Jefferson County, Georgia
Multi-Hazard Pre-Disaster Mitigation Plan
Original Plan Approval: 03/27/2009
First Update Approval: 12/29/2014
Second Update Approval: 02/xx/2020







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CHAPTER I. INTRODUCTION TO THE PLANNING PROCESS

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

Table 1.1

Chapter I Section	Updates to Section
I. Purpose and need of the plan, authority & statement of problem	Updated text of this section
II. Local methodology, brief description of plan update process, Participants in update process	Updated the participants, planning process and how data was collected
III. Description of how each section of the original plan was reviewed and analyzed and whether it was revised	There have been numerous changes to the GEMA -PDM planning template since the 2014 approval. All sections of the original plan were analyzed and revised.
IV. Organization of the plan	The plan is organized by GEMA local planning template Local Hazard Mitigation Plan Update Template 5-23-12 and includes a timeline.
V. Local Hazard, Risk, and Vulnerability (HRV) summary, local mitigation goals and objectives	Added new information to summary, new purpose for plan
VI. Multi-Jurisdictional special considerations (HRV, goals, special needs)	Reviewed and updated information regarding multijurisdictional concerns
VII. Adoption, implementation, monitoring and evaluation	This was evaluated and remains the same. Additional text was added to clearly delineate the task of implementation and monitoring. Plan was adopted after GEMA and FEMA review and approves the update plan
VIII. Community Data (demographics, census, commerce, history, etc.)	Updated demographic and added additional information by jurisdiction

SECTION I. PURPOSE AND NEED OF THE PLAN, AUTHORITY AND STATEMENT OF PROBLEM

The Jefferson County 2019 Plan Update is the review and improvement to our Multi-Hazard Pre-Disaster Mitigation Plan approved on December 29, 2014. The plan fulfills the requirements of the Federal Disaster Mitigation Act of 2000 (DMA2K). The Act is administered by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA). The act provides federal assistance to state and local emergency management and other disaster response organizations in an effort to reduce damage from disasters. The plan has involved many community partners including elected officials, city and county personnel, fire, emergency management, law enforcement, and public works. The ultimate goal of this plan is to identify natural hazards and develop strategies to lessen the impact on our community.

The 2018 update is written to comply with Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act Title 44 CFR as amended by Section 102 of the Disaster Mitigation Act of 2000. The act gives state and local governments the framework to evaluate and mitigate all hazards as a condition of receiving federal disaster funds. The 2019 update covers all of Jefferson County to include the cities of Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens. The plan will identify all natural disasters that could threaten the lives and properties of our community. The scope of the update includes both short and long-term mitigation strategies, implementation policies and possible sources of project funding. It also identifies mitigation strategies implemented since the 2014 plan update.

The plan also contains the following information on:

- The vision of mitigation in our community;
- The profile of Jefferson County, its geography, history, physical features and other community indicators;
- The planning process and the involvement of all municipal, state and federal governments, the public, industry and other community players;
- Jefferson County's past and predicted exposure to natural hazards and the potential risks that include the impacts on critical infrastructure with anticipated losses was documented;
- An overview of Jefferson County's capabilities to implement hazard mitigation goals and objectives, and policies that will effectively mitigate risks to our community;
- Procedures for maintaining an effective, long range hazard mitigation plan and strategy to implement;
- An assessment of Jefferson County's current policies, goals and regulations that pertain to hazard mitigation;
- Documentation of the planning process;
- Updated hazard events that occurred since 2014;
- Updated critical facilities added since 2014;
- Documented current mitigation strategies implemented since 2014; and
- Examined and updated mitigation strategy goals, objectives and action steps.

The update is the product of the combined efforts of Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens. Realizing that identifying the community's risks and working collectively toward the prevention of disasters in the community is in the county's best interest, the Washington County Emergency Management Agency (EMA) took the lead role in the update. Under the agency's leadership, there has been an endorsement and a commitment by Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens.

Continued mitigation planning is imperative to lessen the impacts of disasters in Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens. This plan serves as an excellent method to organize and document current and ongoing mitigation strategies; however, the implementation of the plan and its components is vital to achieve a community that is resistant to the impact of a disaster. The objective is implementation of this plan will result in a reduction of the loss of life and property, while allowing the county to prosper with minimal disruption of services to the community.

SECTION II. LOCAL METHODOLOGY, PLAN UPDATE PROCESS AND PARTICIPANTS

The Jefferson County Board of Commissioners contracted with the Central Savannah River Area Regional Commission (RC) to assist in the update to the 2014 plan update. The RC has assisted eleven counties in the completion and update of their Pre-Disaster Mitigation Plans. The RC is currently assisting nine counties with their second update. The RC was tasked to review the current plan and to identify new information that needs to be incorporated into the update. The RC in conjunction with the EMA Director, supervised the project, organized the data, set meeting dates, documented in-kind services, and worked with GEMA to complete the update.

EMA Director James Anderson assembled the Hazard Mitigation Planning Committee. The table below identifies the 2019 members.

Name	Agency/Title	Jurisdiction
Tommy Sheppard	Mayor	City of Avera
Larry Morgan	Mayor	City of Louisville
James W. Miller	Police Chief	City of Louisville
Chester Johnson	Fire Chief	City of Louisville
Valerie Forrest	Fire Dept. Administrative Assist.	City of Louisville
Ricky Sapp	City Administrator	City of Louisville
Frank Parrish	Mayor	City of Stapleton
Rita Hilton	City Clerk	City of Wadley
Donald Hatcher	Public Works Director	City of Wadley
Keith Boulineau	Police Chief	City of Wrens
James Kitchens	Chief of Police Department	City of Wrens
Larry Anderson	Water Utilities Supervisor	City of Wrens
Arty Thrift	City Administrator	City of Wrens
James O. Anderson	EMA Director	Jefferson County
Adam Brett	County Administrator	Jefferson County
Bonnie Wells	County Clerk	Jefferson County
Janet Pilcher	County Nurse/ JC Health Dept.	Jefferson County
Leigh Davis	Nurse/ JC Health Dept.	Jefferson County
Gary Hutchins	Sheriff/Sheriff's Office	Jefferson County
Robert Chalker	Captain Sheriff's Office	Jefferson County
Clark Heibert	Deputy Sheriff	Jefferson County
Johnny Davis	County Commissioner/BOC	Jefferson County
Sandy Walden	Building Dept. Supervisor	Jefferson County
Michelle Weatherford	Nurse Community Health Care	Jefferson County
Scott Tiner	Dir, of Maintenance Board of Education	Jefferson County
Renee Weeks	Board of Education	Jefferson County
Carol McLeod	Staff Writer Jefferson Reporter	Jefferson County
Anna Anderson	EMA Public relations	Jefferson County
Robert Morris	Mayor	Town of Bartow
LC Clark	Council Member	Town of Bartow

The 2014 planning committee members still employed by their respective jurisdictions received an invitation to participate in the update. A table of the 2014 committee members can be found in Appendix E.

The 2019 committee was responsible for the organization, data collection and completion of the plan. It was the responsibility of the committee to include all pertinent departments within their respective governments and to request information as needed. The following agencies/departments/organizations provided specific information and support for the original plan and provided any new information for the update:

- Jefferson County School District was responsible for providing structural replacement and content values for all schools as well as square footage and occupancy limits.
- Police Departments for the Cities of Bartow, Louisville, Stapleton, Wadley, and Wrens provided staff support and were responsible for providing structural replacement and content values for all critical facilities located in their respective cities as well as square footage and occupancy limits.
- Jefferson County Sheriff's Office provided staff support to the planning effort.
- Jefferson County Health Department identified vulnerable populations. They also provided replacement value estimates for their properties.
- Fire Departments of Jefferson County and the City of Louisville and Wrens provided staff support and assisted with identifying occupancy limits for some of the critical structures and replacement value estimates.
- City officials from the Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens provided information relative to their jurisdictions and provided replacement value estimates for their critical facilities.
- Georgia Forestry Commission provided data on wildfire events and assisted with the formulation of mitigation measures.
- Jefferson County Chamber of Commerce assisted in identifying major businesses.
- Jefferson County Board of Commission County Administrator provided information about Jefferson County government buildings including their respective replacement and content values and square footages.
- Jefferson County Tax Assessor's Office provided most of the aggregate values for the critical structures. The valuations had to be converted to full values since they are figured at 40 percent of actual value. This information, combined with demographic data, is compiled on GEMA Worksheet #3a in Appendix A for all jurisdictions.
- CSRA Regional Commission's Geographical Information System (GIS) Department produced several of the maps. Maps are located in Appendix A and C.

Several resources were consulted to facilitate the development of the update. Data was collected from numerous sources, including the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI), Spatial Hazard Events and Losses Database for the United States (SHELDUS™), National Weather Service, US Geological Survey (USGS), Southeast Regional Climate Center (SERCC), US Census Bureau, Georgia Department of Natural Resources (DNR), Georgia Forestry Commission (GFC), Georgia Tornado History Project Database, Georgia Department of Community Affairs (DCA), US Department of Agriculture (USDA), local and regional newspaper articles, as well as

personal interviews. The table below provides a list of existing planning documents used during the update.

Record of Review		
Existing planning mechanisms	**Reviewed (Yes/No)**	**Method of use in Hazard Mitigation Plan**
Jefferson County Joint 2004-2024 Comprehensive Plan	Yes	Development trends, capability assessment, mitigation strategies
Local Emergency Operations Plan	Yes	Identifying hazards; Assessing vulnerabilities; Capability assessment
Georgia Emergency Operations Plan	Yes	Identifying hazards; Assessing vulnerabilities;
Flood Damage Protection Ordinance	Yes	Mitigation strategies, capability assessment
Building and Zoning Codes and Ordinances	Yes	Development trends; Future growth, capability assessment, mitigation strategies
Mutual Aid Agreements	Yes	Assessing vulnerabilities, determine assets added to disaster relief and response.
State Hazard Mitigation Plan	Yes	Risk assessment, review of recommended strategies
Land Use Maps	Yes	Assessing vulnerabilities; Development trends; Future growth
Critical Facilities Maps	Yes	Locations
Community Wildfire Protection Plan	Yes	Mitigation strategies, risk assessment
Flood Insurance Study	Yes	Review for historical Data and Information
The Jefferson County Assets Index	Yes	Reviewed for assets data, tax information
CSRA Regional Plan 2040	Yes	Development trends; Future growth, regional concerns and data

The committee held six meetings over a 24-month period to guide the development of the plan. Individual jurisdictions and/or agencies were contacted, as information was needed. The committee was responsible for developing the mission statement, as well as the goals, objectives, and action steps identified in the plan. The committee researched previous hazard information in the areas of earthquakes, flooding, wildfires, tornados, winter storms, hurricanes, high winds, dam failure, lightning, hail, and drought. However, some hazards were eliminated due to their low level of risk. Committee members collected critical facilities information based on their area of expertise or jurisdiction. The RC was responsible for assessing vulnerability and estimating potential losses from the information collected. Potential losses include people, structures/properties, infrastructure, and other important community assets.

The table below provides the dates and synopsis of committee meetings. All meetings were open to the public and meeting notices posted at all governmental offices. Of the six meetings, three were advertised in *The Jefferson Reporter,* the County's legal organ. This is the most efficient means to disseminate information to residents and organizations located in the county. In order to meet the requirement to afford an opportunity for neighboring communities, local and regional agencies, businesses, academia and other private and non-profit interests to be involved in the planning process, invitations were extended by email. Invitations were extended to the following

counties: Burke, Columbia, Glascock, Hancock, Jenkins, Lincoln, McDuffie, Richmond, Taliaferro, Washington, Warren, and Wilkes including all municipalities located within the counties. It is noted that no public comments or feedback was provided by the public. Copies of correspondence, emails and advertisements are in Appendix E.

Meeting Date	Purpose of Meeting
August 10, 2017	Advertisement ran in *The Jefferson Reporter* for public meeting on August 16, 2017.
August 16, 2017	Kickoff meeting Shelby Meyers, from GEMA provided a presentation about the purpose and need of the plan along with changes to the process since the 2014 plan update.
May 29, 2018	This meeting was to ensure all data collected to date was correct for critical facilities and to reviewed mitigation strategies and action steps
October 3, 2018	This meeting was a continuation of the May 29, 2018 meeting. Ensured all data collected was correct for critical facilities and to reviewed mitigation strategies and action steps.
December 6, 2018	Final over view of plan to ensure all jurisdictional information was correct and review final mitigation strategies.
January 3, 2019	An advertisement ran in *The Jefferson Reporter* advertising the public meeting on January 10, 2019 for public input before submission of plan.
January 10, 2019	This meeting was to ensure the committee and public had a final opportunity to provide input before submission to GEMA for review.
To Be Added after FEMA Approval	Advertisement ran in *The Jefferson Reporter* Advertising for public review and the final meeting ***date will be added after FEMA approval***
To Be Added after FEMA Approval	After GEMA submitted the plan to FEMA and FEMA Approved Pending Adoption (APA), the public was invited to review the final plan prior to adoption during (will be added after APA) time frame. The meeting was held after the aforementioned review period to ensure that the public was afforded the opportunity provide input.

SECTION III. ORIGINAL PLAN REVIEW AND REVISION

The Federal Disaster Mitigation Act of 2000 requires an update to the Pre-Disaster Mitigation Plan every five years. The EMA Director was responsible to meet this requirement. The committee, with the assistance of the RC, was involved in the planning process to ensure thorough data collection. All members of the committee were responsible for the evaluation of 2014 plan. During the review process, the committee noted mitigation accomplishments, updated and prioritized mitigation projects, added additional hazard information, developed new goals and objectives, solicited input from the public and made any needed or required revisions. The evaluation included analyzing any changes in the needs and/or capabilities of Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens.

SECTION IV. ORGANIZATION OF THE PLAN

The estimated time to complete the plan update was approximately 20 months. Plan completion is identified by adoption of resolution by all jurisdictions. The update contains a Hazard, Risk, and Vulnerability (HRV) Assessment describing the natural hazards typically occurring within the county, as well as a review of all mitigation goals, objectives, and related courses of action. In addition, plan implementation and maintenance are reviewed, which includes methods to provide opportunities for public involvement.

The hazards included in this plan are considered to have the highest probability of occurrence, vulnerability, potential loss/damages, and highest frequency of occurrence. The plan also identifies and prioritizes hazard mitigation opportunities in each vulnerable area based on the input from the committee members, relevant government agencies, local businesses, and Jefferson County citizens.

SECTION V. LOCAL HAZARD RISK AND VULNERABILITY, SUMMARY LOCAL MITIGATION PLANNING GOALS OBJECTIVES

The committee, early in the update process, established a set of goals and objectives to ensure the effectiveness of this plan. These goals and objectives established the paradigm for the planning process and proved very successful by the many accomplishments of the 2014 plan update. These goals and objectives are as follow:

- To actively involve and gain support from Avera, Bartow, Louisville, Stapleton, Wadley, Wrens and unincorporated Jefferson County for the reduction of disasters in our community.
- Prioritize identified mitigation projects.
- Seek and implement any grant funding for the reduction of disasters in Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens.
- Monitor, evaluate, and update the progress of the plan as needed.
- To form partnerships among local, state, and federal agencies to make Jefferson County more resistant to the effects of disasters.
- Strengthen our communities against the impacts of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proven effective.
- Reduce and where possible eliminate repetitive damage, loss of life and property from disasters.
- Bring greater awareness throughout the community about potential hazards and the need for community preparedness.
- To further enhance common mitigation projects and goals between Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens.

An HRV assessment was accomplished by compiling and reviewing historical data on the location of specific hazards, the value of existing structures/properties in hazard locations, and analyzing the risk to life, property and the environment that could potentially result from future

hazard events. The committee accomplished the HRV goals and objectives by completing the following steps:

Inventory of Critical Facilities: Critical facilities are crucial for providing essential services necessary for preserving the safety and quality of life of its residents. In addition, these facilities fulfill important public safety, emergency response, and/or disaster recovery functions. All critical facilities were added to the Georgia Mitigation Information System (GMIS). Critical facilities for Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens were identified, updated, mapped, and illustrated in Appendix A.

Hazard Identification: Maps and historical data sources were studied and reviewed to identify the geographic extent, intensity, and probability of occurrence for various hazard events. The 2014 committee identified six major hazards that have the potential to affect Jefferson County: flooding, dam failure, drought, wildfire, severe weather (tornados, tropical storms, thunderstorms and lightning) and winter storms. The update committee reviewed current hazard data and added hail to the already identified hazard. Appendix A provides an updated comprehensive table for each hazard event.

Profiling Hazard Events: The committee analyzed the causes and characteristics of each hazard, and its effect on Jefferson County in the past to determine what segment of the population and infrastructure has historically been vulnerable to each specific hazard. A discussion of each hazard's updated profile is in Chapter 2.

Vulnerability Assessment: This step was accomplished by comparing each previously identified hazard with the inventory of affected critical facilities and population exposed to each hazard. An updated Worksheet #3a is provided in Appendix A.

Estimating Losses: Using the best available data, tax digest data, parcel maps and GMIS reports and maps for critical facilities allowed the committee to estimate damages and financial losses that might occur in a geographic area. Describing vulnerability in terms of dollar losses provides the county with a common framework in which to measure the effects of hazards on critical facilities. All information in this section has been updated *(Appendix A and Appendix D).*

Mitigation Goals and Objectives: After ensuring that all interested persons had been given ample opportunity to contribute to strategy development, mitigation action steps were next given priority status by committee members. To evaluate priorities, committee members used as a guide a planning tool prepared by FEMA known as STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria. Each mitigation strategy step was evaluated using STAPLEE criteria as the guiding principle to identify those steps best for Jefferson County. Steps were ranked as high priority, medium priority, or low priority. Past occurrences of disasters and historical trend data aided committee members in assigning priorities. A copy of the STAPLEE is located in Appendix D.

SECTION VI. MULTI-JURISDICTIONAL SPECIAL CONSIDERATIONS

Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens provided active participants in the planning process and have identified mitigation goals, objectives and action

items specific to their jurisdiction. The governing bodies for the county and all municipalities have formally adopted the Jefferson County Multi-Hazard Pre-Disaster Mitigation Plan.

The municipalities were notified in January 2017 of the requirement concerning the update to the 2014 plan update. Representatives from all seven jurisdictions have worked collectively over the past months to gather data that included researching old records, newspaper articles, databases, historical data, past and present flood plain data, and technical information for the plan. Collected data was forwarded to the RC for review and plan development. The committee held subsequent meetings in an effort to ensure that all information was correct and that all agencies and organizations input was included.

The EMA Director led activities for mitigation planning countywide. The committee goals are to work in partnership with municipal partners toward a common mitigation strategy that significantly reduces vulnerability of natural disasters. Most natural threats overlap jurisdictions and are all susceptible to their affects. Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens share the same passion and desire for protecting and reducing risk through the mitigation projects. Specific risks and areas were identified through working relationships and data collection from all areas of the county and are identified in this plan.

SECTION VII. ADOPTION, IMPLEMENTATION AND MONITORING AND EVALUATION

Adoption Date

Jurisdiction	Adoption Date
Jefferson County	***To Be Added after FEMA Approval***
City of Avera	***To Be Added after FEMA Approval***
City of Bartow	***To Be Added after FEMA Approval***
City of Louisville	***To Be Added after FEMA Approval***
City of Stapleton	***To Be Added after FEMA Approval***
City of Wadley	***To Be Added after FEMA Approval***
City of Wrens	***To Be Added after FEMA Approval***

The plan was submitted to GEMA for review and then to FEMA for approval. Their respective governing bodies have formally adopted the 2019 update after GEMA and FEMA approval. The plan is intended to be implemented into policy and to enhance state and federal recommendations for the mitigation of natural hazards in the following ways:

- Substantially reduce the risk of life, injuries, and hardship from the destruction of natural disasters.
- Create awareness to the public about the need for individual preparedness and about building safer, disaster resistant communities.
- Develop strategies for long term community sustainability during community disasters.
- Develop governmental and business continuity plans that will continue essential private sector and governmental activities during disasters.

FEMA publishes many guidance documents for local governments for mitigating natural disasters. The plan fully recognizes, adopts, incorporates, and endorses the following principals.

- Develop a strategic mitigation plan for Jefferson County.
- Enforce current building codes.
- Develop incentives to promote mitigation.
- Incorporate mitigation of natural hazards into land use plans.
- Promote awareness of mitigation opportunities throughout Jefferson County community on a continual basis.
- Identify potential funding sources for mitigation projects.

The private sector is often an overlooked segment of the community during disasters. It is vital that this sector of a community is included in mitigation efforts that are consistent with state and federal recommendations as such:

- Develop mitigation incentives with insurance agencies and lending institutions.
- Encourage the creation of a business continuity plan for the continuance of commerce during disasters.
- Partner with businesses in effort to communicate with customers about the community hazards and possible solutions.

Individual citizens must be made aware of the hazards they face. Additionally, they must be educated in how to protect themselves from natural hazards. They must be shown mitigation is an important part of reducing loss of life and property in their community. Their support is critical to the success of any mitigation effort. The Jefferson County Plan supports the following FEMA recommendations regarding individual citizens:

- Become educated on the hazards that your community and you may face.
- Become part of the process by supporting and encouraging mitigation programs that reduce vulnerability to disasters.
- That individual responsibility for safeguarding you and your family prior to a disaster is essential.

Chapter IV. Plan Integration and Maintenance details the formal process that will ensure that the plan remains an active and relevant document. The plan maintenance process includes monitoring and evaluating the plan annually and producing a plan revision every five year. Additionally, Jefferson County will develop steps to ensure public participation throughout the plan maintenance process. Finally, this section describes how Jefferson County will incorporate the mitigation strategies identified in this plan into other relevant planning documents such as the Jefferson County Joint Comprehensive Plan, Short-Term Work program (STWP) and Local Emergency Operations Plan (LEOP).

SECTION VIII. COMMUNITY DATA

Political Boundaries - Jefferson County

Jefferson *County*

GA Department of Community Affairs Region 7

Georgia

History: Jefferson County was created in February 20, 1796 and named for Thomas Jefferson, the third president of the United States Jefferson County was originally part of Burke and Warren counties and named for Thomas Jefferson. Louisville, the county seat, was named in honor of King Louis XVI of France, because of the support given by France to the Colonials in the Revolution. Louisville was Georgia's third state capital, but its first "permanent" one. Louisville was the site of the Constitutional Convention of 1798 in which the state's pre-Civil War constitution was adopted. Georgia's Great Seal, which is still in use today, was adopted at the same time.

Government: Jefferson County operates under a commission-based system of government in which five commissioners are elected to four-year terms. Other county officials are the County Attorney, Clerk of Superior Court, Code Enforcement Officer, Public Works, Roads and Bridges, Probate Judge, Coroner, Magistrate Judge, Sheriff, and Tax Commissioner. Jefferson County contains six municipalities, all of which operate under a mayoral system of government with additional officials providing services to residents.

