible Department</b>	Pierce County Building & Code, Pierce County/City of Blackshear/City of Offerman/City of Patterson Public Works Depts.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #4:** Ensure Driveway Access/Right-Of-Way Clearance by maintaining vertical and horizontal clearance for emergency equipment; See that adequate lengths of culverts are installed to allow emergency vehicle access.

<b>Responsible Department</b>	Pierce County/City of Blackshear/City of Offerman/City of Patterson Road Depts., Building Inspection Depts. & Public Works Depts.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #5:** As roads are upgraded, widen to minimum standards with at least 60-foot diameter cul-de-sacs or turn arounds.

<b>Responsible Department</b>	Pierce County/City of Blackshear/City of Offerman Road Depts., Building Inspection Depts. & Public Works Depts.
<b>Anticipated Cost</b>	\$22.5 million
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GDOT, CDBG, FEMA, GEMA, other federal/state/local/grants
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #6:** Amend and enforce existing building codes as they relate to skirting, propane tank locations, public nuisances (trash/debris on property), property address marking standards and other relevant concerns; Review the need for subdivision and development ordinances for public safety concerns; Adopt and enforce uniform addressing ordinance.

<b>Responsible Department</b>	Pierce County/City of Blackshear/City of Offerman Building Inspection Depts. & Public Works Depts.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #7:** Work with local law enforcement to better control non-essential traffic during fire emergencies.

<b>Responsible Department</b>	Pierce County EMA, Pierce County/City of Blackshear/City of Offerman/City of Patterson Road Depts.
<b>Anticipated Cost</b>	\$100,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #8:** Encourage prescribed burning for private landowners and industrial timberlands particularly adjacent to residential areas; Seek grants for mowing or prescribed burning in WUI areas.

<b>Responsible Department</b>	Pierce County EMA, Pierce County/Blackshear/Patterson Fire Depts. & Pierce County/City of Blackshear/City of Offerman/City of Patterson Public Works Depts.
<b>Anticipated Cost</b>	\$35.00 an acre
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #9:** Encourage railroads to better maintain their ROW eliminating brush and grass through herbicide and mowing; Maintain firebreaks along ROW adjacent to residential areas.

<b>Responsible Department</b>	Pierce County/Blackshear/Patterson Fire Depts., Pierce County Building & Codes Dept., Pierce County/City of Blackshear/City of Offerman/City of Patterson Public Works Depts.
<b>Anticipated Cost</b>	\$150 per hour
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #10:** Clean and re-harrowing of existing fire lines.

<b>Responsible Department</b>	GA Forestry Commission
<b>Anticipated Cost</b>	\$200 per hour
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DOHS-FEMA/GEMA, USFS
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #11 (formerly #13):** Improve road signage at crossroads; Add “Dead End” and “No Outlet” signs to road posts.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Road Depts.
<b>Anticipated Cost</b>	\$5,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #12 (formerly #14):** Ensure that all personnel are trained in Wildfire Suppression.

<b>Responsible Department</b>	Pierce County EMA, Pierce County/Blackshear/Patterson Fire Depts.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, DHS FEMA/GEMA, AFG, GA Forestry
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #13 (formerly #17):** Conduct a Spring Clean-up Event every Spring.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Depts.
<b>Anticipated Cost</b>	\$60,000 per year
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #14 (formerly #18):** Develop and distribute Firewise informational packets to be distributed by realtors & insurance agents.

<b>Responsible Department</b>	Pierce County EMA, Pierce County/Blackshear/Patterson Fire Depts.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #15 (formerly #19):** Create and Exhibit a Wildfire Protection Display for the general public at the local events such as the Pecan Festival (Display can be independent or combined with the GA Forestry Commission display); Hold open houses at individual fire stations to promote community Firewise safety and develop community support and understanding of local fire departments and current issues.

<b>Responsible Department</b>	Pierce County EMA, Pierce County Fire Dept., GA Forestry Commission
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #16 (formerly #20):** Invite local news media to community “Firewise” functions for news coverage and regularly submit press releases documenting wildfire risk improvements in Pierce County.