Jefferson County Georgia: Municipal Governments	AVERA	BARTOW	LOUISVILLE	STAPLETON	WADLEY	WRENS
Mayor	X	X	X	X	X	X
# Council Members	4	5	5	5	5	5
City Clerk	X		X	X	X	X
City Coordinator/Administrator		X	X			X
City Attorney	X	X	X	X	X	X
Police Chief		X	X	X	X	X
Fire Chief	X	X	X	X	X	X
City Engineer						
Public Works Director	X		X			X

Jefferson County Georgia: Municipal Governments	AVERA	BARTOW	LOUISVILLE	STAPLETON	WADLEY	WRENS
Gas Superintendent			X			X
Water Superintendent	X	X	X	X		
Wastewater Superintendent		X	X			X
Sanitation Superintendent		X	X	X		
Building Inspector					X	X
Code Enforcement						X
Municipal Court Judge		X	X	X	X	X
Municipal Court Clerk		X	X	X	X	X

Source: Georgia Municipal Association

Demographics: Presently, Jefferson County has a population of 16,930 persons. The two tables below show current and historical comparisons of all jurisdictions.

Category	Jefferson County	Avera	Bartow	Louisville	Stapleton	Wadley	Wrens
Population	16,930	246	286	2,493	438	2,061	2,187
Number of Households	6,241	100	110	875	175	752	860
Average Household Size	2.63	2.46	2.6	2.61	2.5	2.62	2.54
Race - White	42.6%	91.1%	41.3%	28.5%	66.2%	17.4%	32%
Race - Black	54.4%	6.9%	58.4%	70.4%	30.8%	79.2%	64.7%
Race - Hispanic	3.1%	0.0%	0.3%	0.7%	1.4%	4.8%	2.5%
Race - Other	1.6%	0.0%	0.0%	0.2%	0.2%	2.4%	1.6%
Median HH Income	$27,612	$35,000	$40,000	$30,597	$27,143	$20,078	$29,620

Source: US Census Bureau

Economy: In the year 2017, the average weekly wage for employment sectors was $726, compared to the statewide average of $979. The November 2018 unemployment rate was 4.4 percent. In 2017, the labor force in Jefferson County totaled 6,760. Of the total work force, 41.7 percent were employed in the service providing sector, followed by 36.1 percent in the goods producing sector and 21.9 percent in the government sector.

The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting,

analyzing, and publishing statistical data related to the U.S. business economy. The table below provides a list of jobs, number of establishments and jobs along with average weekly wages per job for 2017 in Jefferson County.

Annual Industry Distribution of Jobs and Average Wage in 2013 (NAICS)	Establishments	Jobs	Annual Average Wage Per Job
Total Covered Employment and Wages	**363**	**4,786**	**$726**
Total Private Sector	**320**	**3,347**	**$761**
Total Government	**36**	**1,049**	**$602**
Agriculture, forestry, fishing, hunting	37	268	$786
Mining, Quarrying, and Oil and Gas Extraction	7	352	$1,373
Construction	31	203	$889
Manufacturing	33	908	$833
Wholesale trade	12	119	$649
Retail trade	58	589	$399
Transportation, warehousing	12	88	$789
Utilities	4	*	*
Information	2	*	*
Finance and Insurance	18	99	$986
Real Estate, rental, leasing	11	42	$562
Professional, Scientific, Technical services	11	58	$894
Mgmt. of companies, enterprises	2	*	*
Administrative and support and waste management and remediation services	13	72	$684
Educational services	1	*	*
Health care, social assistance	20	333	$592
Arts, entertainment, recreation	2	*	*
Accommodation and food services	26	268	$264
Other services, except public administration	19	63	$416
Unclassified-Industry not assigned	8	11	$869

Source: Georgia Department of Labor **** Industry group does not meet criteria for disclosure***

Climate: According to the National Weather Service, Central Georgia where Jefferson County is located experiences all four seasons. Jefferson County averages 45.6 inches of rain per year. The US average is 37. The number of days with any measurable precipitation is 93. On average, there are 218 sunny days per year in the county. The average July high is around 92 degrees and the average January low is around 36 degrees.

Physical Features: Jefferson County encompasses an area of roughly 531.2 square miles or 339,936 acres. The County is located at the cusp of two geological regions, the Southern Piedmont and the Georgia Coastal Plain. This gives the county a mixture of geological features and provides for a variety of landscapes and available resources. The fall line, which

runs through Jefferson County, is a geological boundary following the Appalachian Mountain range from Alabama to New York. In Georgia and South Carolina, the fall line separates the Southern Piedmont from the Southern Coastal Plain. The location has implications for how drinking water is retrieved in the county as the Floridian aquifer closely follows the boundaries of the Fall Line.

Jefferson County and its six incorporated cities are primarily within the Dothan-Fuquay-Tifton and Orangeburg-Faceville-Lucy Soil associations. These two make up 74% of the county. These soils are strong and well drained with slopes range from 0 to 15%. Excess surface water drains into a system of intermittent and perennial streams. There are few areas of open water. The soils are used mainly for field crops, hay, or pasture, but many areas are wooded. Roads, utility lines, fences, and farm homes and associated structures are common. The degree of visual diversity is moderate. These soils are good for most urban and agricultural uses. Soil map is in appendix A.

Transportation

Vehicle Traffic: U.S. Highways 1, 221, 319, and Georgia Highways 102 and 80 all intersect a portion of the county and are the primary arterials in Jefferson County. Interstate Highway 16 passes 32 miles south of the county line, while Interstate Highway 20 passes just 22 miles away via Georgia Highway 17. Roads classified on the map, located in Appendix A, are considered major county thoroughfares and serve as main transportation routes within the county and to surrounding areas. All other county or municipal roads not classified on the thoroughfare map are considered locally serving. Most of the roadway network is rural, with only a handful of urban roads in Louisville, Wadley and Wrens.

Mileage by Route and Road System Report 445 for 2014			
	Total Road Mileage	Lane Mileage	Vehicle Miles Traveled (VMT)
State Route	186.385	439	478,282
County Road	545.015	1,090	153,946
City Street	95.541	191	37,402
Total	**828.53**	**1,724**	**575,236**

Source: Georgia Department of Transportation, Office of Transportation Data, "445 Series Reports 2017."

Public Transportation: In addition to coordinated transportation through the Georgia Department of Human Resources, Jefferson County Transit (WCT) provides public transportation for county residents. Services include transporting residents to and from destinations for shopping, work, school, personal appointments, and recreational opportunities within and outside the county. The county and state fleets include a total of eight vans – two wheelchair accessible and six 12-15-passenger vans. Approximately 2,771 monthly trips are provided to county residents.

Rail Traffic: Rail companies provide crucial cargo transport for industries in Jefferson County. Many items and materials are too bulky or heavy to be shipped by truck and are moved by rail. Norfolk Southern has two lines that pass-through Wadley and Wrens en route to Warrenton and Atlanta. In addition, the Central Georgia Railroad has a short line connecting Wadley with Louisville.

Air Service: Airports located in Louisville and Wrens provide small craft aviation services. The airport in Wrens maintains a hangar space of 6,396 sf. and a runway. The airport in Louisville has a 5,000-foot-long runway and offers hangars and tie-downs. There is 15,500 sf. of hangar space available as well as one T-hanger that will accommodate four planes. The current terminal building is small and old and needs to be replaced. There are two parallel unpaved taxiways. The nearest commercial air service is in Augusta, 35 miles away. Atlanta-Hartsfield International Airport, located in Atlanta approximately 150 miles from Louisville, provides major commercial airline service.

Utilities

Electricity: Residential electrical service is provided by three companies: Georgia Power, Jefferson Energy Cooperative, and Washington Electric Membership Corp. A part of Georgia's modern integrated electrical transmission system, Jefferson County has excellent ability to supply industrial demands. Compared to 47 percent for the U.S., coal accounts for 84 percent of fuel used by the state's power generating plants. This assures long-term continuity. If demand exceeds 900kw, any supplier can step in and offer service

Natural gas: Natural Gas Services is provided by the City of Louisville and the City of Wrens. The service is available to residents of Louisville and Wrens and some residential customers in the unincorporated area of the county.

Sewer: Public sewer service is provided in Bartow, Louisville, Wadley, and Wrens. A small section of the County is served by the City of Louisville. The remaining unincorporated areas of the County, Avera, and Stapleton are not served with public sanitary sewer service.

Municipality	Sewer and Wastewater Systems
Avera	Septic tanks only.
Bartow	Wastewater Treatment Plant
Louisville	Two water pollution control plants, 2 oxidation ponds
Stapleton	Septic tanks only.
Wadley	One wastewater treatment plant, 1 oxidation pond
Wrens	Wastewater Treatment Plant

Water: Public water supply is provided by the Cities of Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens to residents within their incorporated boundaries. Some unincorporated areas of the County are served by Louisville or Wrens the remainder is served by private wells.

Municipality	Water Distribution System
Avera	Complete water distribution and treatment system: Two wells, distribution lines, one elevated water storage tanks.
Bartow	Complete water distribution and treatment system: Two wells, distribution lines, one water storage tank.
Louisville	Complete water distribution and treatment system: Three water storage tanks, distribution lines, three elevated water storage tanks
Stapleton	Complete water distribution and treatment system: Two water storage tanks and distribution lines.
Wadley	Complete water distribution and treatment system: Two wells, two water storage tanks, distribution lines.
Wrens	Complete water distribution and treatment system: Five wells, four ground storage tanks, distribution lines.

Solid Waste: Jefferson County operates a landfill along U.S.1 under permit # 081-011D (MSWL). The majority of solid waste comes from residential use or household garbage, including paper products, plastics, glass, aluminum, and ferrous metals. A limited amount of commercial and industrial waste consists of corrugated paperboard and wood waste. Green box collection is used in the unincorporated areas for solid waste disposal. Currently there are green boxes at twenty-five (25) separate sites in the county. The county provides solid waste services for Avera. Louisville and Bartow haul their waste to the count landfill while the rest of the municipalities contract with private haulers.

Communications: Jefferson County's communication services is provided by three companies: Comcast, AT&T and Pineland Telephone. Local print media consists of *The News and Farmer and Wadley Herald/The Jefferson Reporter* (which serves as the legal organ of the county) and *The Augusta Chronicle*. Jefferson County is served by 2 local AM radio stations and 2 local FM radio stations. There are seven television stations in metro Augusta that broadcast in Jefferson County. They are WJBF, WAGT, WRDW, WAAU, WBPI, WCES, and WFXG.

Fire and Emergency Services

Response: All residents of Jefferson County have access to 911 service. The 911 service connects residents to police, fire and ambulance service. The dispatch office is in Louisville and a substation in Wrens. The 911 service has 3 employees on staff during the day on weekdays and 2 employees on staff at night and on weekends. The City of Wrens utilize their own system so any 911 calls are transferred over to their departments. The City of Wrens 911 communications center is staffed by four full-time dispatchers and two part-time dispatchers. The Jefferson County 911 service has mutual aid agreements with neighboring counties and therefore can respond to and assist in calls outside their jurisdiction.

Emergency Medical Services: Jefferson County gets its Emergency Medical Services (EMS) through a private corporation called Gold Cross. Services provided include emergency and nonemergency ambulance transportation. The company provides dispatching services as well providing emergency service training. The Gold Cross has its main station at the Jefferson

County Hospital. In addition, there are substations located in Wrens and Wadley. The Hospital Station and the Wrens Substation operate on a 24-hour basis and the Wadley Substation operates from 7 AM to 7 PM.

The Gold Cross service maintains four ambulances in the county but only operate three at any time. The fourth is kept as a backup. The ambulances are all ALS (Advanced Life Support) units. During the Monday through Friday 7 AM to 7 PM shift the service has three trucks operating. On weekends and from 7 PM to 7 AM during the week they operate with two trucks.

Fire and Rescue: Jefferson County has seven fire departments throughout the county that provide service to both the incorporated and unincorporated areas. There is also a detachment of the Georgia Forestry Commission that combats woodland, wildlife and agricultural fires. Jefferson County itself has two departments with 28 volunteer firefighters and a total of three bays. The county insures six fire trucks, ranging in model years from 1957 to the two newest 1974 International pumper trucks.

Municipality	Fire Department
Avera	Served by an all-volunteer fire department, with 10 volunteer firefighters. The department owns vehicles; two pumpers and a brush truck. The ISO rating for the district is a 6 in the county and 4 within the city limits.
Bartow	Served by an all-volunteer fire department, with 19 volunteer firefighters. The department owns three pumpers, one 3,000 gal tanker, one 1,500 gal fire knocker and one rescue truck. The ISO rating for the district is a 7.
Louisville	Served by one fire department staffed with four full-time paid firefighters, and 28 volunteer firefighters. The department owns four vehicles; three pumpers and one fire knocker. The ISO rating for the district is a 5.
Stapleton	Served by an all-volunteer fire department, with 15 volunteer firefighters. The department owns four vehicles; two pumpers a fire knocker and a service truck. The ISO rating for the district is a 7.
Wadley	Served by an all-volunteer fire department, with 15 volunteer firefighters. The department owns four vehicles; four pumpers. The ISO rating for the district is a 7.
Wrens	Served by one fire department with five full-time firefighters and 25 volunteer firefighters. The fire department insures two pumper trucks with 1250 and 1500 gpm; a rescue/pumper with 2000 gpm and one 250 gal forestry truck. The ISO rating for the department is 3.

Law Enforcement: Jefferson County Sheriff's Office employs the Sheriff, 14 deputies, five jailers, three investigators and two clerical personnel. The Office has a total of 30 vehicles, including 20 police cars, one pickup truck and one van. The County is also served by regional offices of the Georgia Bureau of Investigation and The Georgia State Patrol.

Municipality	Law Enforcement
Avera	Served by Jefferson County Sheriff's Office
Bartow	Served by Bartow Police Department with the Police Chief and one part-time officer.
Louisville	Served by Louisville Police Department with the Police Chief and seven full-time officers.
Stapleton	Served by Stapleton Police Department with the Police Chief and two part-time officers.
Wadley	Served by Wadley Police Department with the Police Chief, one investigator, and five full-time officers.
Wrens	Served by Wrens Police Department with the Police Chief, an Assistant Chief, three full-time and four part-time officers, and one full-time sergeant.

The Jefferson County Jail is currently the only place being used to house inmates at this time. All inmates are brought there instead of being incarcerated in the individual municipality. The Jefferson County Jail has 120 beds and eight holding cells.

CHAPTER II. NATURAL HAZARD, RISK AND VULNERABILITY (HRV)

The committee identified all-natural hazards that could potentially affect Jefferson County and all incorporated jurisdictions utilizing FEMA Worksheet #1 (Appendix D). Task A of Worksheet #1 instructed committee members to research newspapers and other historical records, existing community plans and reports, as well as internet websites to determine which hazards might occur. Task B then narrowed the list to only hazards most likely to impact the county by reviewing hazard websites to determine if Jefferson County is located in a high-risk area.

As a result of the planning process, the committee determined that six natural hazards pose a direct, measurable threat: flooding, dam failure, drought, wildfire, severe weather (to include tornados, tropical storms, thunderstorm winds, lightning and hail), winter storms and earthquake. The committee profiled each of these hazards using FEMA worksheet #2 and #3a, which included obtaining a base map and then recording hazard event profile information. Of the six hazards mentioned, the entire County is exposed to four: severe weather, winter storms, wildfire and drought. Flooding is isolated to select areas within the floodplain, while dam failure is isolated to areas downstream of the event. Each of these potential hazards is addressed with relevant supporting data.

Chapter II. Section		Updates to Section
I.	Natural Hazard Flood	Updated events, added critical facilities to GMIS, updated tax information. Recalculated hazard frequency data. Added information from Hazus-MH analyses.
II.	Natural Hazard Dam Failure	Updated events, added critical facilities to GMIS, updated tax information. Recalculated hazard frequency data.
III.	Natural Hazard Drought	Updated events, added critical facilities to GMIS, updated tax information. Recalculated hazard frequency data.
IV.	Natural Hazard Wildfire	Updated events, added critical facilities to GMIS, updated tax information. Recalculated hazard frequency data.
V.	Natural Hazard Severe Weather	Updated events, added critical facilities to GMIS, updated tax information. Recalculated hazard frequency data. Added information from Hazus-MH analyses.
VI.	Natural Hazard Winter Storms	Updated events, added critical facilities to GMIS, updated tax information. Recalculated hazard frequency data.
VII.	Earthquake	Added events, added critical facilities to GMIS, updated tax information. Calculated hazard frequency data.

SECTION I. FLOODING

A. Hazard Identification: Flood plains are relatively flat lands that border streams and rivers that are normally dry but are covered with water during floods. The susceptibility of a stream to flooding is dependent upon several different variables. Among these are topography, ground saturation, rainfall intensity and duration, soil types, drainage, drainage patterns of streams, and vegetative cover. A large amount of rainfall over a short time period can result in flash flood conditions. A small amount of rain can also result in floods where the soil is saturated from a previous wet period or if rain is concentrated in an area of impermeable surfaces such as large parking lots, paved roadways, etc. Topography and ground cover are contributing factors for floods where water runoff is greater in areas with steep slopes and little or no vegetation. The severity of a flood is usually measured in terms of depth of flooding.

Flooding occurs when the volume of water exceeds the ability of a water body (stream, river, or lake) to contain it within its normal banks. Floodplains serve three major purposes: Natural water storage and conveyance, water quality maintenance, and groundwater recharge. These three purposes are greatly inhibited when floodplains are misused or abused through improper and unsuitable land development. For example, if floodplains are filled to construct a building, valuable water storage and recharge areas are lost. This causes unnecessary flooding in previously dry areas and can damage buildings and other structures.

Jefferson County, Bartow, Louisville, Stapleton, Wadley and Wrens will continue to comply with NFIP requirements and intend to remain in compliance by enforcing flood plain ordinances that prohibit or severely limit development in floodplains. The following table provides information about each jurisdictions participation level. Avera has no identified flood plains. The following table provides information about each jurisdictions participation level.

Community Name	Init FHBM Identified	Init. FIRM Identified	Curr. Eff. Map Date	Reg-Emer Date	Sanction Date
Jefferson County		12/17/10	12/17/10(M)	12/17/10	
Avera		N/A	N/A	N/A	N/A
Bartow	08/22/75	01/01/92	12/17/10(M)	01/01/92	
Louisville	08/15/75	01/01/92	12/17/10(M)	07/03/86	
Stapleton	04/04/75	08/19/96	12/17/10(M)	08/19/96	
Wadley	08/22/75	08/19/96	12/17/10(M)	08/19/96	
Wrens	05/10/74	06/17/86	12/17/10(M)	06/17/86	

Source: FEMA Community Status Book

B. Hazard Profile: Severe flooding within Jefferson County is a relatively infrequent event. The county has 54 streams/rivers, 39 reservoirs and three lakes which makes the potential for flooding significant. The committee examined historical data from the USGS, NCEI, SHELDUS™, past newspaper articles and conducted interviews during its research on the effects of past flooding events.

In the last 89 years there have been eight reported flooding events where seven occurred countywide and one in Bartow. There has been a total of approximately $2.1 million in property

and crop damages with three fatalities reported. The rainfall resulted in flash flooding which caused downed trees and power lines, apartment and schools to flood and washed out several roads. Limited data is available for the incorporated jurisdictions. The most complete data applies to the county as a whole. The table below is a result of information gathered from interviews, newspaper articles, the USGS, the NCEI and SHELDUS databases.

Details	Begin Date	End Date	Type	PrD	CrD
A result of a hurricane that came ashore at Pensacola Florida	9/30/1929	10/3/1929	Flood	0.00k	0.00
Flooding There was a 3-day rainfall of 19.89 inches in Louisville	10/11/1990	10/12/1990	Flooding	2000.00k	0.00
Flood	10/13/1990	10/15/1990	Flood	50.00k	0.00
Flash Flood	3/1/1991	3/1/1991	Flash Flood	5.00k	0.00
Tropical Storm Tammy caused heavy winds/minor flooding	10/5/1995		Flooding	0.00k	0.00
As a result of Hurricane Dennis widespread flooding	7/10/2005		Flooding	0.00k	0.00
Flood	5/6/2009	5/6/2009	Flooding	1.00k	0.000
The Jefferson County EOC reported washed out roads near Avera. Almost two inches of rainfall in a 3-hour period on already wet soils quickly overwhelmed the drainage systems.	7/13/2013		Flooding	0.00k	0.00

Source: NCEI and SHELDUS

There have been two major flood events recorded: one in 1929 and one in October 1990. Torrential rain occurred in east-central Georgia on October 10-12, 1990. The largest 24-hour rainfall amount recorded was 16.42 inches at Louisville. Severe flooding caused by the intense rain occurred in several tributaries to the Ogeechee, Ohoopee, and Savannah Rivers. There was a 3-day rainfall of 19.89 inches in Louisville. Based on interviews with city officials flood depth for this event exceeded 20 feet. Information from the newspaper according to EMA Director McGahee of the 800 miles of roads in the county at least 400-600 miles are affected. Roads were cut off in 58 places in the county.

Maximum discharges of streams in east-central Georgia had recurrence intervals ranging from 2-years to more than 100 years. Record-high stages and discharges occurred at 14 sites in east-central Georgia where stage and discharge data were collected.

The most severe flooding occurred on Big Creek near Louisville, Brushy Creek near Wrens and Buckhead Creek near Waynesboro where the maximum discharges were much greater than the respective 100-year discharges. Known dam failures upstream of the gaged sites on Big Creek and Brushy Creek contributed to the severity of the flooding. Also, there were at least six other streams within about a 50-mile radius of Augusta that experienced maximum discharges equal to or greater than those having a 100-year recurrence interval. All sites where discharge equaled or exceeded the 100-year discharge within this 50-mile radius had drainage areas of less than 100 square miles, except sites on the Ogeechee River. The Ogeechee River experienced maximum discharges having recurrence intervals ranging from 10 to more than 100 years. The maximum discharge of 27,000 cubic feet per second for the Ogeechee River near Louisville was the largest since 1929. *(Summary of Floods in the United States during 1990 and 1991 USGS)*

While severe flooding within the county is a relatively infrequent event, there is a potential for flooding. Flooding usually occurs from fall to mid-spring. Flash flooding is the most prominent flooding event that takes place as riverbanks overflow due to rainfall. To date there has been more than $2 million dollars in reported damages and three fatalities. There are no NFIP mitigated properties and no properties have encountered repetitive flooding. The GMIS flood hazard map assigns the following flood zone ratings for each jurisdiction:

- Bartow, Louisville, Stapleton, Wadley, Wrens and parts of Jefferson County have a flood zone rating of three where floodplains are known.
- Avera, Bartow, Louisville, Stapleton. Wadley, Wrens and unincorporated areas of the County have a flood zone rating flood zone rating of zero for areas outside of flood zones.

The magnitude of a major flood event could have approximately 75% of the county experiencing some damage from flooding. The FEMA Flood Zone maps shows the following conditions for:

- the unincorporated areas of the County have flood prone areas along waterways and the rest of the unincorporated areas are outside of known flood hazard areas;
- Avera has no identified flood prone areas;
- Bartow's flood prone areas run along the entire western boundary;
- Louisville's flood prone areas flood prone areas run along the western boundary;
- Stapleton's flood prone areas run through the city trickle throughout the city;
- Wadley's flood prone areas run along the entire southern, eastern and western borders of the city with a small area at the upper northern part of the city; and
- Wrens' flood prone areas run across the lower southern portion of the city, a small area at the northern top of the city and a section on the eastern portion that run into the middle of the city.

While data was collected looking at 89 years of data, frequency rate was calculated using a 20-year hazard cycle per guidance from GEMA. Based on a 20-year hazard cycle the chance of an annual flooding event occurring is 15% for all of Jefferson County and all jurisdictions. *(See Appendix A, Section I and Appendix D).*

C. Assets Exposed to Hazard and Estimates of Potential Loss: For determination of assets exposed to risk this plan used maps created from FEMA data and available parcel data. Based on FIRM, tax

digests, parcel maps and FEMA Worksheet #3a for inventory of assets, the following assets are at risk during a flood event:

- Avera has no structures/properties at risk;
- Bartow has five structures/properties valued at approximately $86,770 with an estimated population of four;
- Louisville has 21 structures/properties valued at approximately $978,136 with an estimated population of nine;
- Stapleton has 16 structures/properties valued at approximately $176,486 with a population of 12;
- Wadley has 22 structures/properties valued at approximately $1.1 million with a population of 32;
- Wrens has 46 structures/properties valued at approximately $2.4 million with a population of 76; and
- Unincorporated Jefferson County has 153 structures/properties valued at approximately $5.5 million with an estimated population of 264.

All 263 structures/properties have been identified by federal flood plain maps and/or parcel maps. Not all structures that have been identified will experience damage from floods. The extent of each flood varies according to the amount of rainfall in a given area. If a 100 percent loss of the 263 structures/properties located within flood zones would result in approximately $10.2 million in, a 75% loss would represent approximately $7.7 million, a 50% loss would represent approximately $5.1 million, and a 25% loss would represent approximately $2.6 million.

The GMIS has two critical facilities with a hazard score of three: The Wrens Waste Water Treatment Plant and the West Walker Street Lift Station with a replacement value of slightly more than $3.5 million. Of the 116 remaining critical facilities, 39 have a hazard score of one with a replacement value of more than $111 million and 77 have a hazard score of zero with a replacement value slightly less than $214 million. The table below shows the breakdown of critical facilities by jurisdiction, flood hazard score, replacement value, content value, and daily occupancy.

Jurisdiction	Hazard Score	# of Critical Facilities	Replacement Value $	Content Value $	Occupancy	
					Day	Night
Jefferson County	1	16	$102,814,730	$6,579,800	1,898	530
Jefferson County	0	17	$158,346,263	$4,490,900	2,175	265
Avera	1	3	$737,500	$400,000	1	0
Bartow	1	1	$60,500	.00	0	0
Bartow	0	15	$3,811,977	$402,000	6	3
Louisville	1	6	$2,656,165	.00	0	0
Louisville	0	13	$35,786,225	$1,700,000	271	204
Stapleton	0	4	$1,778,500	$730,000	2	0
Wadley	0	17	$7,800,653	$2,388,200	146	97
Wrens	3	2	$3,550,000	$125,000	0	0
Wrens	1	13	$5,287,500	$25,000	0	0

Wrens	0	11	$6,275,000	$1,024,200	50	0
TOTAL		**118**	**$328,905,013**	**$17,865,100**	**4,549**	**1099**

The GMIS has no repetitive flooding NFIP property and no NFIP mitigated properties or properties that have encountered repetitive flooding where there was loss. There is no estimate for future structures since future development will be limited and regulated in areas where floodplains exist. *(See Appendix A, Section I and Appendix D).*

FEMA Hazus-MH Version 2.2 SP1 was used to analyze a probabilistic risk assessment of a 1% annual chance riverine flood event (100-Year Flood) for Jefferson County. A copy of the complete report can be found in Appendix C. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The County's flood risk assessment analyzed at risk structures in the SFHA. The results of the Riverine 1% Flood Scenario revealed that buildings are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. The Hazus analysis generated information to building loss, essential facility loss, food and shelter requirements and debris because of the Riverine 1% Flood Scenario. The results of this scenario are as follows:

Occupancy	Total Buildings in the Jurisdiction	Total Buildings Damaged in the Jurisdiction	Total Building Exposure in the Jurisdiction	Total Losses to Buildings in the Jurisdiction	Loss Ratio of Exposed Buildings to Damaged Buildings in the Jurisdiction
Bartow					
Residential	126	1	$15,871,916	$35,078	0.22%
Louisville					
Residential	932	2	$132,191,948	$56,993	0.04%
Stapleton					
Residential	189	2	$22,643,895	$69,179	0.31%
Commercial	16	1	$5,151,357	$67,850	1.32%
Wadley					
Residential	842	7	$103,784,578	$158,064	0.15%
Wrens					
Industrial	46	1	$79,633,061	$33,703	0.04%
Commercial	158	1	$106,495,257	$5,027	0.00%
Residential	839	19	$125,817,948	$465,130	0.37%
Unincorporated					
Residential	4,247	66	$429,749,450	$1,642,053	0.38%
Industrial	80	1	$159,353,531	$51,743	0.03%
Commercial	115	2	$179,426,755	$107,443	0.06%

		County Total			
	7,590	**103**	**$1,360,119,696**	**$2,692,263**	

- **Essential Facility Losses:** The analysis identified no essential facilities being subject to damage.
- **Flood Shelter Requirements:** The scenario estimates 255 households are subject to displacement. Displaced households represent 754 individuals, of which 207 may require short-term publicly provided shelter.
- **Flood Debris:** Hazus-MH estimates that an approximate total of 3,633 tons of debris might be generated by the flood. The model breaks debris into three general categories:
  - Finishes (dry wall, insulation, etc.) – 1,498 tons generated;
  - Structural (wood, brick, etc.) – 759 tons generated; and
  - Foundations (concrete slab, concrete block, rebar, etc.) – 1,376 tons generated.

It is noted that the difference between the FEMA Hazus-MH results and the FEMA worksheet #3a is because Hazus-MH is only looking at buildings. The FEMA flood maps and parcel maps include all parcels whether a building is on it or not. These communities are rural and agriculture is an important industry. Flooding has the potential to devastate a crop. All parcels are included in our analysis just not structures.

D. Land Use and Development Trends: The Joint Jefferson County Comprehensive Plan 2018-2028 presents future development scenarios for Jefferson County and its municipalities. The county has experienced very little growth over the past decade, and future forecasts project relatively slow growth patterns. Despite the slow growth forecasts the county intends to work closely with the cities to preemptively manage future growth. The main areas of the county considered adequate for growth are those areas adjacent to Louisville, Wrens, and Wadley. The majority of planned commercial, industrial and residential expansion is appropriate for these areas because of their proximity to the cities and the community facilities and services that they provide, as well as their access to major thoroughfares.

Jefferson County's rural character is illustrated by its abundance of natural resources. The lack of development pressures in the county has contributed to the continued presence of these resources and projected development needs can be well managed without negatively impacting any environmentally sensitive area.

Similarly, the county has an abundance of cultural resources. These are truly fragile resources that must be treated in the same fashion as natural features because of the local importance that they hold. Future development needs to incorporate the preservation of locally significant historic resources as identified in that element of this plan.

Jefferson County's relative isolation from major urban markets decreases outside influences on local development patterns. Through the zoning ordinance, the county will limit and regulate development in known flood prone areas. (*Current and Future Land Maps and Tables for each jurisdiction can be found in Appendix B)*

E. Multi-Jurisdictional Concerns: Jefferson County, Bartow, Louisville, Stapleton, Wadley and Wrens will continue to participate in the NFIP. Avera has no identified floodplains. During a

natural hazard it is imperative that all emergency personal can communicate with each other throughout the entire planning area. The County and its jurisdictions have numerous dead spots throughout the area due to topography and lack of adequate communication equipment. The County and its emergency personnel are dependent on the private sector for towers to use for signals. If these towers are ever removed the County will be without any adequate means to transmit signals. The County and all jurisdictions are aware of the need to develop communication capabilities that will serve their County.

Another concern is the lack of available data for the county and individual jurisdictions on hazard events. A database needs to be created and maintained that provides information on flooding events that occur. This database should include information such as location (road names, neighborhoods, GPS coordinates, etc.), damages reported, power outages, road closures, county and city personal that are dispatched to the area, etc.

Since flooding has the potential to affect all of Jefferson County, any mitigation steps taken related to flooding should be undertaken on a countywide basis and include all incorporated jurisdictions.

F. Hazard Summary: While severe flooding within Jefferson County is a relatively infrequent event. The county has 54 streams/rivers, 39 reservoirs and three lakes which makes the potential for flooding significant. There have been eight flooding events recorded in the last 89 years. These events resulted in school closings, roads washing out and $2 million in property damages. The flood of 1990 also caused a dam failure. The Jefferson County Hazard Frequency table calculates a 15% chance of an annual flooding event. Hazard frequency tables can be found in Appendix D for all jurisdictions. Severe flooding, although relatively rare in occurrence, has the potential to inflict significant damage in Jefferson County. Mitigation of flood damage requires the community to know where flood prone areas are, what roads and bridges may be affected, and which facilities fall below anticipated flood levels. The committee recognized the potential for losses caused by flooding and identified it as a hazard requiring mitigation measures.

Based on tax data, parcel and flood maps all or a portion of 263 known structures/properties valued at approximately $10.2 million and a population of 397 located in known floodplains. The committee identified specific mitigation goals, objectives and action items related to flooding, which can be found in Chapter III, Section I.

SECTION II. DAM FAILURE

A. Hazard Identification: Dam failures and incidents involve unintended release or surges of impounded water. They can destroy property and cause injury and death downstream. While they may involve the total collapse of a dam, that is not always the case. Damaged spillways, overtopping of a dam or other problems may result in a hazardous situation. Dam failures may be caused by structural deficiencies in the dam itself. Dam failures may also come from other factors including but not limited to debris blocking spillways, flooding, earthquakes, improper operation and vandalism. Dam failures are potentially the worst flood events. When a dam fails, a large quantity of water is suddenly released downstream, destroying anything in its path and posing a threat to life and property.

Dams are classified into three categories:

- High Hazard – Dams where failure or disoperation will probably cause loss of human life.
- Significant Hazard – Dams where failure or disoperation will probably not result in loss of life, but can cause economic loss, environmental damage, and disruption of lifeline facilities or other concerns.
- Low Hazard – Dams where failure or disoperation will probably not result in loss of life and cause only low economic and/or environmental loss.

B. Hazard Profile: Based on the current data from the National Inventory of Dams there are 43 dams located in Jefferson County. The average dam age is 53 years and no dams are regulated by state or federal agencies. All but three dams are located in the unincorporated areas of the county, one in Louisville and two in Wadley. Of the 43 dams, 42 are low hazard and one is high hazard dam located at Lake Marion in Louisville. There has been one known dam failure to date during the flood of 1990. The committee felt that it was important to address the issue. A map and complete table of the dams can be found in Appendix A.

Based on interviews and best available data one dam failure has occurred within the last 68 years. Based on a 20-year hazard cycle the chance of an annual dam failure occurring is less than one percent for all of Jefferson County. Further study needs to be conducted to determine the precise probability of an annual dam failure event (*See Appendix A: Section II and Appendix D).*

C. Assets Exposed to Hazard and Estimate of Potential Losses: The number of dams posing potential loss of life hazards to Jefferson County residents and the number of residents living downstream from these potentially hazardous dams is unknown at this time. Based on best available data, Avera and Stapleton appear not to be at risk due to dam failure. The data is not available at this time for the committee to determine what assets are exposed to risk due to dam failure in the unincorporated areas of Jefferson County, Bartow, Louisville, Wadley and Wrens. The potential losses due to dam failure flooding are unknown and cannot be estimated at this time. The GMIS report has critical facilities replacement at more than $328 million with a population of 4,549. The County has population of 16,930 and 40,626 structures/properties valued at slightly less than $1.3 billion at risk of potential loss. (*See Appendix A Section II and Appendix D).*

D. Land Use and Development Trends: Projected changes in land use based on the county's multi-jurisdictional comprehensive plan shows that the county has experienced very little growth over the past decade and future forecasts project relatively slow growth patterns. The main areas of the county considered adequate for growth are those areas adjacent to Louisville, Wrens, and Wadley. The majority of planned commercial, industrial and residential expansion is appropriate for these areas because of their proximity to the cities and the community facilities and services that they provide, as well as their access to major thoroughfares. Vulnerability in terms of future buildings, infrastructure and critical facilities is not known at this time. It can be surmised that this future development will bring an increase in population and efforts must be made to ensure new homes are not built downstream where a dam break may occur. Current and Future Land Use maps, tables and projections can be found in Appendix B. A dam break analysis study is recommended in Chapter III, Section II to determine the exact assets exposed to risk as a result of a dam failure.

E. Multi-Jurisdictional Concerns: Areas downstream of dams are most likely to be affected by a dam failure. Until a dam breach analysis is run it is hard to pinpoint what assets will be affected.

Any mitigation steps taken related to dam failure should be undertaken on a countywide basis and include all incorporated jurisdictions.

During a natural hazard it is imperative that all emergency personal can communicate with each other throughout the entire planning area. The County and its jurisdictions have numerous dead spots throughout the area due to topography and lack of adequate communication equipment. The County and its emergency personnel are dependent on the private sector for towers to use for signals. If these towers are ever removed the County will be without any adequate means to transmit signals. The County and all jurisdictions are aware of the need to develop communication capabilities that will serve their County

Another concern is the lack of available data for the county and individual jurisdictions on hazard events. A database needs to be created and maintained that provides information on flooding events that occur. This database should include information such as location (road names, neighborhoods, GPS coordinates, etc.), damages reported, power outages, road closures, county and city personal that are dispatched to the area, etc.

F. Hazard Summary: Dam failures and incidents involve unintended release or surges of impounded water. They can destroy property and cause injury and death downstream. While they may involve total collapse of a dam, that is not always the case. Since there has been one reported dam failure event in Jefferson County, the committee felt that it was important to address the issue due to the fact there are 41 dams in the county with one classified as high hazard. The committee recognized the potential for losses caused by dam failure and identified it as a hazard requiring mitigation measures. To summarize, there are approximately 40,626 structures/properties in the county totaling slightly less than $1.3 billion with a population of 16,930. The committee identified specific mitigation goals, objectives and action items related to dam failure, which can be found in Chapter III, Section II.

SECTION III. DROUGHT

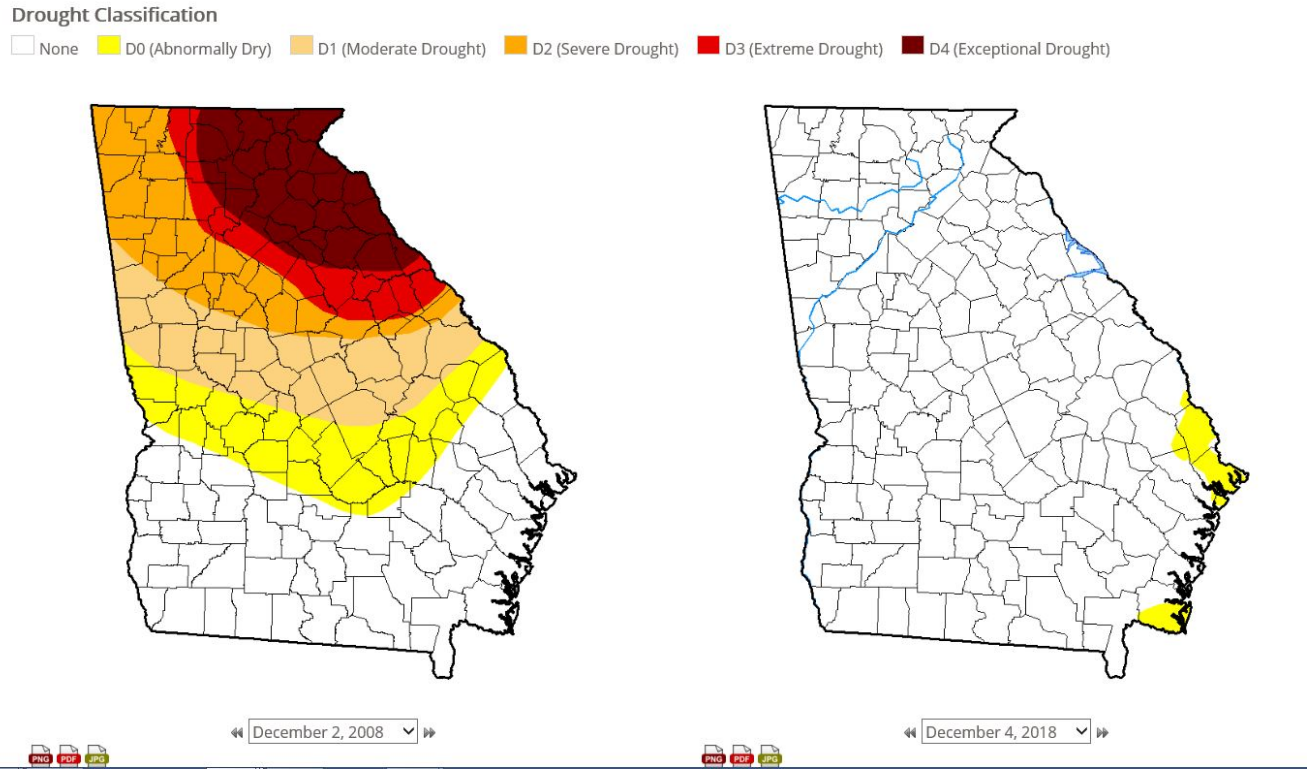
A. Hazard Identification: The committee reviewed historical data from the Palmer Drought Index, NCEI, DNR, and USDA in researching drought conditions in Jefferson County. Drought conditions are identified by a prolonged period of moisture deficiency. Climatologists and hydrologists use five indicators of drought: rainfall, soil moisture, stream flows, lake levels and groundwater level. Drought conditions affect the cultivation of crops as well as water availability and water quality. Drought is also a key factor in wildfire development. Wildfire will be addressed in a separate HRV.

B. Hazard Profile: Drought is not spatially defined and has the potential to affect the entire planning area equally. Jefferson County has a total area of 339,991 acres of which 14,847 acres (4.4%) dedicated to agricultural and 287,186 acres (84.5%) dedicated to forestry. According to the USDA 2017 Census of Agriculture 14,823 head of livestock. Agricultural losses due to drought have been the primary losses. No critical facilities have sustained any damage or functional downtime due to dry weather conditions.

There have been 26 drought events in the county in the last 69 years with estimated crop losses at $6.6 million. ***Historical data is only for the county as a whole.*** A severe, prolonged drought would mainly affect the 88.9% of the county that makes up the timber and agriculture business. This could result in loss of crops, livestock and create the conditions for a major wildfire event. This would also have an impact on the incorporated cities as water restrictions would be enforced. Based on a 20-year hazard cycle history there is a 120% chance of an annual drought event. The chance for an annual drought event is the same for the county as well as all jurisdictions *(See Appendix A, Section III, and Appendix D)*

The Palmer Index is most effective in determining long-term drought, a matter of several months, and is not as good with short-term forecasts (a matter of weeks). The Palmer Index uses a zero for abnormally dry, and drought is shown in terms of minus numbers; for example, minus two is severe drought, minus three is extreme drought, and minus four is exceptional drought.

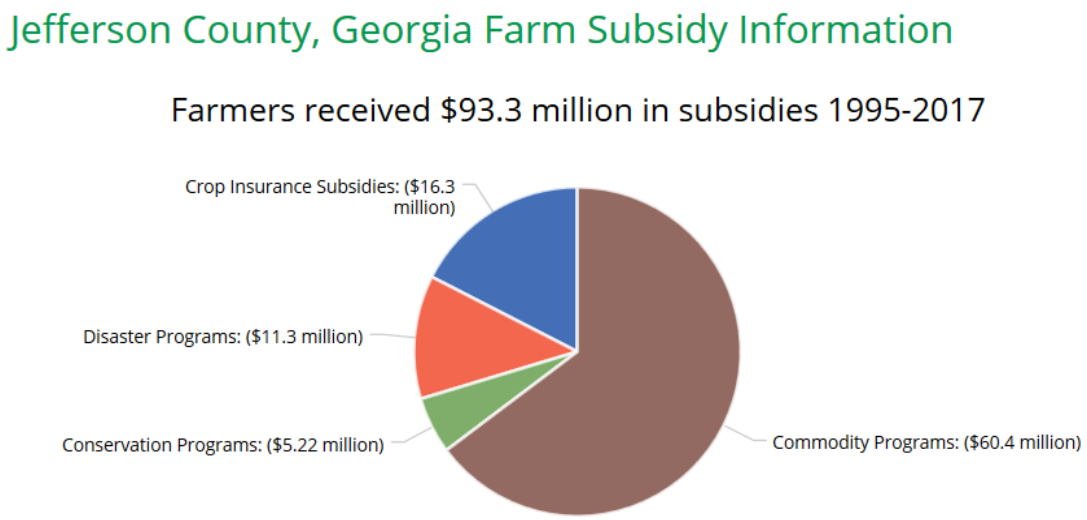
NCEI data for surrounding counties and a review of The Palmer Index (from https://www.NCEI.noaa.gov/temp-and-precip/drought/historical-palmers/) reveals there have been 26 drought events. One of the longest running droughts in recent history began in April 2011 and ended in January 2013. The County was in extreme drought conditions from May 2011 to July 2012 and exceptional drought conditions from Augusta 2012 to January 2013. The last drought ran from August 2016 to January 2017. The drought of 2016 the county ranged between a -2.00 (severe drought) and a -4.00 (exceptional drought) on the Palmer Index. The average based on historical data is a -3.00 on the Palmer Index. The maps below show drought conditions for December 2008 and 2018.