<b>Responsible Department</b>	Pierce County EMA, Pierce County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #17 (formerly #21):** Create a Pierce County Wildland-Urban Interface (WUI) Fire Council to review progress towards mitigation goals, appoint & delegate special activities, work with Federal, State and Local officials to assess progress and develop future goals & action plans and work with residents to implement projects and Firewise activities.

<b>Responsible Department</b>	Pierce County EMA, Pierce County Fire Dept.
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds, GA Forestry
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

## **F. Completed And Deleted Action Steps:**

### Objective 1

- Action Step #1 (Order copies of NFPA-299 “Protection of Life and Property From Wildfire” and other publications for the use of Pierce County and the Cities of Blackshear, Offerman and Patterson and for public use) has been completed.

### Objective 2

- Action Step # 11 (Inspect, maintain and improve access to existing dry hydrants; Add signage along roads to mark the hydrants; Assist GFC to locate and pre-clear additional helicopter dip locations) has been completed.
- Action Step #12 (Ensure all fire stations and firefighters are equipped with wildland hand tools & lightweight wildland PPE gear) has been completed.
- Action Step #15 (Conduct “How to Have a Firewise Home” Workshop for Pierce County residents) has been deleted and combined into Objective 1, Action Step 8.
- Action Step #16 (Conduct “How to Have a Firewise Home” Workshop for community leaders) has been deleted and combined into Objective 1, Action Step 8.

## **G. Unchanged Action Steps:**

### Objective 1

- Action Step #2 (renumbered to #1)
- Action Step #3 (renumbered to #2)
- Action Step #4 (renumbered to #3)
- Action Step #5 (renumbered to #4)
- Action Step #6 (renumbered to #5)
- Action Step #7 (renumbered to #6)
- Action Step #8 (renumbered to #7)
- Action Step #9 (renumbered to #8)
- Action Step #10 (renumbered to #9)
- Action Step #11 (renumbered to #10)
- Action Step #12 (renumbered to #11)
- Action Step #13 (renumbered to #12)
- Action Step #14 (renumbered to #13)
- Action Step #15 (renumbered to #14)
- Action Step #16 (renumbered to #15)

### Objective 2

- Action Step #1
- Action Step #2
- Action Step #3
- Action Step #4
- Action Step #5
- Action Step #6
- Action Step #7
- Action Step #8
- Action Step #9
- Action Step #10
- Action Step #13 (renumbered to #11)

- Action Step #14 (renumbered to #12)
- Action Step #17 (renumbered to #13)
- Action Step #18 (renumbered to #14)
- Action Step #19 (renumbered to #15)
- Action Step #20 (renumbered to #16)
- Action Step #21 (renumbered to #17)

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

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

As previously indicated in Chapter 2, hurricanes/tropical storms may cause substantial damage to life, property, and the economy in Pierce County and the Cities of Blackshear, Offerman, and Patterson. They are usually accompanied by some advanced notice, giving the community time to prepare and/or evacuate. The Pierce County HMPUC believes that, because these hurricanes/tropical storms 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 the threat of hurricane/tropical storm damage in the community.

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

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

Structural options in this plan include constructing an emergency supply storage building, designing new educational facilities to serve as shelters, and improving unsafe roads.

Non-structural options include testing current shelters for safety and effectiveness, reviewing building codes and ordinances for pre-disaster mitigation issues, distributing literature, purchasing generators, and purchasing communications equipment.

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

All local governments participate in the Pierce County Joint Planning Commission. Pierce County and the Cities of Blackshear, Offerman, and Patterson operate under the standards of the 2012 International Building Code and have building permitting and inspection programs in place.

The County and all Cities participate in the National Flood Insurance Program. They do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible according to FEMA (<http://www.fema.gov/library/viewRecord.do?id=3629>).

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.

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

Pierce County and the Cities of Blackshear, Offerman, and Patterson have historic buildings, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to mitigating hurricane/tropical storm damage involving wind retrofitting on historic buildings. The Pierce County Courthouse and other historic Critical Facilities should be considered potentially eligible for the National Register.

Worksheet #4-STAPLEE Criteria was completed for each Action Step. Please see worksheets contained in Appendix D.