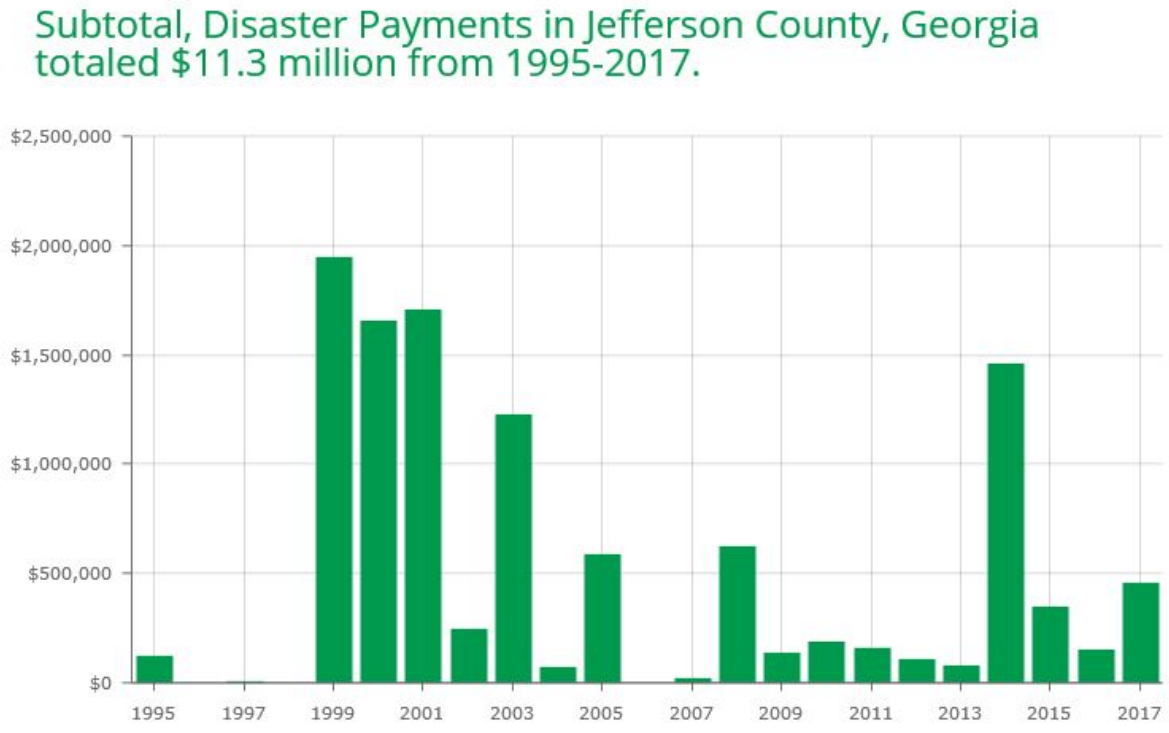


Based on the weekly data from the US Drought Monitor (https://droughtmonitor.unl.edu/Data/DataTables.aspx) from January 2000 to January 2019 the county has experienced the following drought conditions:

- 190 weeks where all or a portion of the county has experienced of D0 - Abnormally Dry;
- 166 weeks where all or a portion of the county has experienced of D1 - Moderate Drought;
- 101 weeks where all or a portion of the county has experienced levels of D2 - Severe Drought;
- 88 weeks where all or a portion of the county has experienced levels of D3 - Extreme Drought; and
- 25 weeks where all or a portion of the county has experienced levels of D4 - Exceptional Drought. (US Drought Monitor Tables can be found in Appendix A.)

According to the USDA Farm Subsidies Database, from 1995-2017, Jefferson County received a total of $93.3 million in farm subsidy payments of which an $11.3 million was for disaster assistance. The pie chart below depicts amounts and type of assistance.





Source: https://farm.ewg.org

Historical data is only for the county. A severe, prolonged drought would mainly affect the 88.9 percent of the county that makes up the timber and agriculture business. This could result in loss of crops, livestock and create the conditions for a major wildfire event. This would also have an impact on the incorporated cities, as water restrictions would be enforced. Based on a 20-year hazard cycle history there is a 120 percent chance of an annual drought event for the county. *(See Appendix A, Section III, for Worksheet 3a and Appendix D.)*

C. Assets Exposed to Hazard and Estimate of Potential Losses: Drought conditions typically pose little or no threat to structures; however, fires can occur as a result of dry weather. The greatest threat to assets in the county is to forestry and agricultural properties and livestock. No damage to critical facilities is anticipated as a result of drought conditions. Crop damage cannot be accurately quantified due to several unknown variables: duration of the drought, temperatures during the drought, severity of the drought, different crops require different amounts of rainfall, and different growing seasons. Based on FEMA Worksheet #3a the potential loss in agricultural and forestry properties for each jurisdiction is:

- Avera has 15 structures/properties valued at approximately $346,950 with an estimated population of 4.
- Bartow has 23 structures/properties valued at approximately $619,517 million with an estimated population of 0.
- Louisville has 20 structures/properties valued at $469,970 with an estimated population of 8.

- Stapleton has 57 structures/properties valued at approximately $1.3 million with an estimated population of 4;
- Wadley has 53 structures/properties valued at approximately $2 million with a population of 12;
- Wrens has 21 structures/properties valued at $898,697 million with a population of 8;
- Unincorporated Jefferson County has 7,501 structures/properties valued at approximately $461 million with an estimated population of 586.

There is a total of 7,690 agricultural/forestry properties in all of Jefferson County valued at more than $467 million with a population of 622 that are at the greatest risk due to a drought event *(Appendix A and Appendix D).*

D. Land Use and Development Trends: Jefferson County currently has no land use or development trends related to drought conditions. When drought conditions do occur the county and all municipalities follow the restrictions set forth by the Georgia DNR Drought Management Plan and the Statewide Outdoor Water Use Schedule. All six water departments have adopted the Georgia Water Stewardship Act went into effect statewide on June 2, 2010. It allows daily outdoor watering for purposes of planting, growing, managing, or maintaining ground cover, trees, shrubs, or other plants only between the hours of 4 p.m. and 10 a.m. by anyone whose water is supplied by a water system permitted by the Environmental Protection Division.

The following outdoor water uses also are allowed daily at any time of the day by anyone:

- Commercial Agriculture
- Alternative sources of water (grey water, rain water, condensate, etc.)
- Irrigation of food gardens
- Irrigation of newly installed or reseeded turf for the first 30 days
- Drip irrigation or soaker hoses
- Hand watering with a shut off nozzle
- Water from a private well
- Irrigation of plants for sale
- Irrigation of athletic fields, golf courses or public recreational turf
- Hydroseeding

Outdoor water uses for any purposes other than watering of plants, such as power washing or washing cars, is still restricted to the current odd/even watering schedule.

- Odd-numbered addresses can water on Tuesdays, Thursdays and Sundays.
- Even-numbered and unnumbered addresses are allowed to water on Mondays, Wednesdays and Saturdays.

The main areas of the county considered to experience growth are those areas adjacent to Louisville, Wrens, and Wadley. The majority of planned commercial, industrial and residential expansion is appropriate for these areas because of their proximity to the cities and the community facilities and services that they provide, as well as their access to major thoroughfares. Growth for the unincorporated areas of the county will be minimal. Vulnerability in terms of future buildings,

infrastructure and critical facilities is not known at this time. Current and Future Land Use maps, tables and projections can be found in Appendix B.

E. Multi-Jurisdictional Concerns: Agricultural losses associated with drought are more likely to occur in the rural, less concentrated areas of the county. Although all incorporated jurisdictions are less likely to experience drought related losses, they should not be excluded from mitigation considerations. Drought creates a deficiency in water supply that affects water availability and water quality. Droughts can and have severely affected private wells, municipal and industrial water supplies, agriculture, stream water quality, recreation at major reservoirs hydropower generation, navigation, and forest resources.

F. Hazard Summary: Drought is not spatially defined and equally affects the entire planning area. Droughts do not have the immediate effects of other natural hazards, but sustained drought can cause severe economic stress to not only the agricultural interests in Jefferson County, but to the entire State of Georgia. The potential negative effects of sustained drought are numerous. ***Historical data is available only for the county as a whole.*** Based on a 20-year cycle hazard history along with available data there is a 120% chance of an annual drought event in Jefferson County. In addition to an increased threat of wildfires, drought can affect municipal and industrial water supplies, stream-water quality, water recreation facilities, hydropower generation, as well as agricultural and forest resources.

In summary, for Jefferson County as a whole, there are a total of 7,690 agricultural/forestry properties in Jefferson County valued at more than $467 million with a population of 622 and includes 14,830 head of livestock that are at the greatest risk due to a drought event. There is a population of 16,930 and approximately 40,626 structures/properties in the county with a value just slightly less than $1.3 billion which could be affected if wildfires break out as a result of drought conditions. Drought mitigation goals and objectives can be found in Chapter III, Section III.

SECTION IV. WILDFIRE

A. Hazard Identification: A wildfire is any uncontrolled fire occurring on undeveloped land that needs fire suppression. The potential for wildfire is influenced by three factors: the presence of fuel, the area's topography and air mass. There are three different classes of wildland fires. A surface fire is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire is usually started by lightning and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildfires are usually signaled by dense smoke that fills the area for miles around. Wildfires by lightning have a very strong probability of occurring during drought conditions. Drought conditions make natural fuels (grass, brush, trees, dead vegetation) more fire-prone.

B. Hazard Profile: Jefferson County has a total area of 339,991 acres of which 14,847 acres (4.4%) dedicated to agricultural and 287,186 acres (84.5%) dedicated to forestry. Given the right weather conditions and variables, wildfire, due to natural causes, creates a potential threat to the lives of residents and property in the planning area. The NCEI has never reported a significant wildfire event in Jefferson County.

The committee reviewed historical data from the Georgia Forestry Commission, which is not found in the NCEI database, to research wildfire events. The GFC provides wildfire data on man-made and natural wildfire occurrences for the county as a whole and not for individual jurisdictions. This plan will address only natural disasters. According to Georgia Forestry data, from 1957 to 2017, there have been 3,004 fire events burning a total of 16,703 acres for an average extent of 5.56 acres. Of these 3,004 fire events 168 were a result of lightning strikes that burned 1,505 acres. Based on best available data 175 wildfire events as a result of lightning occurred in the unincorporated areas of the county. While data was collected looking at 60 years of data, frequency rate was calculated using a 20-year hazard cycle per guidance from GEMA. Based on a 20-year hazard cycle there is a 420% chance of an annual wildfire due to a lightning strike or statistically the county can expect 4.2 wildfires as a result of lightning annually. The drier the condition the more susceptible the county is to wildfire (*See Appendix A).*

GMIS assigned the following wildfire hazard scores for each jurisdiction:

- Hazard score of 4 (very high wildfire risk)
    - Unincorporated areas of the county – approximately 10%
    - Avera- approximately 15% of the city
    - Bartow- approximately 15% of the city
    - Louisville - approximately 13% of the city
    - Stapleton - approximately 15% of the city
    - Wadley - approximately 20% of the city
    - Wrens - approximately 15% of the city
- Hazard score of 3 (Moderate wildfire risk)
    - Unincorporated areas of the county – approximately 10%
    - Avera- approximately 65% of the city
    - Bartow- approximately 50% of the city
    - Louisville - approximately 70% of the city
    - Stapleton - approximately 45% of the city
    - Wadley - approximately 55% of the city
    - Wrens - approximately 55% of the city
- Hazard score of two (low wildfire risks)
    - Unincorporated areas of the county – approximately 10%
    - Avera- approximately 13% of the city
    - Bartow- approximately 15% of the city
    - Louisville - approximately 5% of the city
    - Stapleton - approximately 15% of the city
    - Wadley - approximately 3% of the city
    - Wrens - approximately 5% of the city
- Hazard score of one (very low wildfire risk)
    - Unincorporated areas of the county – approximately 15%
    - Avera- approximately 4% of the city
    - Bartow- approximately 5% of the city
    - Louisville - approximately 2% of the city
    - Stapleton - approximately 10% of the city
    - Wadley - approximately 7% of the city

  - Wrens - approximately 10% of the city
- Hazard score of zero (no houses, agriculture, water, or city)
  - Unincorporated areas of the county – approximately 55%
  - Avera- approximately 3% of the city
  - Bartow- approximately 15% of the city
  - Louisville - approximately 10% of the city
  - Stapleton - approximately 15% of the city
  - Wadley - approximately 15% of the city
  - Wrens - approximately 15% of the city

C. Assets Exposed to Hazard and Estimate of Potential Losses: While wildfires are more likely to occur in the county outside of the incorporated areas. The committee concluded that wildfires present a threat to all existing buildings, infrastructure and critical facilities since wildfires can spread throughout the county and into the urban areas. Damages as a result of a wildfire event are more likely to occur in areas of the county where forestry and woodland are prevalent. Wildfire does have the potential to spread into the incorporated areas and cause extensive damage to existing structures/properties. FEMA Worksheet #3a located in Appendix D shows the number and types of buildings found in Jefferson County, as well as the value of these structures/properties and the population. The following assets by jurisdiction could potentially be exposed to wildfire hazard:

Jurisdiction	Number of Structure/Properties	Value	Population
Jefferson County (Unincorporated)	25,319	$919,281,333	9,219
Avera	776	$6,507,938	246
Bartow	745	$11,059,155	286
Louisville	4,741	$115,404,410	2,493
Stapleton	1,081	$13,367,033	438
Wadley	3,740	$118,237,863	2,061
Wrens	4,224	$104,510,571	2,187
TOTAL FOR COUNTY	40,626	$1,288,368,303	16,930

Source: Jefferson County Tax Assessor

The following table reveals all critical facilities in the county by jurisdiction, number of facilities, hazard score, replacement value, and daily occupancy exposed to wildfire hazard. A complete breakdown of each jurisdiction by hazard can be found in Appendix A.

Jurisdiction	Hazard Score	# of Critical Facilities	Replacement Value $	Content Value $	Occupancy	
					Day	Night
Jefferson County	4	1	$1,300,621	$29,600	4	0
Jefferson County	3	26	$177,370,925	$8,825,200	3,029	700
Jefferson County	2	2	$24,013,242	$8,400	28	20
Jefferson County	1	1	$1,500,000	0.00	0	0
Jefferson County	0	3	$56,976,205	$2,207,500	1,012	75

Jurisdiction	Hazard Score	# of Critical Facilities	Replacement Value $	Content Value $	Occupancy	
					Day	Night
Avera	3	3	$737,500	$400,000	1	0
Bartow	4	6	$2,263,730	$348,500	2	2
Bartow	3	5	$1,306,547	$53,500	4	1
Bartow	2	4	$238,500	0.00	0	0
Bartow	1	1	$63,700	0.00	0	0
Louisville	4	1	$5,000,000	0.00	225	200
Louisville	3	9	$10,636,225	$1,700,000	44	4
Louisville	2	3	$1,037,500	0.00	0	0
Louisville	1	1	$950,000	0.00	0	0
Louisville	0	5	$20,818,665	0.00	2	0
Stapleton	3	4	$1,778,500	$730,000	2	0
Wadley	4	7	$4,770,863	$1,788,200	125	95
Wadley	3	10	$3,029,790	$600,000	21	2
Wrens	3	14	$9,437,500	$974,200	40	0
Wrens	2	3	$1,325,000	$50,000	0	0
Wrens	1	1	$750,000	0.00	0	0
Wrens	0	8	$3,600,000	$150,000	10	0
TOTAL		**118**	**$328,905,013**	**$17,865,100**	**4,549**	**1,099**

The GMIS has 15 critical facilities with a hazard score of four (high), 71 with a hazards score of three (moderate), 11 with a hazard score of 2 (low) and four with a hazard score of one (very low probability). The remaining 16 critical facilities have a hazard score of zero. The 102 critical facilities with a wildfire hazard score greater than zero have an estimated potential loss of more than $247.5 million. The loss for all critical facilities is $328,905,013. According to FEMA Worksheet #3a there are 40,626 structures/properties with a population of 16,930 with a value of slightly less than $1.3 billion worth of assets countywide. If a wildfire started, it is not likely that all of these structures/properties would be affected (*See Appendix A and Appendix D).*

D. Land Use and Development Trends: Jefferson County currently has no land use or development trends related to wildfire conditions. Land use codes do provide for fire protection to any proposed major and minor developments connected to the public water supply system, and minimum fire flows shall be computed based on standards promulgated by the Jefferson County Fire Department. For those proposed developments that will not have immediate access to the public water supply system, such standards and computations should be based on the National Fire Protection Association *Standards on Water Supply for Suburban and Rural Fire Fighting*.

E. Multi-Jurisdictional Concerns: The majority of Jefferson County is timber, forest or agricultural land. If a wildfire occurs it is imperative that all emergency personal can communicate with each other throughout the entire planning area. The county and its jurisdictions have numerous dead spots throughout the area due to topography and lack of adequate communication equipment. The county and its emergency personnel are dependent on the private sector for towers to use for signals. If these towers are ever removed the county will be without any adequate means to

transmit signals. The county and all jurisdictions are aware of the need to develop communication capabilities that will serve their county.

Wildfire does have the potential to spread to urban areas thus affecting the entire county. As a result, any mitigation steps taken related to wildfire should be undertaken on a countywide basis and include all incorporated jurisdictions.

F. Hazard Summary: Jefferson County has a total area of 339,991 acres of which 14,847 acres (4.4%) dedicated to agricultural and 287,186 acres (84.5%) dedicated to forestry. Given the right weather conditions and variables, wildfire due to natural causes creates a potential threat to the lives and property of residents in the planning area. Of the 3,004 fire events, 168 were a result of lightning strikes that burned 1,505 acres. Based on a 20-year hazard cycle there is a 420% chance of an annual wildfire due to a lightning strike or statistically the county can expect 4.2 wildfires as a result of lightning annually.

The GMIS has 15 critical facilities with a hazard score of four (high), 71 with a hazards score of three (moderate), 11 with a hazard score of 2 (low) and four with a hazard score of one (very low probability). The remaining 16 critical facilities have a hazard score of zero. The 102 critical facilities with a wildfire hazard score greater than zero have an estimated potential loss of more than $247.5 million. The loss for all critical facilities is $328,905,013. According to FEMA Worksheet #3a there are 40,626 structures/properties with a population of 16,930 with a value of slightly less than $1.3 billion worth of assets countywide. Mitigation Goals and Objectives concerning wildfires can be found in Chapter III, Section IV.

SECTION V. SEVERE WEATHER, INCLUDING TORNADOS, TROPICAL STORMS THUNDERSTORM WINDS, LIGHTNING, AND HAIL

A. Hazard Identification: The committee reviewed historical data from the county's own weather database, the NCEI, SHELDUS™, newspapers and citizen interviews in researching the past effects of severe weather in Jefferson County. The month of February marks the beginning of the severe weather season in the South, which can last until the month of August. Five types of severe weather were identified by the mitigation team: (1) tornados, (2) tropical storms, (3) thunderstorm winds, (4) lightning and (5) hail.

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm or the result of a hurricane and is produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. Tornados are among the most unpredictable and destructive of weather phenomena and can strike at any time of the year if the essential conditions are present. The damage from a tornado is a result of the high wind velocity and wind-blown debris. The positions of the subtropical and polar jet streams often are conducive to the formation of storms in the Gulf region. The table below shows the original Fujita Scale and the Enhanced Fujita Scale (in use since 2007) to rate the intensity of a tornado by examining the damage caused by the tornado after it has passed over a man-made structure.

FUJITA SCALE	DERIVED EF SCALE	OPERATIONAL EF SCALE

F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	**EF Number**	**3 Second Gust (mph)**
0	40-72	45-78	0	65-85	**0**	**65-85**
1	73-112	79-117	1	86-109	**1**	**86-110**
2	113-157	118-161	2	110-137	**2**	**111-135**
3	158-207	162-209	3	138-167	**3**	**136-165**
4	208-260	210-261	4	168-199	**4**	**166-200**
5	261-318	262-317	5	200-234	**5**	**Over 200**

Source: NOAA

The second type of severe weather is tropical storms. Tropical Storms are an organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39–73 MPH (34–63 knots). In this area they generally occur as a result of a hurricane or tropical system that has come inland.

The third severe weather event, thunderstorm winds, can cause death and injury, power outages, property damage, and can disrupt telephone service, severely affect radio communications and surface/air transportation which may seriously impair the emergency management capabilities of the affected jurisdictions.

Thunderstorm winds are winds that arise from convection (with or without lightning), with speeds of at least 50 knots (58 mph), or winds of any speed producing a fatality, injury, or damage. Severe thunderstorms develop powerful updrafts and downdrafts. An updraft of warm, moist air helps to fuel a towering cumulonimbus cloud reaching tens of thousands of feet into the atmosphere. A downdraft of relatively cool, dense air develops as precipitation begins to fall through the cloud. Winds in the downdraft can reach in excess of 100 miles per hour. When the downdraft reaches the ground, it spreads out forming a gust front: the strong wind that kicks up just before the storm hits. As the thunderstorm moves through the area, the full force of the downdraft in a severe thunderstorm can be felt as horizontal, straight-line winds with speeds well over 50 miles per hour. Straight-line winds are often responsible for most of the damage associated with a severe thunderstorm. Damaging straight-line winds occur over a range of scales. At one extreme, a severe single-cell thunderstorm may cause localized damage from a microburst, a severe downdraft extending not more than about two miles across. In contrast, a powerful thunderstorm complex that develops as a squall line can produce damaging winds that carve a path as much as 100 miles wide and 500 miles long.

The fourth severe weather event is lightning. Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas. Rising and descending air within a thunderstorm separates these positive and negative charges. Water and ice particles also affect charge distribution. A cloud-to-ground lightning strike begins as an invisible channel of electrically charged air moving from the cloud toward the ground. When one channel nears an object on the ground, a powerful surge of electricity from the ground moves upward to the clouds and produces the visible lightning strike. Lightning often strikes outside of heavy rain and may occur as far as 10 miles away from any rainfall.

The final severe weather event is hail. Hailstones are created when strong rising currents of air called updrafts carry water droplets high into the upper reaches of thunderstorms where they

freeze. These frozen water droplets fall back toward the earth in downdrafts. In their descent, these frozen droplets bump into and coalesce with unfrozen water droplets and are then carried back up high within the storm where they refreeze into larger frozen drops. This cycle may repeat itself several times until the frozen water droplets become so large and heavy that the updraft can no longer support their weight. Eventually, the frozen water droplets fall back to earth as hailstones.

Hail can also be a destructive aspect of severe thunderstorms. Hail causes more monetary loss than any other type of thunderstorm-spawned severe weather in the United States, annually producing about one billion dollars in crop damage. Storms that produce hailstones only the size of a dime can produce dents in the tops of vehicles, damage roofs, break windows and cause significant injury or even death.

B. Hazard Profile: Tornados, tropical storms, thunderstorm winds, lightning and hail can affect the entire county given the right conditions. Since the exact time and location of a severe weather event is not always predictable, all of Jefferson County is vulnerable to the threats of severe weather.

Based on historic data, there have been 15 reported tornados in the planning area. The highest magnitude reported was an F3. Reported property damages totaled more than $9.4 million in property damages with 31 injuries reported. Tornados tend to strike in somewhat random fashion, making the task of calculating a recurrence interval extremely difficult. Using a 20-year hazard cycle, frequency tables calculates an annual chance for a tornado event at:

- 25% for Jefferson County as a whole and for the unincorporated areas;
- 10% for Wrens; and
- 5% for Avera, Bartow, Louisville, Stapleton and Wadley.