**4. New Buildings and Infrastructure:**

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

**5. Existing Buildings and Infrastructure:**

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

**C. Mitigation Strategy and Recommendations**

**Goal #1: Prevent or reduce damage caused by Hurricanes/Tropical Storms in Pierce County and in the Cities of Blackshear, Offerman and Patterson. (Formerly Goal #7)**

**Objective #1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, and the public, due to Hurricanes/Tropical Storms. (Formerly Objective #7.1)**

**Action Step #1:** Design new educational facilities to the level that they could be used as public shelters for emergency purposes and test current shelters and educational facilities for safety and effectiveness in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County BOE
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security/Red Cross
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Purchase a storage trailer and construct a storage building for storage of emergency supplies needed for shelters and buy additional materials and/or relocate materials from Brunswick for shelters in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	\$500,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security/Red Cross
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2022-2027
<b>Priority</b>	High
<b>Status</b>	Deferred to next planning cycle due to cost

**Action Step #3:** Review building codes, local ordinances and policies & procedures regarding pre-disaster mitigation issues and streamline those items for easier enforcement in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Building & Codes Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #4:** Work with GDOT to improve unsafe roads in Pierce County and the Cities of Blackshear, Offerman and Patterson that already are, or could be, evacuation routes.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Road Departments
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GA DCA CDBG/GDOT/FHWA
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #5:** Cut made to fit plywood window covers and install construction materials necessary for use during Hurricanes/Tropical Storms at Critical Facilities in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$100,000.00
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2022-2027
<b>Priority</b>	Medium
<b>Status</b>	Deferred to next planning cycle due to lack of funds

**Objective #2: Advise the public of health & safety precautions and procedures necessary during Hurricanes/Tropical Storms and other events and on pre-disaster mitigation, in general.**

**Action Step #1:** Acquire and distribute literature from state agencies regarding disaster health & safety issues in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	High
<b>Status</b>	Ongoing

**Action Step #2:** Distribute information concerning pre-disaster mitigation to area news markets and by speaking at schools and civic clubs in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County EMA
<b>Anticipated Cost</b>	Staff Time
<b>Existing &amp; Potential Funding Sources</b>	General Funds
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<b>Priority</b>	Medium
<b>Status</b>	Ongoing

**Objective #3: Ensure reliable electrical power and communications efficiency at facilities and among agencies during Hurricanes/Tropical Storms and other events.**

**Action Step #1:** Purchase generators and trailers for use at critical facilities and pre-wire facilities & gas pumps for generator use in Pierce County and the Cities of Blackshear, Offerman and Patterson.

<b>Responsible Department</b>	Pierce County/Blackshear/Offerman/Patterson Public Works Departments
<b>Anticipated Cost</b>	\$500,000
<b>Existing &amp; Potential Funding Sources</b>	General Funds/GEMA/FEMA/Homeland Security/Red Cross
<b>Jurisdiction</b>	Unincorporated Pierce County & Cities
<b>Timeframe</b>	2017-2022
<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 Pierce County EMA. Incremental accomplishments of Mitigation Goals, Objectives, and Action Steps will be reported to the public through appropriate means (TV, Web Site, Local Newspaper, City Council Meetings, County Commission Meetings, social media, etc.). By utilizing available resources, each jurisdiction will keep the public constantly informed of the development of these strategies and of how citizens can best assist with and/or take advantage of these efforts.

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

**F. Completed And Deleted Action Steps:**

Objective 3

- Action Step #2 (Install communications capabilities in the Pierce County Transit vans in order to direct them for evacuation purposes in Pierce County and the Cities of Blackshear, Offerman and Patterson) has been discontinued due to changes in the transit system, which is now operated through a third-party contract.
- Action Step #3 (Purchase communications equipment (radios, pagers, batteries, chargers, etc.) that comply with new FCC narrow banded requirements for Pierce County and the Cities of Blackshear, Offerman and Patterson) has been completed.

**G. Unchanged Action Steps:**

Objective 1

- Action Step #1
- Action Step #2
- Action Step #3
- Action Step #4
- Action Step #5

Objective 2

- Action Step #1
- Action Step #2

Objective 3

- Action Step #1
- Action Step #3 (renumbered to #2)

## **Chapter 4:** **Executing The Plan**

### Summary of changes:

- Revised and updated language.