The following table was produced from interviews, *The Jefferson Reporter*, and the NCEI and SHELDUS™ databases and shows the event, severity and estimate cost of damages reported. *(See Appendix A, Section I and Appendix D).*

Date	Location	Mag	Inj	PD	CrD
7/22/1970	Jefferson	F0	0	$0.00	$0.00
7/19/1971	Jefferson	F1	0	$25,000.00	$0.00
1/13/1972	Jefferson	F3	21	$2,500,000.00	$0.00
3/18/1981	Jefferson	F1	1	$2,500.00	$0.00
7/25/1981	Jefferson	F1	0	$250,000.00	$0.00
12/4/1983	Jefferson	F0	2	$5,000.00	$0.00
10/1/1989	Jefferson	F1	2	$2,500.00	$0.00
06/01/1992	Jefferson	F0	0	$5,000.00	$0.00
3/7/1996	Wrens	F1	5	$1,000,000.00	$0.00
6/15/1996	Bartow	F0	0	$10,000.00	$0.00
7/1/2003	Jefferson	F1		$0.00	$0.00
3/15/2008	Jefferson	EF2	0	$500,000.00	$0.00
5/11/2008	Grange	EF0	0	$5,000,000.00	$0.00
4/10/2009	Stapleton	EF1	0	$100,000.00	$0.00

04/03/2017	Grange	EF0	0	$25,000.00	$0.00

There have been 21 tropical storms reported in Jefferson County by the NCEI and SHELDUS™ with property and crop damages of approximately $153,000. Damages as a result of the storms were due to power outages, downed trees and flash flooding. The tropical storms affected the entire planning area. Data for each jurisdiction is not available. Based on the hazard frequency table there is a 75% chance of an annual tropical storm event for all jurisdictions (*See Appendix D).*

Details	Date	PrD	CrD
as a result of Hurricane Cleo	8/28/1964	1136.36	113.64
as a result of Hurricane Dora	9/9/1964	147058.8	1470.59
as a result of Hurricane Alma	6/8/1966	1470.59	1470.59
as a result of Tropical Storm Abby	6/6/1968	147.06	0.00
as a result of Hurricane Angus	6/19/1972	0.000	314.46
as a result of Hurricane Opal	10/05/1995	0.00	0.00
as a result of Result of Hurricane Floyd	9/14/1999	0.00	0.00
as a result of Tropical Storm Hanna	9/14/2002	0.00	0.00
as a result of Tropical Depression Bill	7/1/2003	0.00	0.00
as a result of Hurricane Frances	9/6/2004	0.00	0.00
as a result of Hurricane Ivan	9/16/2004	0.00	0.00
as a result of Hurricane Jeanne	9/26/2004	0.00	0.00
as a result of Tropical Storm Arlene	6/12/2005	0.00	0.00
as a result of Hurricane Dennis	7/10/2005	0.00	0.00
as a result of Hurricane Katrina	8/29/2005	0.00	0.00
as a result of Tropical storm Tammy	10/5/2005	0.00	0.00
As a result of tropical storm Fay	08/21/2008	0.00	0.00
as a result of Hurricane Ida	11/10/2009	0.00	0.00
as a result of Hurricane Jeanne	09/04/2011	0.00	0.00
as a result of Tropical Storm Irma	09/11/2017	0.00	0.00
as a result of Hurricane Michael	10/11/2018	0.00	0.00

Source: NCEI and SHELDUS

Thunderstorms normally occur during the spring and summer months and often carry strong winds. There have been 104 events recorded in the last 69 years with over six million dollars in property and crop damages reported with five injuries and two deaths. The table below breaks down the thunderstorm events by jurisdiction. A complete table of thunderstorm wind events can be found in Appendix A.

Location	# of Events	County-Wide Events*	Total # of events per jurisdiction
Jefferson County(Unincorporated)	4	65	69
Avera	2	65	67
Bartow	2	65	67

Louisville	13	65	78
Stapleton	3	65	68
Wadley	9	65	74
Wrens	6	65	71
TOTAL FOR COUNTY	30	65	**104**

Source: NCEI and SHELDUS

** It is assumed that all 55 county-wide events reported occurred in each jurisdiction*

While data was collected looking at 69 years of data, frequency rate was calculated using a 20-year hazard cycle per guidance from GEMA. Using a 20-year hazard cycle, frequency tables calculates an annual chance for a thunderstorm event producing high winds at:

- 80% for the unincorporated areas of the county,
- 70% for Avera and Bartow;
- 125% for Louisville;
- 75% for Stapleton;
- 105% for Wadley; and
- 90% for Wrens

Jefferson County as a whole has an overall probability for a significant thunderstorm event of 255%. Hazard frequency tables for individual jurisdictions can be found in Appendix D.

The fourth weather event is lightning. During the spring and summer months the county experiences numerous storms that can often produce lightning. There have been 19 reported lightning events to the NCEI and SHELDUS over 64 years with slightly more than $291,000 in property and crop damages with no injuries reported. There have been 175 lightning strikes recorded in the same time frame that resulted in wildfires. When these datasets are combined, 194 lightning strikes have been recorded.

This data is incomplete as the exact location of the 19 NCEI reported events within the county. Best available data is less than a one percent chance for Avera, Bartow, Stapleton and Wadley and an 5% chance for Louisville and Wrens of an annual lightning strike event. While data was collected looking at 69 years of data, frequency rate was calculated using a 20-year hazard cycle per guidance from GEMA. Based on a 20-year hazard cycle there is a 475% chance that a lightning strike will occur in Jefferson County.

The fifth weather event is hail. In the last 69 years there have been 53 hail events reported to the NCEI and SHELDUS databases with slightly less than $1 million in property and crop damages. While data was collected looking at 69 years of data, frequency rate was calculated using a 20-year hazard cycle per guidance from GEMA. Using a 20-year hazard cycle, frequency tables calculates an annual chance for a hail event at:

- 5% for the unincorporated areas;
- 10% for Avera;
- 60% for Louisville;
- 5% for Bartow, Stapleton and Wrens; and
- 15% for Wadley.

Overall, there is a 120% that a hail event will take place in Jefferson County. Hazard frequency tables for individual jurisdictions can be found in Appendix D.

C. Assets Exposed to Hazard and Estimate of Potential Losses: In evaluating assets exposed to the natural hazard, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to tornados, tropical storms, thunderstorm winds, lightning and hail events. The GMIS has the entire county with a wind hazard score of two, where wind speed is between 90 to 99 mph. The table below provides data from FEMA Worksheet #3a that estimates the potential loss for each jurisdiction.

Jurisdiction	Number of Structure/Properties	Value	Population
Jefferson County (Unincorporated)	25,319	$919,281,333	9,219
Avera	776	$6,507,938	246
Bartow	745	$11,059,155	286
Louisville	4,741	$115,404,410	2,493
Stapleton	1,081	$13,367,033	438
Wadley	3,740	$118,237,863	2,061
Wrens	4,224	$104,510,571	2,187
TOTAL FOR COUNTY	40,626	$1,288,368,303	16,930

Source: Jefferson County Tax Assessor

All 118 critical facilities have a wind hazard score of two placing the critical facilities in Zone IV which has a wind speed of 90 to 99 mph. The table below shows the number of critical facilities by jurisdictions, hazard score, replacement value, content value, and daily occupancy.

Jurisdiction	Hazard Score	# of Critical Facilities	Replacement Value $	Content Value $	Occupancy	
					Day	Night
Jefferson County	2	33	$261,160,993	$11,070,700	4073	795
Avera	2	3	$737,500	$400,000	1	0
Bartow	2	16	$3,872,477	$402,000	6	3
Louisville	2	19	$38,442,390	$1,700,000	271	204
Stapleton	2	4	$1,778,500	$730,000	2	0
Wadley	2	17	$7,800,653	$2,388,200	146	97
Wrens	2	26	$15,112,500	$1,174,200	50	0
TOTAL		**118**	**$328,905,013**	**$17,865,100**	**4,549**	**1,099**

GMIS critical facility reports for wind and FEMA Worksheet #3a are located in Appendix A for each individual jurisdiction and the county as a whole.

FEMA Hazus-MH Version 2.2 SP1 ran a hurricane scenario for probabilistic wind-damage risk assessment modeling a Category 1 storm with maximum winds of 76 mph. There were no shelter requirements for this scenario. Hurricane-wind building damage is shown in the table below:

Storm Classification	Number of Damaged Buildings	Building Damages	Total Economic Loss	Loss Ratio
Category 1	46	$2,173,330	$2,941.130	0.12%

Essential facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. Hazus-MH identified the essential facilities that may be moderately or severely damaged by winds.

Classification	Number
EOCs	1
Fire Stations	6
Care Facilities	8
Police Stations	6
Schools	7

Wind-Damaged Essential Facility Losses Classification	Facilities At Least Moderately Damaged > 50%	Facilities Completely Damaged > 50%	Facilities with Expected Loss of Use (< 1 day)
Category 1	0	0	28

Hazus-MH estimates the amount of debris that will be generated by high velocity hurricane winds by tons is:

- Reinforced Concrete and Steel Debris (none)
- Brick and Wood and Other Building Debris 222 tons
- Tree Debris 2,286 ton
- Other Tree Debris 55,576 tons

A hypothetical tornado scenario was ran using an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis estimated that approximately 911 buildings could be damaged, with estimated building losses of more than $61 million dollars. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The table below shows estimated building losses by occupancy type.

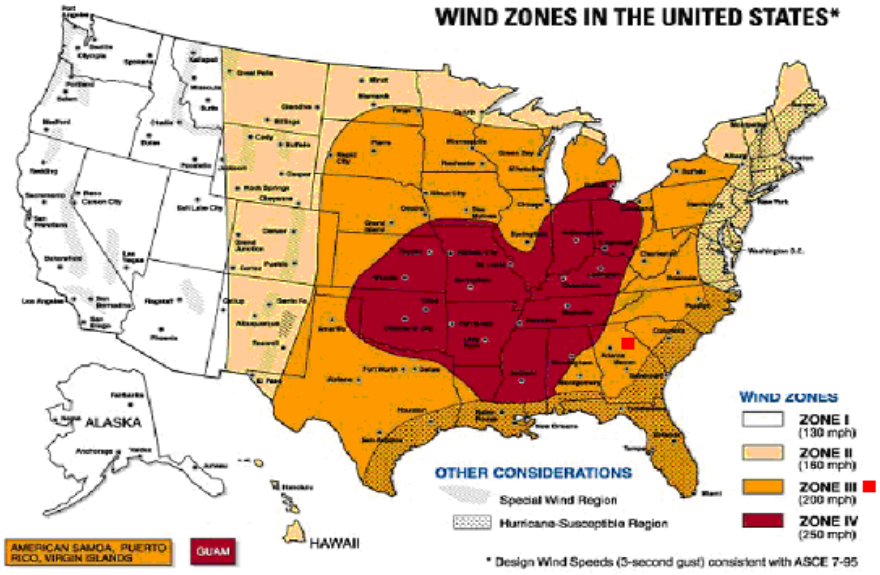
Occupancy Classification	Buildings Damaged	Building Losses
Residential	421	$15,964,787
Commercial	87	$9,254,827
Industrial	13	$2,386,628
Education	2	$792,652

Religious	14	$2,827,453
Government	1	$41,115
Total	**911**	$61,216,268

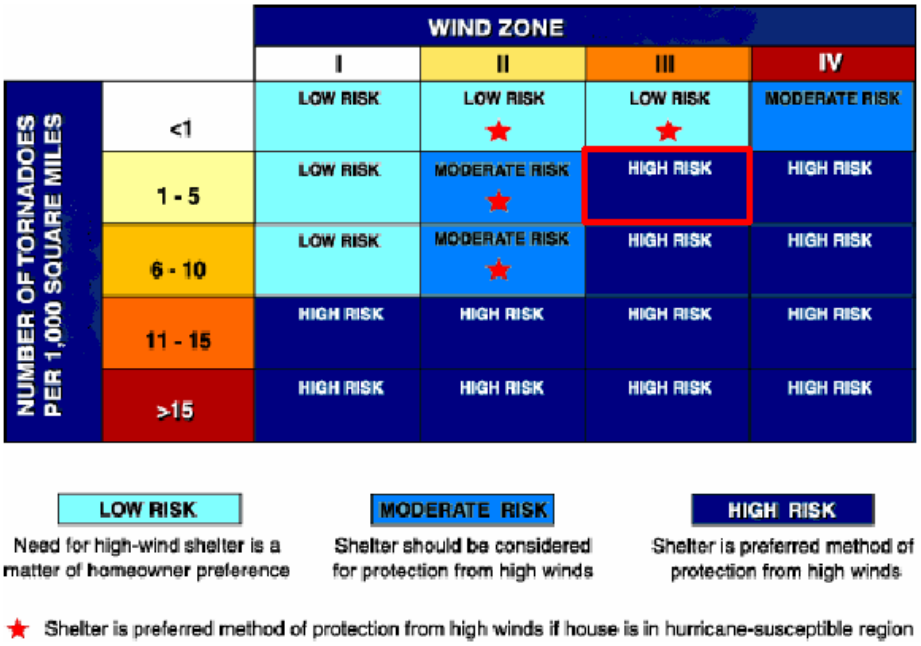
There was one essential facilities located in the tornado path – Louisville Middle School. According to the modeling, this facility would suffer minor damage should such a tornado strike occur. Depending on the time of day, a tornado strike as depicted in this scenario could result in significant injury and loss of life. In addition, arrangements would have to be made for the continued education of the students in another location. A complete copy of the FEMA Hazus-MH Version 2.2 SP1 Hazard Risk Analyses can be found in Appendix C.

D. Land Use & Development Trends: Jefferson County is located in FEMA wind zone III, which is associated with 200-mph wind speeds. Currently, the county has no land use or development trends related to tornados, tropical storm, thunderstorm winds, lightning, or hail events. Information on current land use and future land use projections can be found in Appendix B.

E. Multi-Jurisdictional Concerns – All of Jefferson County has the same design wind speed of 200 mph as determined by the American Society of Civil Engineers (ASCE) as evidenced by the map and table below.



Wind zones in the United States



During a natural hazard it is imperative that all emergency personal can communicate with each other throughout the entire planning area. The county and its jurisdictions have numerous dead spots throughout the area due to topography and lack of adequate communication equipment. The county and its emergency personnel are dependent on the private sector for towers to use for signals. If these towers are ever removed the county will be without any adequate means to bounce signals. The county and all jurisdictions are aware of the need to develop communication capabilities that will serve their county.

The entire county has the potential to be affected by tornados, tropical storms, thunderstorm winds, lightning and hail. As a result, any mitigation steps taken related for these five severe weather events should be considered on a county-wide basis to include all jurisdictions.

F. Hazard Summary: Overall, severe weather in the form of thunderstorm winds poses one of the greatest threats to Jefferson County in terms of property damage, injuries, and loss of life. Therefore, the committee recommends that mitigation measures identified in this plan should be aggressively pursued. Tornados do not touch down as frequently; however, the unpredictability and the potential for excessive damage caused by tornados makes it imperative that mitigation measures identified in this plan receive full consideration.

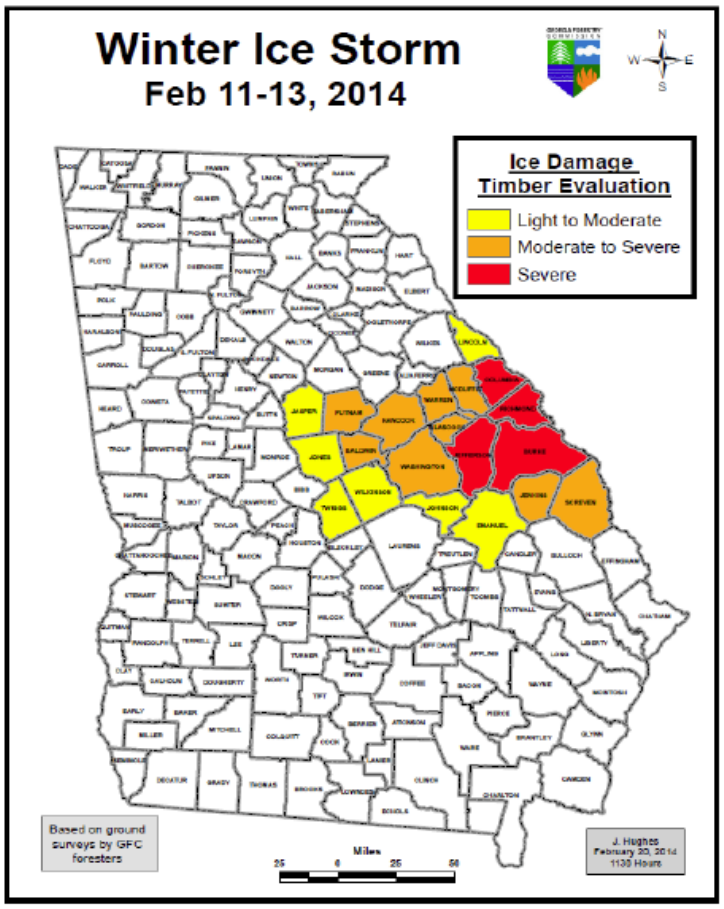
Weather Event	#	Fatalities	Injuries	Approximate Property/Crop Damage
Tornados	15	0	31	$9,425,000
Tropical Storms	21	0	0	$153,182
Thunderstorm Winds	104	2	5	$6,104,818
Lightning	194	0	1	$291,037
Hail	53	0	0	$1,849,832

The GMIS has the entire county with a wind hazard score of two, where wind speed is between 90 to 99 mph. All 118 critical facilities have a wind hazard score of two with a replacement cost of more than $328 million**.** To summarize, there are approximately 40,626 structures/properties in the county totaling slightly less than $1.3 billon with a population of 16,930. A breakdown of information for individual jurisdictions can be found in Appendix A and Appendix D. Specific mitigation actions for tornados, tropical storms, thunderstorm winds, lightning and hail events are identified in Chapter III, Section V.

SECTION VI. WINTER STORMS

A. Hazard Identification: Southeastern snow or ice storms often form when an area of low pressure moves eastward across the northern Gulf of Mexico. To produce a significant winter storm in the south, not only must temperatures be cold enough, but there must also be enough moisture in the atmosphere to produce adequate precipitation. A major winter storm can last for several days and be accompanied by high winds, ice and freezing rain, heavy snowfall, and cold temperatures. These conditions can make driving conditions very dangerous, as well as bring down trees and power lines.

B. Hazard Profile: Winter storms are not spatially defined and affect the entire planning equally. The committee researched historical data from the NCEI, SHELDUS™, and SERCC, as well as information from past newspaper articles relating to winter storms in Jefferson County. There have been 41 winter storm events recorded in the county over the last 122 years with an estimated property damage of $417,089.



The most recent ice storm on February 11-13, 2014 had travel halted, schools and businesses were closed and approximately 9,000 customers were without power at the height of the storm. Power company officials called the devastation to their lines and the ensuing outages historical for this area, which reportedly took the hardest hit of any in the state. In the more rural parts of the County individuals were without power for up to 10 days.

More than 25,000 cubic yards of storm debris was collected county-wide. FEMA reimbursement claims for the cost of debris removal total more than $225,000. The dairy and beef producers felt the effects as electric

fences lost power, while others were downed by falling trees and limbs. Without power for their pumps many wells were inoperable. The dairy farms in the county relied on generators to milk their cows. Cows need to increase their calorie intake by 1 percent for every degree the temperature drops below 32 degrees.

The other major after effect was to the timber industry. Jefferson County was one of the four counties hardest hit by the storm and had severe timber damage according to the GFC. The GFC examined the levels of damage within two types of pine that were most frequently damaged: the young pine stands and pine stands on which a first thinning had recently occurred. The severe damage had more than 30 percent of stems broken, tops broken out across the stand, limbs stripped, and trees bent more than 45 degrees.

Senior Forester Cathy Black stated that the timber industry is a business that takes decades to turn a profit. Some land owners will be set back 30 years. Some of the hardest hit areas crops of trees, called stands in the business, have been reduced to splinters. The tops were broken off the pine trees, some trees were snapped in half, and others blown over laying on the ground. When this happens all that can be done is to clear cut it and plant new trees.

Although winter storms are infrequent in the south, they have the potential to cause excessive damage to a community and disrupt the lives of residents. Based on the hazard frequency table located in Appendix D there is an 75% chance of an annual winter storm event. The percentage is the same for all jurisdictions.

C. Assets Exposed to Hazard and Estimate of Potential Losses: In evaluating assets that may potentially be impacted by the effects of winter storms, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible. The table below shows assets by jurisdiction that could be at potential risk of damage from a winter storm event.

Jurisdiction	Number of Structure/Properties	Value	Population
Jefferson County (Unincorporated)	25,319	$919,281,333	9,219
Avera	776	$6,507,938	246
Bartow	745	$11,059,155	286
Louisville	4,741	$115,404,410	2,493
Stapleton	1,081	$13,367,033	438
Wadley	3,740	$118,237,863	2,061
Wrens	4,224	$104,510,571	2,187
TOTAL FOR COUNTY	40,626	$1,288,368,303	16,930

Source: Jefferson County Tax Assessor

The GMIS does not provide a report for winter storm damage but there is slightly less than $1.3 billion worth of assets with potential loss to winter storm hazards countywide. The table below shows the number of critical facilities by jurisdiction, hazard score, replacement value and daily occupancy (*See Appendix A, Section VI and Appendix D).*

Jurisdiction	# of Critical Facilities	Replacement Value $	Content Value $	Occupancy	
				Day	Night
Jefferson County	33	$261,160,993	$11,070,700	4073	795
Avera	3	$737,500	$400,000	1	0
Bartow	16	$3,872,477	$402,000	6	3
Louisville	19	$38,442,390	$1,700,000	271	204
Stapleton	4	$1,778,500	$730,000	2	0
Wadley	17	$7,800,653	$2,388,200	146	97
Wrens	26	$15,112,500	$1,174,200	50	0
TOTAL	**118**	**$328,905,013**	**$17,865,100**	**4,549**	**1,099**

D. Land Use & Development Trends: Jefferson County currently has no land use or development trends related to winter storms. Projected changes in land use based on the county's multi-jurisdictional comprehensive plan has minimal or no change to land use within the incorporated jurisdictions. The greatest change in land use and future development has a decrease in forest land that will be converted to residential. Since it is impossible to determine where future residents will move in the unincorporated areas of the county, vulnerability in terms of future buildings, infrastructure and critical facilities is not known at this time. It can be surmised that this will bring an increase in population and homes. Land use tables and projections can be found in Appendix B.

E. Multi-Jurisdictional Concerns: Jefferson County currently has no land use or development trends related to winter storms. All of the county can potentially be negatively impacted by winter storms. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include all incorporated jurisdictions. A concern is the lack of available data for the county and all municipalities. A database needs to be created and maintained that provides information on past and future occurring winter storm events.

Another major issue is county-wide communications capabilities. During a natural hazard it is imperative that all emergency personal can communicate with each other throughout the entire planning area. The county and its jurisdictions have numerous dead spots throughout the area due to topography and lack of adequate communication equipment. The county and its emergency personnel are dependent on the private sector for towers to use for signals. If these towers are ever removed the county will be without any adequate means to bounce signals. The county and all jurisdictions are aware of the need to develop communication capabilities that will serve the entire county.

F. Hazard Summary: There have been 41 recorded winter storms. There is an 75% chance of an annual winter storm event. Winter storms can be more accurately predicted than most other natural hazards, making it possible to give advance warning to communities. The National Weather Service issues winter storm warnings and advisories as these storms make their way south. Given the infrequency of these types of storms, southern communities are still not properly equipped to sustain the damage and destruction caused by severe winter storms. To summarize, there are approximately 40,626 structures/properties in the county totaling slightly less than $1.3 billon with a population of 16,930. The committee recognized the dangers posed by winter storms and identified specific mitigation actions in Chapter III, Section VI.

SECTION VII. EARTHQUAKE

A. Hazard Identification - Earthquakes are one of nature's most damaging hazards. An earthquake is a sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of Earth's tectonic plates. The severity of these effects is dependent on the amount of energy released from the fault or epicenter. They usually occur without warning and after just a few seconds can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. If the earthquake occurs in a populated area, it may cause many deaths, injuries and extensive property damage.

Magnitude and intensity measure different characteristics of earthquakes. Magnitude measures the energy released at the source of the earthquake and is determined from measurements on seismographs. Intensity measures the strength of shaking produced by the earthquake at a certain location and is determined from effects on people, human structures, and the natural environment. The following two tables describe the Abbreviated Modified Mercalli Intensity Scale and show intensities that are typically observed at locations near the epicenter of an earthquake event.

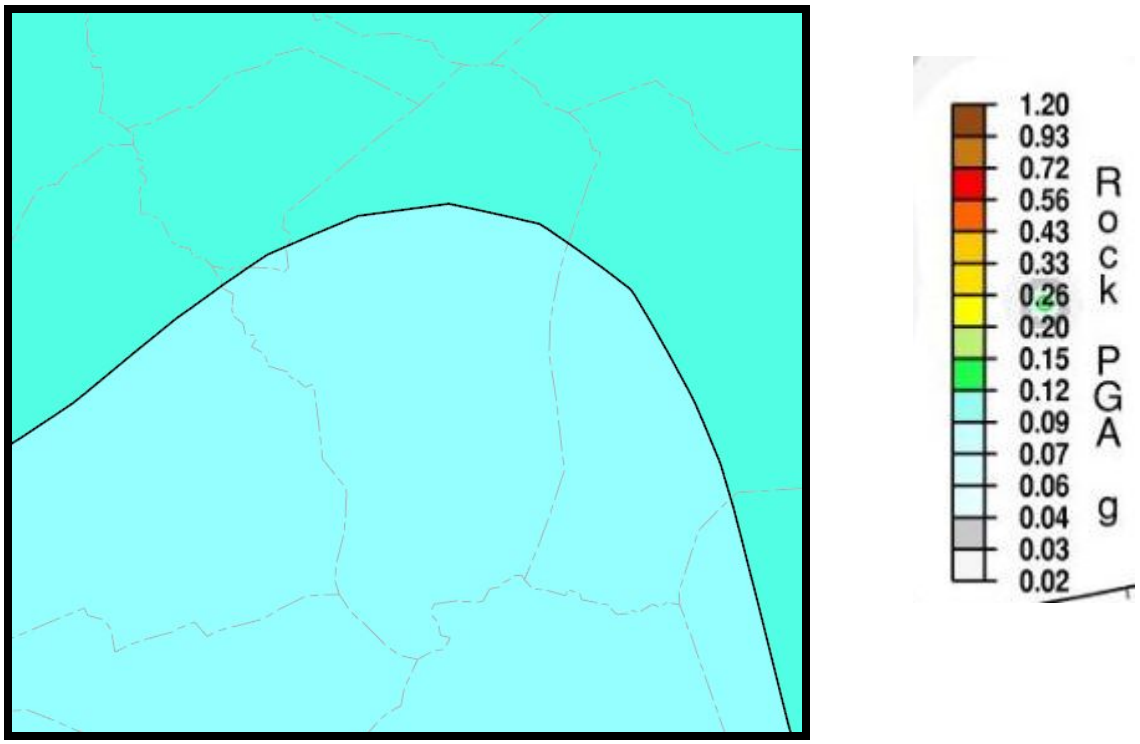
Magnitude	Typical Maximum Modified Mercalli Intensity
1.0 - 3.0	**I**
3.0 - 3.9	**II - III**
4.0 - 4.9	**IV - V**
5.0 - 5.9	**VI - VII**
6.0 - 6.9	**VII - IX**
7.0 and higher	**VIII** or higher

Abbreviated Description of the 12 levels of Modified Mercalli Intensity.		
Intensity	**Shaking**	**Description/Damage**
I.	Not felt	Not felt except by a very few under especially favorable conditions.
II.	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III.	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV.	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V.	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI.	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII.	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII.	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX.	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X.	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI.	Extreme	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII.	Extreme	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Source: USGS

Based on U.S. Geological Survey Two-percent probability of exceedance in 50 years map of peak ground acceleration is between one and nine percent (see map below). As discussed above, such predictions are based on limited information, and cannot necessarily be relied upon for their precision. However, they do help demonstrate that the threat of earthquakes cannot be overlooked even in a relatively inactive geographic area such as Jefferson Co.

PGA with 2% 50 year PE



Source: https://earthquake.usgs.gov/

B. Hazard Profile – The planning committee examined historical data from the NCEI, past newspaper articles, and conducted interviews during its research on the effects of past earthquake events. While earthquake events have never occurred in Jefferson County, they hope to be prepared if one does. ***All data covers the county as a whole no data is available by jurisdiction***. GMIS has25 percent of the county with a seismic hazard score of three and the remaining one percent with a seismic hazard score of two.

C. Assets Exposed to Hazard and Estimate of Potential Losses: All critical facilities, personal, and public property in Jefferson County are susceptible to damage caused by an earthquake. There are no damage records available in relation to earthquakes. Loss would be determined based on intensity and magnitude and would vary in each case. All critical facilities, personal, and public property in Jefferson County are susceptible to damage caused by an earthquake. Worksheet #3a has assets exposed to an earthquake hazard for each jurisdiction as:

Jurisdiction	Number of Structure/Properties	Value	Population
Jefferson County (Unincorporated)	25,319	$919,281,333	9,219
Avera	776	$6,507,938	246
Bartow	745	$11,059,155	286
Louisville	4,741	$115,404,410	2,493
Stapleton	1,081	$13,367,033	438
Wadley	3,740	$118,237,863	2,061
Wrens	4,224	$104,510,571	2,187
TOTAL FOR COUNTY	40,626	$1,288,368,303	16,930

Source: Jefferson County Tax Assessor

The table below shows the number of critical facilities potentially at risk by jurisdictions, daily occupancy and replacement value (*See Appendix A and Appendix D).*

Jurisdiction	Hazard Score	# of Critical Facilities	Replacement Value $	Content Value $	Occupancy	
					Day	Night
Jefferson County	3	4	$222,598,143	$9,070,700	3,101	795
Jefferson County	2	29	$38,562,850	$2,000,000	972	0
Avera	2	3	$737,500	$400,000	1	0
Bartow	2	16	$3,872,477	$402,000	6	3
Louisville	3	1	$15,000,000	0.00	2	0
Louisville	2	16	$23,142,390	$1,700,000	269	204
Louisville	0	2	$300,000	0.00		
Stapleton	2	4	$1,778,500	$730,000	2	0
Wadley	2	17	$7,800,653	$2,388,200	146	97
Wrens	3	26	$15,112,500	$1,174,200	50	0
TOTAL		**118**	**$328,905,013**	**$17,865,100**	**4,549**	**1,099**

D. Land Use and Development Trends—There are no specific land use and development trends in relation to earthquakes at this time.

E. Multi-jurisdictional Concerns - All of Jefferson County can potentially be negatively impacted by an earthquake. As a result, any mitigation steps taken related to earthquakes should be undertaken on a countywide basis to include all municipalities. A concern is the lack of available data for the county and all incorporated jurisdictions. A database needs to be created and maintained that provides information on past and future occurring earthquake events.

F. Hazard Summary - An earthquake is a sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of Earth's tectonic plates. The severity of these effects is dependent on the amount of energy released from the fault or epicenter. The effects of an earthquake can be felt far beyond the site of its occurrence. They usually occur without warning and after just a few seconds can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. If the earthquake occurs in a populated area, it may cause many deaths, injuries and extensive property damage. The committee recognized the potential for losses caused by an earthquake and identified it as a hazard requiring mitigation measures There has never been a reported earthquake event events reported in the last 68 years. Based on a 20-year cycle hazard history there is less than a 1% probability of an annual earthquake event. To summarize, there are approximately 40,626 structures/properties in the county totaling slightly less than $1.3 billon with a population of 16,930 The planning committee identified specific mitigation goals, objectives and action items related to earthquakes, which can be found in Chapter III, Section II and III.

CHAPTER III. MITIGATION STRATEGIES

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

Chapter III. Section	Updates to Section
I. Flooding	Completed action steps were removed. Action Steps that apply to all jurisdictions were combined. New goals were added where necessary along with any existing or new multijurisdictional concerns. Goals, Objective, and Actions Steps were updated to new format.
II. Dam Failure	Completed action steps were removed. Action Steps that apply to all jurisdictions were combined. New goals were added where necessary along with any existing or new multijurisdictional concerns. Goals, Objective, and Actions Steps were updated to new format.
III. Drought	Completed action steps were removed. Action Steps that apply to all jurisdictions were combined. New goals were added where necessary along with any existing or new multijurisdictional concerns. Goals, Objective, and Actions Steps were updated to new format.
IV. Wildfire	Completed action steps were removed. Action Steps that apply to all jurisdictions were combined. New goals were added where necessary along with any existing or new multijurisdictional concerns. Goals, Objective, and Actions Steps were updated to new format.
V. Severe Weather	Completed action steps were removed. Action Steps that apply to all jurisdictions were combined. New goals were added where necessary along with any existing or new multijurisdictional concerns. Goals, Objective, and Actions Steps were updated to new format.
VI. Winter	Completed action steps were removed. Action Steps that apply to all jurisdictions were combined. New goals were added where necessary along with any existing or new multijurisdictional concerns. Goals, Objective, and Actions Steps were updated to new format.
VII. Earthquake	This hazard was added was not in last plan. Developed Goals, Objective, and Actions Steps.
VIII. All Hazards	Category added to take goals that apply to all Hazards to reduce redundancy.

SECTION I. INTRODUCTION TO MITIGATION STRATEGY

This chapter addresses the mitigation strategy requirements of 44 CFR Section 201.6 (c)(3): "A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with

particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

iv) For multi-jurisdictional plans there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan."

A. Priority Changes from Previously Approved Plan

There have been no significant priority changes from the previous plan. The goal of Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley, and Wrens, is to protect the safety, health and well-being of all county citizens, and to protect public and private property and to lessen the overall effects of a hazard event.

There has been limited new development since the previous plan and no increase in population that would affect the overall vulnerability of the community from identified hazards. This has been no new adoption of development or building regulations to increase or decrease the overall vulnerability to hazard events.

B. Capability Assessment

The County identified current capabilities for implementing hazard mitigation activities. The capability assessment identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated with hazard mitigation as well as codes, ordinances, and plans already in place that contain mitigation activities or programmatic structure. The second part of the assessment examined the fiscal capabilities applicable to providing financial resources to implement identified mitigation action items. Below is the annual budgets for each jurisdiction:

- Jefferson County: $17,950,217
- Avera: $140,000
- Bartow: $219,800
- Louisville: $1,934,100
- Stapleton: $395,624
- Wadley: $2,018,000
- Wrens: $4,900,000

It should be noted that mitigation action steps with high dollar amounts cannot be completed without grant funds and careful budget planning by all jurisdictions.

While not all technical and administrative skills are found in-house, all jurisdictions have access to multiple staff through the RC and can contract out with private firms for any professional services needed. The three tables below identifies administrative, technical, legal and fiscal capabilities of each jurisdiction.

Table 3. 2 Legal and Regulatory Capability (Y/N)

Regulatory Tools (ordinances, codes, plans)	Jefferson County	Avera	Bartow	Louisville	Stapleton	Wadley	Wrens	Does State Prohibit
Building code	Y	N	N	Y	N	Y	Y	N
Zoning ordinance	N	N	N	Y	N	Y	Y	N
Subdivision ordinance or regulations	N	N	N	Y	N	N	Y	N
Special purpose ordinances (floodplain management, storm water management, soil erosion)	Y	N	Y	Y	Y	Y	Y	N
Growth management ordinances (also called "smart growth" or anti-sprawl programs)	N	N	N	N	N	N	N	N
Site plan review requirements	Y	N	N	Y	N	N	Y	N
General or comprehensive plan	Y	Y	Y	Y	Y	Y	Y	N
A capital improvements plan	Y	N	N	Y	N	N	Y	N
An economic development plan	Y	N	N	N	N	N	N	N
An emergency response plan	Y	Y	Y	Y	Y	Y	Y	N
A post-disaster recovery plan	N	N	N	N	N	N	N	N
A post-disaster recovery ordinance	N	N	N	N	N	N	N	N
Real estate disclosure requirements	N	N	N	N	N	N	N	N

Table 3. 3 Fiscal Capability

Financial Resources	Jefferson County	Avera	Bartow	Louisville	Stapleton	Wadley	Wrens	Accessible or Eligible to Use (Yes/No)
Community Development Block Grants (CDBG)	Y	Y	Y	Y	Y	Y	Y	Y
Capital improvements project funding	Y	N	N	Y	N	N	Y	Y
Authority to levy taxes for specific purposes	Y	Y	Y	Y	Y	Y	Y	Y – Vote required

Financial Resources	Jefferson County	Avera	Bartow	Louisville	Stapleton	Wadley	Wrens	Accessible or Eligible to Use (Yes/No)
Fees for water, sewer, gas, or electric service	N	Y	Y	Y	Y	Y	Y	Y
Impact fees for homebuyers or developers for new developments/homes	N	N	N	N	N	N	N	N
Incur debt through general obligation bonds	Y	Y	Y	Y	Y	Y	Y	Y
Incur debt through special tax and revenue bonds	Y	Y	Y	Y	Y	Y	Y	Y – Vote required
Withhold spending in hazard-prone areas	N	N	N	N	N	N	N	N
Other Grants	Y	Y	Y	Y	Y	Y	Y	N

Table 3.4 Administrative and Technical Capacity

Staff/Personnel Resources	Jefferson County	Avera	Bartow	Louisville	Stapleton	Wadley	Wrens	Dept./Agency and Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Y	Y	Y	Y	Y	Y	Building Dept./ Code Enforcement/ Public Works CSRA RC
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	N	N	Y	N	Y	Y	Building Dept./ Code Enforcement
Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	N	N	Y	N	Y	Y	Public Works/CSRA RC Staff
Floodplain manager	N	N	N	N	N	N	N	Building Dept.
Surveyors	N	N	N	N	N	N	N	Contracted as needed

Staff/Personnel Resources	Jefferson County	Avera	Bartow	Louisville	Stapleton	Wadley	Wrens	Dept./Agency and Position
Staff with education or expertise to assess the community's vulnerability to hazards	Y	Y	Y	Y	Y	Y	Y	Public Safety/EMA
Personnel skilled in GIS and/or HAZUS	Y	Y	Y	Y	Y	Y	Y	CSRA RC Various
Emergency manager	Y	Y	Y	Y	Y	Y	Y	EMA
Grant writers	Y	Y	Y	Y	Y	Y	Y	CSRA RC

C. Community Mitigation Goals

Collectively, the jurisdictions reviewed the hazard profiles and the loss estimates information in Section II and used it as a basis for developing mitigation goals, objectives and action steps. Mitigation goals are preventive measures to lessen the effect of and losses due to hazard events and are typically long-range visions adapted toward jurisdictional policy. Mitigation objectives are strategies to attain identified goals. Goals and objectives are formulated by reviewing historical hazard data, existing local plans, policy documents, regulations, and public input. Each jurisdiction developed objectives and actions unique to specific vulnerabilities or concerns within its boundaries.

Mitigation actions were developed as the means to carrying out the objectives and achieve goals. All action steps should be compatible with the plans, policies, and regulations of each jurisdiction. The jurisdictions must also have the legal, administrative, fiscal, and technical capacities to perform each action.

The capabilities assessment above aided in forming realistic mitigation actions. This capabilities assessment can then incorporate results of the STAPLEE worksheet to identified obstacles that may hinder the completion actions. Each jurisdiction identified and prioritized actions steps along with an implementation schedule, funding source, and coordinating individual or agency.

Based on the capabilities assessment, the STAPLEE and six categories listed above the county and all jurisdictions identified the following goals:

- Goal 1: Protect the safety, health and well-being of all county citizens;
- Goal 2: Protect public infrastructure and private property;
- Goal 3: Educate the community about natural hazards;
- Goal 4: Manage development to minimize loss;
- Goal 5: Natural Resources Protection; and
- Goal 6: Structural modifications to reduce the impacts of hazard events.

D. Identification & Analysis of Range of Mitigation Actions

The framework used to guide jurisdictions in identifying mitigation measures was developed by FEMA and is captured by the following six categories:

- **Prevention**: Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities that reduce hazard losses. Examples include building and construction code revisions; zoning regulation changes; and computer hazard modeling.
- **Property Protection**: Actions that involve the medications of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include roadway elevations, improving wind and impact resistance, and flood proofing.
- **Public Education and Awareness**: Action to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples include programs that target repetitive loss properties and vulnerable populations.
- **Natural Resources Protection**: Actions that, in addition to minimizing hazard losses also preserve or restore the function of natural systems. Examples include projects to create open space, green space, and stream restoration.
- **Structural Projects**: Actions that involve the construction of structures to reduce the impact of a hazard. Examples include projects that control floodwater, reconstruction of dams, and construction of regional retention areas.
- **Emergency Services**: Actions that protect people and property during and immediately after a disaster event or hazard event. Examples include enhancements that provide advanced warning and redundant communications.

i. Structural and Non-Structural

Mitigation relates to concrete actions which are put into practice to reduce the risk of destruction and casualties. Mitigation is generally split into two main types of activities: structural and non-structural. Structural mitigation refers to any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant and protective structures and infrastructure. Non-structural mitigation refers to policies, awareness, knowledge development, public commitment, and methods and operating practices, including participatory mechanisms and the provision of information, which can reduce risk with related impacts. The committee has identified both structural and non-structural mitigation measures to ensure that the community adequately addresses all relevant dam failure issues. Structural and non-structural actions are identified in Table 3.7.

ii. Existing Polices, Regulations, Ordinances, and Land Use

Louisville, Wadley and Wrens has adopted the following Mandatory codes:

- Georgia State Minimum Standard Building Code (International Building Code with Georgia State Amendments).

- Georgia State Minimum Standard One- and Two-Family Dwelling Code (International Residential Code for One- and Two-Family Dwellings with Georgia State Amendments).
- Georgia State Minimum Standard Fire Code (International Fire Code with Georgia State Amendments).
- Georgia State Minimum Standard Plumbing Code (International Plumbing Code with Georgia State Amendments).
- Georgia State Minimum Standard Mechanical Code (International Mechanical Code with Georgia State Amendments).
- Georgia State Minimum Standard Gas Code (International Fuel Gas Code with Georgia State Amendments).
- Georgia State Minimum Standard Electrical Code (National Electrical Code with Georgia State Amendments).
- Georgia State Minimum Standard Energy Code (International Energy Conservation Code with Georgia State Supplements and Amendments).
- Life Safety Code (NFPA 101).

They have also adopted the Permissive codes:

- International Property Maintenance Code.
- International Existing Building Code.

Other types of ordinances that have been adopted are:

- Currently Jefferson County as well as the cities of Bartow, Louisville, Stapleton, Wadley and Wrens have zoning ordinances, which offer groundwater protection and ensure best practices.
- Jefferson County has adopted a Wetlands Protection Ordinance.
- Louisville has adopted historic preservation ordinances.
- Jefferson County, Wrens and Louisville has adopted a Soil Erosion and Sedimentation Control Ordinance
- Jefferson County has adopted a Solid Waste Management Facility Ordinance.
- Jefferson County, Bartow, Louisville, Stapleton, Wadley and Wrens have flood plain ordinances.
- Louisville and Wrens have adopted zoning ordinances and subdivision regulations.

The *Jefferson County Comprehensive Plan 2004-2024* was adopted by resolution by the Jefferson County Board of Commissioners and the City Councils of Avera, Bartow, Louisville, Stapleton, Wadley and Wrens. The planning process examines the current and future trends and assess the strengths and opportunities available to achieve their community vision. This document drives the decision-making process for the County and each municipality. The joint comprehensive plan also examines existing land use and projects future land use.

iii. Community Values, Historic & Special Considerations

Historical-Cultural

There are four National Register of Historic Places in Jefferson County:

- **Cunningham Coleman House**, listed 1984, southeast of Wadley. An 1825 sand hills house type with Greek Revival details. Raised, weatherboard, two over four room central hall house plan of one and half stories. Representative of a middle-sized, antebellum cotton plantation and post-Civil War farm area known as "Cunningham Corner."

- **Jefferson County Courthouse**, listed 1980 in Georgia Courthouse Thematic NR nomination, built 1904, architect Willis Franklin Denny, builder F. P. Heifner. Style, Classical Revival. Courtroom remodeled in 1980; Elevator added and new windows in 1990s. Features prominent domed clock tower and two-story pediment porticos supported by classical columns. State level of significance.

- **Louisville Commercial Historic District**, listed 1994. Includes 180 acres, 43 buildings, 1 structure (Old Market NR listed individually). Period of significance, 1750-1949. Architectural styles, Beaux Arts, Romanesque, Early Commercial. Includes Courthouse (NR thematic courthouse nomination). Extends four blocks NW to SE along Broad Street. Majority of buildings brick, typical of small commercial towns. Significant structures, post office designed by U.S. Supervising Architect Louis A. Simon, county jail, telephone exchange, former Baptist Church Sunday School, Jefferson Hotel, Abbot and Stone building, Planter's Cotton Warehouse, Pal Theater. Native Louisville architect Willis F. Denny designed three of the two-story commercial buildings. State level of significance.

- **Old Market House**, Louisville, built 1758. Constructed as a trading market pre-dating the city of Louisville. The open-air market is the only building of its kind still standing in Georgia and one of only a few such remaining in the United States. The market rests on a 24'-square foundation and features twelve heavy wooden piers supporting a pyramidal roof. A small cupola with pointed-arch gothic windows and vent openings rests atop the roof. The historic 1772 bell that hangs serves as a reminder of the gift that was intended for King Louis XVI but was stolen by a pirate ship before it found its way in Louisville's Market House. State level of significance.

Willis Franklin Denny II (1874-1905) was an important transitional figure in the development of Georgia architecture at the turn of the 20th century. A native of Louisville, he was one of the first trained architects in America. There are nine Willis Franklin Denny II buildings in Louisville that should be NR listed and noted for preservation opportunities. They are:

- J.D. Polhill Sr. House, 9th and Peachtree, (moved to rural Jefferson County)
- Ramsey-Smith-Ethridge House, 401 Broad
- Rhodes-Stone House, 707 Peachtree (owned by United Methodist Church)
- Abbott House, Mulberry and 8th
- Phillips-Seebach House, 206 West 7th (demolished in 1990)
- Wright-Livingston-Agel House, 208 East 8th
- Denny Building (three storefronts), Broad Street, NR listed in Commercial HD
- Enterprise Building, Broad Street, NR listed in Commercial HD
- Jefferson County Courthouse, Broad Street, NR listed

There is one residential NRHP listing located in Wadley. The Cunningham Coleman House, located southeast of Wadley, was listed on the National Register in 1984. This home is an 1825 sand hills house type with Greek Revival details. Potential National Register of Historic Places residential properties include:

- McDaniel-Little-Patterson House, 702 Mulberry, circa 1880
- Dixon-Cobb House, 718 Screven Street, circa 1880
- Little Brewton House, 403 Broad Street, built 1873
- Marion Little House, 401 Broad Street, built circa 1900
- Ramsey-Smith-Ethridge House, 33 West Broad, built late 1870's
- Abbot House, Mulberry and 8th, built pre-1860
- Sigmund Zacharias House, 115 8th street, built 1879 (owned by the Rollins)
- Austin House, 208 8th street, circa 1830 (oldest house in Louisville)

- Lowry-Edwards-Willie House, US 1, poet Harry Stillwell Edwards lived here with his son.