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

### **A. Administrative Actions**

The meetings, planning process, prioritizing, etc. of the Pierce County HMPUC have been overseen by the Pierce County Emergency Management Agency. The Southern Georgia Regional Commission contracted with the Pierce County Commission to administer and facilitate the planning process. The Pierce County Commission and the Cities of Blackshear, Offerman, and Patterson will adopt the Plan (on approval by GEMA and FEMA) by the resolution(s) contained in Appendix E.

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

The Pierce County Commission and the Cities of Blackshear, Offerman, and Patterson have authorized the submission of this Plan to both GEMA and FEMA for approval.

As determined by the Pierce County Commission, the Cities of Blackshear, Offerman, and Patterson, and the Pierce County HMPUC, the Pierce 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 (Pierce County and the Cities of Blackshear, Offerman, and Patterson). The respective jurisdictions will be responsible for the implementation of the specific mitigation activities proposed in this plan.

### **C. Prioritization**

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

In prioritizing the implementing of 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 little cost 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; economic impacts of loss of function of buildings; displacement costs for temporary quarters; loss of public services; loss of net business income; economic impacts of loss of function of infrastructure; road or bridge closures; loss of utility services; and deaths and injuries.

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

Availability of potential funding sources, overall feasibility, measurable milestones, multiple objectives, both public and political support for the proposed actions, and the STAPLEE criteria were additional calculations performed.

### **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 implementation, such as SPLOST funds or FEMA Pre-Disaster Mitigation Program funds.

## **D. Incorporation of Local PDM Plan Into Other Plans/Planning Measures**

This Plan will be reviewed by Pierce County and the Cities of Blackshear, Offerman, and Patterson. The Goals and Action Steps 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 Pierce County Commission and the Cities of Blackshear, Offerman, and Patterson will provide a copy of this Plan to the persons and/or committees responsible for writing and updating plans.

The previous (2012-2017) Pierce County Hazard Mitigation Plan was used as a basis for the creation of this updated (2018-2023) Hazard Mitigation Plan. The previous plan was used as

guidance for hazard mitigation and disaster preparedness during its effective time period, and was judged to be a highly effective plan. Therefore, the present update was created by editing and modifying the previous plan as needed. The previous plan's comprehensive range of Goals, Objectives, and Action Steps was updated as necessary to reflect changes that have occurred in the community since the last plan was adopted.

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

### **A. Method**

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

- The Pierce 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 Pierce County and Cities of Blackshear, Offerman, and Patterson residents, it is imperative that public involvement be an integral part of the planning process.

Since adoption of the original Pierce County Pre-Disaster Mitigation Plan, citizens have been kept involved and apprised of plan progress through such forums as regularly scheduled Commissioner 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 as members of the Pre-Disaster Mitigation Planning Committee.

- Copies of the plan will be kept on hand at appropriate agencies throughout Pierce County.
- 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 Pierce County EMA Director shall submit a revised Hazard Mitigation Plan to GEMA for its approval. It is important to note that the plan update process, as established by the planning committee, is subject to change, depending upon subsequent regulations and/or requirements set forth by GEMA and FEMA.

## **Chapter 5:** **Conclusion**

### Summary of changes:

- Revised and updated language.

Pierce County and the Cities of Blackshear, Offerman, and Patterson 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 Pierce 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, Pierce County and Cities of Blackshear, Offerman, and Patterson officials have gained a better understanding of the natural and man-made hazards affecting our community.

As a result of the planning process described in Chapter 1 and the hazard, risk, and vulnerability assessment in Chapter 2, Pierce County and the Cities of Blackshear, Offerman, and Patterson have a realistic perspective on the hazards to which the community is exposed. With the mitigation strategy outlined in Chapter 3, and the implementation plan included in Chapter 4, the local leaders have an "action plan" to follow when allocating resources to reduce their community's vulnerability to such hazards.

## **References**

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

Pierce County website (<http://pc.pcgeorgia.com/>)

City of Blackshear website (<http://blackshearga.com/>)

City of Patterson website (<http://thecityofpatterson.com/>)

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 Climatic Data Center, Storm Events Database (<http://www.ncdc.noaa.gov/stormevents/>)

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

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

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

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