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Recreation

Jefferson County is home to a segment of the Ogeechee River. This 250-mile river runs through the center of Jefferson County and is the only major river in Georgia with no dam. The river serves many purposes including drinking water, wildlife habitat and recreation such as fishing and boating. The Ogeechee River has been designated as a protected river by the Georgia Department of Natural Resources and an Ogeechee River Corridor Protection plan was adopted by Jefferson County in 2000. The Ogeechee River Protection District includes the land within 100 feet, horizontally, on both sides of the river.

The Atlanta Journal/Constitution and The Macon Telegraph call Bartow the smallest town in America with a thriving community theater. But, in truth, the Schoolhouse Players have evolved into a regional performing group that draws its actors and technicians, as well as its large audiences, from a wide radius. The Players, known for their attention to sets, lighting, and costumes, present a full season of plays and musicals, as well as additional concerts, which range from classical to country.

Economic Drivers

Jefferson County offers a nationally favorable tax and a 100 percent Freeport inventory tax exemption for qualified companies. Under the Georgia Business Expansion Support Team (BEST) Act, qualified companies that expand in our state may be eligible for incentives to reduce costs and increase the bottom line.
The Development Authority of Jefferson County is a driving force in the success of business development here, working with existing and new businesses to ensure quick response time in developing training, infrastructure capacities, or distribution supports. The Development Authority and The Chamber of Commerce have developed strategic partner programs to support local businesses.
Jefferson County has:

- Metal fabrication cluster with excess water and treatment capacity
- Three industrial sites:
    - 353-acre industrial park adjacent to the airport
    - 650-acre park rail served
    - 170-acre industrial park
- Two airports
    - a 5,000-foot paved runway, perfect for corporate aircraft, at a regionally designated airport with terminal
    - a second airport with a 3,500-foot paved runway with plans to extend to a 5,000-foot runway

There is a network of well-maintained highways and airports, with quick access to one of the nation's largest seaports, links Jefferson County to world markets. US Highways 1 (expanding to four lanes), 88 (four lanes), 221 and 319 traverse Jefferson

County while Interstate 16 is just south and Interstate 20 to the north. These main routes are accented by seven different state highways.

Currently expanding airports in Louisville and Wrens service private planes with lighted runways and hangars. Commercial flights are easily accessible at Augusta Airport roughly 35 miles away and two hours away at Savannah International Airport and Atlanta's Hartsfield-Jackson Airport.

The existing Jefferson County business community is strong and diversified.
Major Industries: agriculture, aquaculture, timber, kaolin, and metal fabrication
Major Employers: Fulghum, Battle Lumber, ThermoKing, Glit/Microtron

iv. **Prioritization of Actions:**

Those Mitigation Actions given high priority are in two groups: life safety-related actions that can be accomplished relatively quickly and changes to protect critical facilities on which other emergency management systems are dependent, for example communications focal points. Those actions likely to require extended time frames to accomplish received medium priority status.

The committee used the STAPLEE worksheet to select and prioritize the most appropriate mitigation alternatives. This methodology requires that seven categories be considered when reviewing potential actions. This process helped ensure that the most equitable and feasible actions would be undertaken based on each jurisdictions capability. Table 3.6 provides information regarding the review and selection criteria for alternatives.

Table 3.6

STAPLEE REVIEW AND SELECTION CRITERIA FOR ALTERNATIVES
• Is the proposed action acceptable by the community?
• Is the action compatible with current and future community values?
• Are equity concerns involved that would result in unjust treatment of any segment of the population?
• Will the proposed action cause social disruption?
TECHNICAL
• Will the proposed action achieve the stated objective and further mitigation goals?
• Will the proposed action create more problems than it solves?
• Does the proposed action resolve the problem completely or partially?
• It is the most useful action in light of other community values?
ADMINISTRATIVE
• Does the community have the capability to implement proposed action?
• Is there someone to lead or coordinate the proposed action?
• Is there sufficient funding, staff and technical support to implement the proposed action step?
• Are there ongoing administrative needs that are required?
POLITICAL
• Is the proposed action politically acceptable?
• Have political leaders participated in the planning process?
• Who are the stakeholders for this proposed action?

- Have all stakeholders been afforded an opportunity to participate in the planning process?
- Is there public support to implement and maintain the action?

LEGAL

- Does the community have the authority to implement the proposed action?
- Is there a clear legal basis for the proposed action?
- Are there legal side effects? (i.e. could the action be construed as a taking)
- IS the proposed action allowed in the general plan?
- Will the community be liable for action or lack thereof?
- Will the proposed action be challenged??

ECONOMIC

- What is the cost-benefit of the proposed action (do the benefits exceed the cost)?
- Have initial, maintenance and administrative costs been taken into account??
- Has funding been secured for the proposed action? If not have funding sources been identified?
- Will the proposed action affect the fiscal capabilities and/ or budget of the jurisdiction?
- Will the proposed action place a tax burden on the community?
- Does the proposed action contribute to other community goals? (capital improvements, economic development)

ENVIRONMENTAL

- Will the proposed action have a positive or negative effect on the environment?
- Does the proposed action require environmental regulatory approvals?
- Does the proposed action meet local and state regulations?
- Does the proposed action impact a threatened or endangered species?

E. Introduction to Action Plan

The next two sections of Chapter III., Section II. Natural Hazards and Section III. Mitigation Actions, comprise the strategies that Jefferson County together with Avera, Bartow, Louisville, Stapleton, Wadley and Wrens have identified to reduce the effects of natural hazards. Mitigation actions given high priority are in two groups: (1) life safety-related actions that can be accomplished relatively quickly and (2) changes to protect critical facilities on which other emergency management systems are dependent, for example communications focal points. Those actions likely to require extended time frames to accomplish received medium priority status.

SECTION II. NATURAL HAZARDS

A. Flooding Action Plan

The committee determined that due to the presence of flood plains in the county efforts to reduce the level of exposure to flooding should be considered. In previous flooding instances, damage has been sustained primarily to roads, bridges and natural resources. Specific mitigation measures identified by the committee are designed to lessen the effects of such damage to new and existing structures in the future.

Objective A1. Improve the effectiveness of existing flood insurance programs.
Objective A2. Evaluate and improve the present drainage infrastructure.
Objective A3. Warn citizens when the potential for flooding exist.

Objective A4. Lessen the impact to existing buildings, critical facilities and infrastructure as a result of flooding.
Objective A5. Limit future development in flood prone areas.
Objective A6. Reduce the threat of water contamination caused by flooding.

B. Dam Failure Action Plan

Dam failure mainly affects areas that are downstream of the event. Further study of this type event is required to determine where property damage and loss of life has the greatest potential to occur. Critical facilities and vulnerable populations are located in all jurisdictions as well as the unincorporated areas of the County. As a result, any mitigation steps taken related to dam failure events should be undertaken on a countywide basis and specifically include all incorporated jurisdictions.

Objective B1. Identify at risk population and properties.
Objective B2. Develop proposal to regulate protective measures for dam breach zones

C. Drought Action Plan

As indicated in Chapter II, Section III, drought conditions can cause costly damage to crops. However, from a danger or hazard perspective, the greatest threat posed by drought conditions is from potential wildfires. As 84.5% of the county is made up of forest and woodlands, the possibility for wildfires is distinct and poses a significant threat. In general, wildfires are the result of dry conditions combined with lightning or carelessness. The committee determined that mitigation goals were necessary to prevent crop damage, as well as damage to new and existing structures.

Objective C1. Ensure that there is an adequate water supply during periods of drought.
Objective C2. Educate citizens on water conservation issues.

D. Wildfire Action Plan

As indicated in Chapter II, Section IV, wildfires have the potential to cause costly damage in Jefferson County. From a danger or hazard perspective, the greatest threat posed by wildfire is the damage to forest, woodlands and agriculture property. The possibility for wildfires is distinct and poses a significant threat to the county. Forest fires are generally the result of dry conditions combined with lightning or carelessness. The committee determined that mitigation goals were necessary to prevent damage to undeveloped areas of the county as well as damage to new and existing structures caused by wildfires.

Objective D1. Ensure that adequate fire protection is available.
Objective D2. Reduce threat of wildfire occurrence.
Objective D3. Increase public awareness of wildfire dangers.

E. Severe Weather (Tornados, Tropical Storms, Thunderstorm Winds, Lightning, Hail)

As with many Georgia communities, if a tornado or tropical storm were to strike Jefferson County, significant damage to both property and agricultural crops could result. In addition, the potential for injuries and loss of life is substantial due to the unpredictability and violent nature of these storms. The committee recognizes the important role advance planning plays in the mitigation process. There is great benefit in identifying appropriate steps that can be taken to help minimize losses to new and existing structures in Jefferson County as a result of a severe weather event. As indicated in Chapter II, Section V, of all of the natural hazards profiled in this plan, tornados have the potential to inflict the greatest amount of damage while

thunderstorm winds are the most frequently occurring natural hazard in the county and have the greatest chance of affecting the county each year. The committee has identified several courses of action that both local officials and citizens can use in their mitigation efforts against the effects of tornados, tropical storms, thunderstorm winds, lightning and hail to both new and existing structures.

Objective E1. Minimize damage to property from severe weather events.

Objective E2. Minimize damage to public buildings and critical facilities to ensure continual operations of vital services.

Objective E3. Protect vulnerable populations from the effects of severe weather events.

Objective E4. Educate the public including citizens and business owners on disaster preparedness and safety.

F. Winter Storms Action Plan

Within Jefferson County, and the southeast region in general, there is great concern over the threat of winter storms. Although this area does not typically receive the amounts of snow and ice that other regions do, nor do they experience winter storms as frequently as other regions, Jefferson County and other southeastern communities must be prepared for the damage caused by winter storms. The fact that winter storms hit Jefferson County infrequently results in other problems, such as lack of equipment and supplies to combat treacherous winter storm conditions. In Jefferson County, the formation of ice on roads and bridges, tree limbs, and power lines is the cause of most damage. In Chapter II, Section VI additional winter storm hazards are addressed, as well as information related to potential losses for the county. The Committee has determined that several steps could be undertaken to minimize the effects of winter storms to protect the health and safety of citizens, as well as damage to new and existing structures.

Objective F1. Educate the public on preparedness and safety issues for winter storm events.

Objective F2. Prevent property damage as a result of a winter storm event.

Objective F3. Minimize power outages during winter storms.

G. Earthquake Action Plan

As indicated in Chapter II, Section VII. Earthquake conditions have the potential to affect all of Jefferson County. Critical facilities and vulnerable populations are located in the County and the City. As a result, any mitigation steps taken related to an earthquake event should be undertaken on a countywide basis and specifically include all incorporated jurisdictions.

Objective G1. Minimize damage to property from earthquake events.

Objective G2. Minimize damage to public buildings and critical facilities to ensure continual operations of vital services.

Objective G3. Educate the public on preparedness and safety issues for earthquake events.

H. All Hazard Action Steps

The purpose of this section is to allow the committee to recommend mitigation measures within this plan that transcend individual hazards. Certain common mitigation measures are needed regardless of the specific hazard event. Rather than list these multiple times within

each different hazard category, the committee decided to list these "all-hazards" mitigation measures within a separate section of the plan. The goal with these mitigation measures is again to minimize the loss of life and property, and to prevent disruption of services to the public to the greatest extent possible.

Objective H1. Ensure communication capabilities exist between all Emergency Service Personnel and Agencies.

Objective H2. Ensure the ability to travel for county residents, organizations, and providers of essential services such as Law Enforcement Personnel, hospitals and utilities after a hazard event.

Objective H3. Protect critical facilities from the effects due to power outages as a result of all hazards to ensure a continuation of all vital services.

Objective H4. Provide adequate notification to citizens of Jefferson County pertaining to hazard event.

Objective H5. Guarantee all evacuation plans are up to date and adequate to meet the needs of the citizens of Jefferson County.

Objective H6. Guarantee that all Emergency Response Plans are up to date and adequate to meet the needs of citizens of Jefferson County.

Objective H7. Ensure all emergency shelters are ready to meet the needs of the population of Jefferson County and all jurisdictions.

Objective H8. Provide the citizens of Jefferson County educational information on Emergency Preparedness.

Objective H9. Provide the citizens of Jefferson County with accurate and timely information pertaining to Emergency Preparedness.

Objective H10. Collect accurate and complete data pertaining to hazard events within Jefferson County and all jurisdictions.

SECTION III. MITIGATION ACTIONS

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
1.	Investigate ways to increase Participate in the CRS	Jefferson County, Bartow, Louisville, Stapleton, Wadley and Wrens	BOC/City Councils	Flood	A1, A2	1, 2, 4, 5	Non-Structural	Staff Time	General Funds	3 years	Stalled due to funding	Low
2.	Continue to assess stormwater runoff.	Jefferson County/All Municipalities	Public Works	Flood	A5, C2	2, 6	Non-Structural	Staff time	General Funds	1year and Continual	Ongoing	High
3.	Construct as needed, more storm water retention facilities, storm drain improvements and channel improvements to protect existing and new developments.	Jefferson County/All Municipalities	BOC/City Council/ Public Works	Flood/ Drought	A3,	2, 6	Structural	2,000,000	CDBG, USDA, EPA, DNR, FEMA General Fund,	1year and Continual	Ongoing As funding becomes available	High
4.	Clear run-off and water retention ditches.	Jefferson County/All Municipalities	Public Works/Road Dept.	Flood	A5	2, 1	Structural	Staff Time	General Funds	1year and Continual	Ongoing As part of road dept. work duties	High
5.	Promote the preservation of areas in and around watercourses.	Jefferson County, Wadley, Louisville, Wrens	BOC/City Council/	Flood	A6	1, 2, 4, 5	Non-Structural	Staff time	CDBG, USDA, EPA, DNR	2 years	Ongoing	High
6.	Add greenspace to known flood prone areas.	Jefferson County, Louisville, Wadley and Wrens	BOC/City Council/	Flood	A6	1, 2, 4, 5	Non-Structural	Staff time	CDBG, USDA, EPA, DNR	1year and Continual	Ongoing	Medium
7.	Evaluate existing water systems upgrade as needed	All Municipalities	Public Works	Flood/ Drought/ Wildfire	A7, C1	1, 2, 6	Structural	1,000,000	General Fund, CDBG, USDA, EPA, DNR	1year and Continual	Ongoing As funding becomes available	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
8.	Investigate methods to reduce non-point source pollution.	Jefferson County	Public Works	Flood	A1	1, 2, 5	Non-Structural	500,000	USDA, EPA, DNR	2 years	Ongoing Stalled as no projects have been identified	Low
9.	Promote increased surface water usage and surface artesian flow for irrigation.	Jefferson County/All Municipalities	BOC/City Councils/ Public Works	Drought	C1, C2	2, 3, 4	Structural/ Non-Structural	Staff time	USDA, EPA, DNR, General Funds	2 years and Continual	Ongoing	Medium
10.	Enact a program to educate the residents about water conservation issues	Jefferson County/All Municipalities	BOC/City Councils	Drought	C1, C2	1, 3	Non-Structural	$2,000.00	USDA, EPA, DNR, General Funds	1year and Continual	Ongoing	High
11.	Increase public awareness of watering restrictions and bans.	Jefferson County/All Municipalities	BOC/City Councils	Drought	C1, C2	1, 3	Non-Structural	Staff Time	General Funds	1year and Continual	Ongoing	High
12.	Develop a public awareness campaign to promote water-saving campaigns (i.e. low-flow water saving devices)	Jefferson County/All Municipalities	BOC/Public Works	Drought	C1, C2	1, 3	Non-Structural	Staff Time	Staff Time	1year and Continual	New	High
13.	Continue training of all firefighters to include wildland fire training.	Jefferson County/All Municipalities	BOC/City Councils /EMA	Wildfire	D1	1, 2	Non-Structural	50,000.00	General Funds	1year and Continual	Ongoing	High
14.	Seek funding for needed firefighting equipment	Jefferson County/All Municipalities	Public Works	Wildfire	D1	1, 2	Non-Structural	2,000,000	General Funds, FEMA	Continual	Ongoing	High
15.	Inventory and replace or install more fire hydrants as needed.	Jefferson County/All Municipalities	BOC/City Council/ Public Work's	Wildfire	D1	1, 2	Structural	150,000	General Funds, FEMA	1year and Continual	Ongoing	High
16.	Seek funding for more fire truckers and tankers for local fire departments.	Jefferson County/All Municipalities	BOC	Wildfire	D1	1, 2	Non-Structural	$750,000	General Funds, FEMA	1year and Continual	Ongoing	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
17.	Seek funding for communication towers and voice repeater systems.	Jefferson County/All Municipalities	EMA/ Police/ Sheriff	All hazards	H1, H9	1	Structural	$1,000,000	General Fund, FEMA, CJCC, JAG, USDA, DOJ	Continual	Ongoing	High
18.	Enforce defensible space (30-ft minimum setbacks) between buildings and flammable brush and forestland where possible.	Jefferson County/All Municipalities	Road Dept.	Wildfire	D2, D3	1, 2, 3	Structural	Staff Time	General Funds, FEMA	Continual	Ongoing	Medium
19.	Continue following GFC service of construction and maintenance of firebreaks around forests and structures, along abandoned roadbeds.	Jefferson County/All Municipalities	BOC/City Councils/ Road Dept.	Wildfire	D2, D3	1, 2, 3	Non-Structural	Staff Time	General Fund	Continual	Ongoing	High
20.	Strictly follow GFC guidelines for control burns and permits.	Jefferson County/All Municipalities	BOC/City Councils/ Road Dept.	Wildfire	D2, D3	1, 2, 3	Non-Structural	Staff Time	General Funds,	Continual	Ongoing	High
21.	Implement the Firewise Community Initiative where appropriate	Jefferson County/All Municipalities	BOC/City Councils/ EMA	Wildfire	D2, D3	1, 2, 3	Non-Structural	$25,000.00	General Funds, GFC	3 years	Stalled as no communities have been identified to participate	Medium
22.	Improve public awareness of wildfire techniques and awareness of wildfire dangers.	Jefferson County/All Municipalities	BOC/City Councils/ EMA	Wildfire	D2, D3	1, 2, 3	Non-Structural	$25,000.00	General Funds	2 years and Continual	Ongoing	High
23.	Adopt Building Codes	Jefferson County, Avera, Bartow, Stapleton	BOC/City Councils/	Flood, Severe Weather, Winter Storm	A5, A6, E1, E2	1, 2, 4, 6	Structural/ Non-Structural	Staff Time	General Fund	3 years	New	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
24.	Adopt Zoning Regulations	Jefferson County, Avera, Bartow, Stapleton, Wadley	BOC/City Councils/	Flood, Severe Weather, Winter Storm	A5, A6, E1, E2	1, 2, 4, 6	Structural/ Non-Structural	Staff Time	General Fund	3 years	Ongoing	High
25.	Equip all county and city recreation parks with adequate early severe weather warning and lightning detection devices.	Jefferson County/All Municipalities	EMA/Fire Depts.	Severe Weather, Lightning	E1, E2. E3	1, 2, 6	Structural	150,000	General Funds, FEMA	2 years	Ongoing	High
26.	Inspects public buildings and critical facilities and retrofit to reinforce windows, doors, and roofs as needed	Jefferson County/All Municipalities	Public Works/ Fire Depts.	Severe Weather, Winter Storms	E1, E2. E3	1, 2, 6	Structural	Staff Time	General Funds, FEMA	3 years	Ongoing	Medium
27.	Enforce building codes for all new buildings and critical facilities.	Jefferson County/All Municipalities	EMA/Fire Depts.	Flood, Severe Weather, Winter Storm	A5, A6, E1, E2	1, 2, 6	Structural/ Non-Structural	Staff Time	General Funds, FEMA	Continual	Ongoing	High
28.	Install lightning rods in high value critical facilities.	Jefferson County/All Municipalities	BOC/City Councils/	Severe Weather, Lightning	E1, E2. E3	1, 2, 6	Structural	100,000	General Funds, FEMA	2 years	New	High
29.	Review current Emergency Response Plan and update when needed.	Jefferson County EMA	BOC/City Councils/ EMA	All hazards	H6, H8	1, 2, 3	Non-Structural	Staff Time	General Funds	2 years and Continual	Ongoing	High
30.	Review current evacuation plans paying particular attention to vulnerable populations and update as needed.	Jefferson County EMA	BOC/City Councils/ EMA	Flood, Wildfire, Dam Failure, Severe Weather, Winter Storm	H5, H8	1, 2, 3	Non-Structural	Staff Time	General Funds	2 years	Ongoing	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
31.	Develop a public awareness program about the installation of lightning grounding systems on critical infrastructure, residential and business properties.	Jefferson County EMA	BOC/City Councils/ Recreation Dept.	Severe Weather, Lightning	E4	1, 2, 3	Non-Structural	Staff Time	General Funds	2 years	Stalled due to lack of staff	High
32.	Install generators where needed.	Jefferson County/All Municipalities	EMA/ Fire Code Enforcement and Building Inspection	All hazards	H3	1, 2, 3, 6	Structural/ Non-Structural	$400,000	General Funds, FEMA	1 year and continual	Ongoing As funding becomes available	High
33.	Seek funding to ensure all current and future emergency shelters have back-up generators.	Jefferson County/All Municipalities	Code Enforcement and Building Inspection	All hazards	H7	1, 2, 3, 6	Structural/ Non-Structural	$500,000	General Funds, FEMA	3 years	Ongoing As funding becomes available	High
34.	Educate the public on shelter locations and evacuation routes	Jefferson County/All Municipalities	EMA/ Code Enforcement and Building Inspection	Flood, Wildfire, Dam Failure, Severe Weather, Winter Storm	H8, H9	3	Non-Structural	Staff Time	General Funds	1 year and continual	Ongoing	High
35.	Develop public education and awareness programs regarding severe weather events to include home safety measures, purchase of weather radio and personal safety measures before, during and after an event.	Jefferson County/All Municipalities	EMA	Flood, Wildfire, Dam Failure, Severe Weather, Winter Storm	H8, H9	3	Non-Structural	$10,000	General Funds, FEMA	2year and continual	Ongoing	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
36.	Implement a winter storm education program to include winterization of home and/or business and what to do before, during and after.	Jefferson County/All Municipalities	EMA/BOE	Winter Storm	F1	3	Non-Structural	$25,000	General Funds	2 year and continual	Ongoing	High
37.	Review current codes to comply with and enforce the State building code with criteria for design snow load for buildings and structures.	Jefferson County/All Municipalities	BOC/ City Councils/ EMA	Winter Storm	F2	1, 2, 3,	Non-Structural	Staff Time	General Funds	2 years	Ongoing	low
38.	Create a data base to record hazard event information.	Jefferson County/All Municipalities	EMA	All hazards	H10	1, 2, 3,	Non-Structural	Staff Time	General Funds	2 years	Stalled due to lack of staff	Medium
39.	Conduct dam breach analysis to identify assets and population at risk in the event of a failure.	Jefferson County, Wadley	EMA	Dam Failure	B1, B2	1, 2,	Non-Structural	250,000	General Funds, DNR	3 years	Stalled due to funding	Medium
40.	Draft ordinance prohibiting development in dam breach zone.	Jefferson County/All Municipalities	BOC/ City Councils/	Dam Failure	B2	1, 2, 4	Non-Structural	Staff Time	General Funds	2 years	In progress	Low
41.	Install dam failure alert systems.	Jefferson County, Wadley	BOC/ City Councils/ EMA	Dam Failure	H4	1, 2, 6	Structural	$100,000	General Funds, DNR	4 years	Ongoing As funding becomes available	Medium

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
42.	Inventory existing road equipment and purchase needed equipment to maintain roads before, during and after a hazard event.	Jefferson County/All Municipalities	BOC/ City Councils/ EMA	Flood, Severe Weather, Winter Storm	H2	1, 2	Non-Structural	1,500,000	General Funds, FEMA	Continual	Ongoing As funding becomes available	Medium
43.	Develop coordinated management strategies for deicing, snow plowing, and clearing roads of fallen trees and debris	Jefferson County/All Municipalities	BOC/ City Councils/ Planning and Zoning	Flood, Severe Weather, Winter Storm	H2	1, 2	Non-Structural	Staff Time	General Funds	2 years	Stalled due to staff time	High
44.	Promote the construction of safe rooms in shelter areas and in public buildings.	Jefferson County/All Municipalities	BOC/ City Councils/ Road Dept.	Flood, Wildfire, Dam Failure, Severe Weather, Winter Storm	H3	1, 2, 6	Structural	$500,000	General Funds, FEMA	4 years	Ongoing As funding becomes available	Medium
45.	Update 911 equipment as needed.	Jefferson County/ EMA	BOC/ City Councils/ Road Dept./EMA	All hazards	H1, H3	1, 2, 6	Structural	$2,000,000	General Funds, FEMA	Continual	Ongoing As funding becomes available	High
46.	Request that all new education facilities be designed to serve as public shelters for emergency purposes.	Jefferson County	BOC/ EMA	All hazards	H7	1, 2, 6	Non-Structural	Staff Time	General Funds	Continual	Ongoing. No new schools have been designed	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
47.	Promote and participate in the following American Red Cross Programs • Disaster Resistant Neighborhoods Program • Business and Industry Preparedness Seminar • Community Disaster Education Preparedness presentations	Jefferson County/All Municipalities/ EMA	EMA/ Sheriff	All hazards	H4, H8, H9	1, 2 ,3	Non-Structural	25,000	General Funds, FEMA	Continual	Ongoing	Medium
48.	Continue update of EMA website with information pertaining to Emergency Preparedness.	Jefferson County EMA	EMA/	All hazards	H4, H5, H6, H7, H8, H9.	1, 2 ,3	Non-Structural	Staff Time	General Funds	Continual	Ongoing updated as needed	High
49.	Work with local cable and radio providers to enhance and broadcast public education on Emergency Preparedness.	Jefferson County EMA	BOC/ City Councils/ BOE	All hazards	H8,H9	1, 2 ,3	Non-Structural	Staff Time	General Funds	1 year and Continual	Ongoing	High
50.	Implement GIS technology on fire and emergency management vehicles so data can be readily available in the field so more accurate, timely assessments for future mitigation planning activities.	Jefferson County/All Municipalities	BOC/ City Councils/	Flood, Wildfire, Dam Failure, Severe Weather, Winter Storm	H9, H10	1, 2, 6	Non-Structural	50,000	General Funds, FEMA	1 year and Continual	Ongoing As funding becomes available	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
51.	Apply for funds to three portable generators for lift stations and wells	Wrens	BOC/ Road Dept.	All hazards	H3	1, 2, 3, 6	Structural/ Non-Structural	140,000	General Funds, FEMA	6 months	Ongoing As funding becomes available	High
52.	Continue update of EMA website and Facebook page with information pertaining to Emergency Preparedness.	Jefferson County EMA	EMA	All hazards	H4, H5, H6, H7, H8, H9.	1, 2 ,3	Non-Structural	Staff Time	General Funds	Continual	Ongoing	High
53.	Apply for funds for generators critical facilities such as city hall, police station, fire station, wells	Wadley	BOC/ City Councils/	All hazards	H3	1, 2, 3, 6	Structural/ Non-Structural	275,000	General Funds, FEMA	Continual	Ongoing As funding becomes available	High
54.	Apply for funds for generator at Hospital	Jefferson County	BOC/ City Councils/	All hazards	H3	1, 2, 3, 6	Structural/ Non-Structural	140,000	General Funds, FEMA	Continual	Ongoing As funding becomes available	High
55.	Apply for three stationary generators for tow lift stations and the Leisure Senior Center for use as a shelter.	Jefferson County EMA	EMA/BOC	All hazards	H3	1, 2, 3, 6	Structural/ Non-Structural	300,000	General Funds, FEMA	Continual	Ongoing As funding becomes available	High
56.	Conduct a survey to determine structural capability of critical facilities to function after a seismic event. Retrofit as needed.	Jefferson County/All Municipalities/ EMA	BOC/ City Councils/	Earthquake	G1	3,6	Structural	Staff Time	General Funds	2 years	New	High
57.	Distribute flyers and pamphlets to citizens and businesses on earthquake preparedness.	Jefferson County/All Municipalities/ EMA	BOC/ City Councils/	Earthquake	G1, G2	1, 2,3	Non-Structural	Staff Time	General Funds	1 year	New	High

Action #	Mitigation Action and Description	Jurisdiction	Implement Agency	Hazards Addressed	Objective Supported	Goal	Structural / Non-Structural	Estimated Project Cost	Possible Funding Source(s)	Timeframe	Status	Priority
58.	Conducts earthquake scenarios to estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities.	Jefferson County/All Municipalities/ EMA	BOC/ City Councils/	Earthquake	G1, G2	1, 2,3,6	Non-Structural	Staff Time	General Funds	1 year	New	High
59.	Contract with the Regional Commission to create a Flood Mitigation Assistance Plan.	Jefferson County	RC, BOC, EMA	Flood	A6	1, 2, 4, 5	Non-Structural	Unknown	General Funds	2 years	Stalled due to funding	Low

A. New Buildings and Infrastructure: All objectives and action steps are applicable to new buildings and infrastructure.

B. Existing Buildings and Infrastructure: All objectives and action steps are applicable to existing buildings and infrastructure except adopt building codes. Enforcing building codes on existing buildings is not always feasible. Buildings maybe retrofitted but cannot always be brought up to stricter regulations.

C. Special Multi-Jurisdictional Strategy and Considerations: During a natural hazard it is imperative that all emergency personal can communicate with each other throughout the entire planning area. The County and its jurisdictions have numerous dead spots throughout the area due to topography and lack of adequate communication equipment. The County and its emergency personnel are dependent on the private sector for towers to use for signals. If these towers are ever removed the County will be without any adequate means to transmit signals. The County and all jurisdictions are aware of the need to develop communication capabilities that will serve their County.

Another concern is the lack of available data for the county and individual jurisdictions on hazard events. A database needs to be created and maintained that provides information on flooding events that occur. This database should include information such as location (road names, neighborhoods, GPS coordinates, etc.), damages reported, power outages, road closures, county and city personal that are dispatched to the area, etc.

D. Completed and Deleted Action Steps from Original Plan:

Flood

- Determine the elevation of critical facilities in known flood areas and seek funding to relocate if necessary. Completed.
- Update Floodplain Maps. FEMA updated all maps in 2010.
- Review and adopt flood plain ordinances as needed. Completed for all jurisdictions except Avera who has no floodplains
- Review set back requirements from top of banks of creeks and from top of banks of major rivers. Completed set back requirements are consistent with the DNR guidelines.
- Review existing comprehensive, development and land use plans to address flood prone areas. This was completed during the 2018-2028 Comprehensive Plan Update.
- Install measuring devices in creeks, ponds, etc. to provide a warning when water levels become dangerously high. All have monitors.
- Identify property owners who are located in areas continually subject to flooding and relocate or mitigate. There are no repetitive flood properties.
- Cap wells not in use and increase wellhead waterproofing. Deleted deals with private property.
- Ensure well head elevations are above known flooding levels. Handled by Health Dept.
- Run HAZUS scenarios once the software is updated and compatible to RC ArcGIS 10.2 and updated estimated losses. Completed

Drought

- Identify and inventory all vulnerable agricultural properties to include livestock and develops a protective action plan.
- Study the range of federal support programs available to assist Jefferson County's agriculture community.
- Water Use Ordinances was removed from the plan. All water departments have adopted GA EPD guidelines.
- Seek funding for wells that have gone dry and been removed. Funding does not exist for this activity as a grant only a loan and must be applied for by private citizens.

Wildfire

- Seek funding for reverse 911 was removed from the plan as technology is obsolete and the county has implemented CODE RED

Severe Weather

- Seek funding for reverse 911 was removed from the plan as technology is obsolete and the county has implemented CODE RED
- Review building codes for proper wind strength and safety regulations and for consistency with state and federal regulations. Building Codes are in compliance.
- Provides NOAA weather radios to elderly and handicap populations. Promoting Code Red.
- To the greatest extent possible, identify all owners of inadequately installed manufactured homes offer a financial incentive to retrofit them with an appropriate level of anchoring and support." Removed as no funding exist for this activity.
- Inspect all county and municipal critical facilities for proper grounding. Completed
- Install surge protectors on critical facilities' electronic equipment in essential county and city facilities. Completed.
- Provide boat owners with safety tie down procedures with boat registration. Removed. Information to boating safety will be placed on the EMA website and Facebook page as an alternative.

Winter Weather

- Seek funding for reverse 911 was removed from the plan as technology is obsolete and the county has implemented CODE RED
- Inspect power lines to determine if trees need to be trimmed or cut down. This is performed by the electric companies. This action step was deleted.
- Purchase a portable sewer transfer pumping unit. Was removed it is more cost efficient to rent one when needed.
- Herman Nelson Warming System AIR HEATER w/TRAILER Was removed it is not cost efficient

E. Unchanged and/or Continual Action Steps: The flowing mitigation steps remain in the plan. Based on the STAPLEE Criteria these unchanged action steps were found to be relevant in limiting the damage to people and property from a natural hazard. All action steps have been reformatted to meet the action step criteria established by GEMA and

FEMA after the original plan was approved. The new table format from GEMA Plan Update Guidance Template 2012 has been used to organize action steps. STAPLEE worksheet can be found in Appendix D for each action step.

Flood:

- Continue to assess storm water run-off.
- Seek funding to construct more storm water retention facilities, storm drain improvements and channel improvements to protect existing and new developments.
- Seek funding to increase size of retention basins and run off canals.
- Recommend that run-off and water retention ditches be cleared.
- Adopt ordinances to control building and development in known flood prone areas.
- Promote the preservation of areas in and around watercourses.
- Add greenspace to known flood prone areas.
- Investigate methods to reduce non-point source pollution.
- Seek funding for communication towers and voice repeater systems. (Moved to all hazards.)

Drought

- Evaluate existing water systems and upgrade as needed.
  - Wadley made water system improvements for $550,000
  - Louisville completed a $1.7 million upgrade the water treatment plant, added a new well and rehabbed the water tank at the High School.
- Increase public awareness of watering restrictions.
  - All cities post water restrictions.
- Educate citizens on water conservation.
- Promote increased surface water usage for irrigation.
- Promote usage of surface artesian flow for irrigation.
- Educate citizens on water conservation issues.

Wildfire

- Seek funding to install more fire hydrants.
  - Wrens installed 19 new hydrants for 47,500.
  - Louisville installed 5 new hydrants for $12,500.
  - Wadley repaired 3 hydrants for $2,025.
- Review previous firefighter training and implements a schedule for the ongoing training of all firefighters to include wildland fire training.
  - All paid firefighters have had 240 hours of annual training.
  - All volunteer firefighters have completed annual fire training requirements.
- Seek funding for needed firefighting equipment.
  - Avera purchased 10 sets of turnout gear for $32,000
  - Wadley - Number and cost of turnout gear - Pants 10, Coats 10, Helmets 11, Hoods 25, Boots 11 pair, Gloves 20 pair, Shirts 17, Belts/Buckles 13, Suspenders 4, Face Shields 10, Hi Viz Vests 2, Flashlights/Baton 29, Parka 1, Tags 17, Patches 100, Escape Knives 17, Recoil Rope 1, Total Gear Cost $34,042.13

  - Louisville purchased 10 sets of gear cost $17,000
  - Jefferson County purchased three sets of turnout gear for 4500.00
- Upgraded water lines to meet FEMA recommendations for firefighting and install fire hydrants.
- Seek funding for more fire tankers (2000 to 3000 gallons) for local fire departments.
  - Louisville purchased 2 used brush trucks - Cost $ 26,000 and a new truck with equipment for $325,000
- Seek funding for communication towers and voice repeater systems. (moved to all hazards)
- Increase public awareness of wildfire dangers by publishing articles in the local newspaper and providing bulletins to local churches and the schools.
- Continue hazardous fuel reduction by prescribed burning, mechanical or chemical treatment carried out and promoted by GFC guidelines.
- Continue GFC service of construction of firebreaks around forests and structures.
- Maintain fuel breaks along abandoned road beds.
- Recommend a defensible space (30-ft minimum setbacks) between buildings and strictly follow GFC guidelines for control burns and permits.
- Educate public during periods of drought; ask them to hold off on outside burning.
- Increase public awareness of wildfire dangers around the home and community, such as lighted matches, cigarettes, trash, and the process for obtaining burn permits by publishing articles in the local newspaper and providing bulletins to local schools.
- Participate in the Firewise Community Initiative.
- Continue GFC service of construction of firebreaks around forests and structures.
- Maintain fire breaks along abandoned road beds.

Severe Weather

- Review building codes for proper wind strength and safety regulations and for consistency with state and federal regulations.
- Inspect public buildings and critical facilities and retrofit to reinforce windows, doors, and roofs as needed.
- Seek funding for communication towers and voice repeater systems (moved to all hazards).
- Review current evacuation plans paying particular attention to vulnerable populations and update as needed (moved to all hazards).
- Review and current Emergency Response Plan and update when needed (moved to all hazards).
- Install generators where needed (moved to all hazards).
- Install generators on all new critical facilities (moved to all hazards).
- Seek funding to ensure all current and future emergency shelters have back-up generators (moved to all hazards).
- Educate the public on shelter locations and evacuation routes (moved to all hazards).

- Seek funding for communication towers and voice repeater systems (moved to all hazards).
- Request that all new education facilities be designed to serve as public shelters for emergency purposes (moved to all hazards).
- Develop public education and awareness programs regarding severe weather events to include home safety measures, purchase of weather radio and personal safety measures before, during and after severe event weather.
    - The EMA has set up a Facebook with educational information
- Promote and participate in the following American Red Cross Programs
    i. Disaster Resistant Neighborhoods Program (educating communities)
    ii. Business and Industry Preparedness Seminar (educating businesses on business continuity planning)
    iii. Community Disaster Education Preparedness presentations (educating adults, children and families)

Winter Weather

- Implement a winter storm education program to include winterization of home and/or business and what to do before, during and after the winter storm event.
- Seek funding for communication towers and voice repeater systems (moved to all hazards).
- Road maintenance equipment.
- Inventory and assess generator needs at critical facilities and install generators where needed.
- Install generators where needed (moved to all hazards)
    - Avera installed a generator for $10,000
    - Wadley purchased 4 generators with FEMA grant for $188,720.00
    - Louisville installed two Generators for WPCP for 150,000 and four 4 Generators installed 2018 City Water treatment Plant, High School pump station, and two sewer lifts stations. Cost $ 191,622.09.
    - Bartow wired Sewer lift Stations wired for emergency power---$13,000.00 and installed a generator for 1,500.00

CHAPTER IV. PLAN INTEGRATION AND MAINTENANCE

The table below provides a brief description of each section in this chapter and a summary of the changes that have been made.

Chapter I. Section	Updates to Section
I. Implementation Action Plan	Revised to follow New GEMA planning template
II. Evaluation, Monitoring, Updating Note whether the original method and schedule worked	Revised to follow New GEMA planning template
III. Plan update and maintenance	Regulated update and maintenance schedule and public involvement

SECTION I. Implementation Action Plan

A. Administrative Actions: Jefferson County Emergency Management Agency was responsible for overseeing the original planning process and the plan update. Facilitation of the planning process was conducted by the Central Savannah River Area Regional Commission. The Jefferson County Board of Commissioners has authorized the submission of this plan to both GEMA and FEMA for their respective approvals. The Jefferson County Board of Commissioners and the City Councils of Avera, Bartow, Louisville, Stapleton, Wadley and Wrens have formally adopted this plan after approval from GEMA and FEMA.

B. Authority and Responsibility: Upkeep and maintenance of the plan shall be the responsibility of the EMA Director, as determined during the planning process. It shall be the responsibility of the EMA Director to ensure that this plan is utilized as a guide for initiating the identified mitigation measures within the community. The Jefferson County Board of Commissioners and the Mayors of all incorporated jurisdictions will be responsible for assigning appropriate staff members to implement the action steps identified in this plan for their jurisdictions. The EMA Director, or his designee, shall be authorized to call the committee to review and update this plan periodically (at least annually) throughout the useful life of the plan, not to exceed five years.

During the plan update process, the EMA Director and committee members shall identify projects that have been successfully undertaken in initiating mitigation measures within the community. These projects shall be noted within the planning document to indicate their completion. Additionally, the committee called together by the EMA Director shall discuss and identify any additional mitigation projects that are necessary in the community.

C. Prioritization: The mitigation goals, objectives and related action items were initially compiled from the input of the committee, as well as from others in the community. The committee prioritized the mitigation actions based on what would be perceived as most beneficial to the community, and the action steps have been listed in this plan as the committee prioritized them. Several criteria were established to assist committee members in the prioritization of these suggested mitigation actions. Criteria included perceived cost benefit or cost effectiveness, availability of potential funding sources, overall feasibility,

measurable milestones, multiple objectives, and both public and political support for the proposed actions.

1. **Methodology for prioritization:** To assist with the prioritization of mitigation actions, the STAPLEE worksheet and criteria recommended by FEMA was used. STAPLEE is a tool used to assess the costs and benefits and overall feasibility of mitigation actions. STAPLEE stands for the following:
    i. **Social:** Will the action be acceptable to the community? Could it have an unfair effect on a particular segment of the population?
    ii. **Technical:** Is the action technically feasible? Are there secondary impacts? Does it offer a long-term solution?
    iii. **Administrative:** Are there adequate staffing, funding and maintenance capabilities to implement the project?
    iv. **Political:** Will there be adequate political and public support for the project?
    v. **Legal:** Does your jurisdiction have the legal authority to implement the action?
    vi. **Economic:** Is the action cost-beneficial? Is there funding available: Will the action contribute to the local economy?
    vii. **Environmental:** Will there be negative environmental consequences from the action? Does it comply with environmental regulations? Is it consistent with community environmental goals?

    The committee was asked to review the STAPLEE score sheet and list of mitigation actions and assign a High, Medium or Low score to each item to help determine the item's priority. Each action item was discussed and a consensus reached by the group on the importance of each item.

2. **Use of cost benefit refer to Worksheet #4:** Through the STAPLEE 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. Other projects allowed the community to pursue completion of the project using potential grant funding. Still others required no significant financial commitment by the community.

    The determination of the cost benefit of a project was based upon the anticipated cost in relation to the perceived benefit of the action taken. A proposed action with a high price tag, but minimal benefit to the community, was considered to have a low cost benefit. Conversely, if minimal expenditures were required and the entire community would benefit, this received a favorable cost benefit rating. All proposed mitigation actions were evaluated to determine the favorability of the benefit in relation to the cost associated with completing the project. Determining the economic feasibility of mitigating hazards can provide decision makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

3. **Use of other calculations:** Estimation of potential damages and costs in the event of a natural hazard achieves two ends: (1) it enables the identification of critical

economic targets for mitigation measures and (2) to enhance the ability to prioritize post-disaster response in aiding the community to recover.

4. **Use of other review structure**: All goals were discussed in detail to determine what was considered a priority for the EMA personnel.

D. Incorporation of Local PDM Plan into other plans/planning measures: The jurisdictions completed the update to their Joint Comprehensive plan and STWP in 2018. The 2014 PDM plan was reviewed to determine if any of the mitigation activities need to be added to the above-mentioned documents. Jefferson County along with all six jurisdictions work jointly to produce these planning documents.

The STWP will be updated in 2023 and the Joint Comprehensive Plan is due for an update in 2024. The RC facilities the planning process for both documents and updates both plans. Jefferson County takes the lead and all jurisdictions must participate to complete the comp plan and STWP. This Plan will be reviewed by Jefferson County along with all six jurisdictions. The requirements of this Hazard Mitigation Plan will be taken into consideration and will be incorporated into Comprehensive Plans, Five-Year Short-Term Work Program, Local Emergency Operations Plans, and all other such Plans as appropriate. This hazard plan will be reviewed and incorporated into the Joint Comprehensive plan and STWP update as needed. In addition, relevant sections of the 2019 plan were included in the revision of the Local Emergency Operations Plan in 2018. This hazard plan update will also be reviewed in the next update of the LEOP.

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

To facilitate inclusion of this Plan, the Jefferson County Commission and all cities will provide a copy of this Plan to the persons and/or committees responsible for writing and updating plans.

SECTION II. EVALUATION, MONITORING AND UPDATING

The original method for evaluation of the plan was unsuccessful. While the plan was discussed at EMA meetings, little attention was given to the monitoring and evaluation of the plan. Changes have been made to ensure a more successful and meaningful use of this plan.

A. Method: The Plan is intended to be a 'living' document that informs stakeholders about hazard mitigation projects and plans undertaken by the county and their jurisdictions. In accordance with the requirements set forth in the Disaster Mitigation Act of 2000, Jefferson County is required to review the PDM Plan annually and revise the plan every five years. The revision process will be consistent with the FEMA planning requirements as stipulated in the 44 CFR 201.6.

B. Criteria to be used to monitor and evaluate the plan annually or after any natural disaster event.

a. Each hazard will be reviewed. Any new information pertaining to new and/or previous events will be added to the plan.
b. Any new critical facilities will be added to the plan.
c. Critical facilities information will be updated as needed.
d. All mitigation goals, objectives and action steps will be reviewed for relevance and completion status. All mitigation goals, objectives and action steps that have been completed or are no longer relevant will be documented.
e. New mitigation activities will be added if necessary.
f. Public participation will be monitored and documented.

C. Responsibility: At the direction of the EMA Director, the committee shall be reconvened for the revision process which will include a schedule, timeline, and a list of the agencies or organizations participating in the plan revision. Jefferson County and all incorporated jurisdictions have designated the following participants of the committee to guide plan maintenance and update activities to ensure that the information in the plan is current. The update committee will also be responsible for disseminating information to stakeholders within their respective jurisdictions.

Jurisdiction	Hazard Mitigation Update Committee	Review
	Point-of-Contact	Schedule
Jefferson County	Emergency Management Director	Annually
Avera	City Official	Annually
Bartow	City Official	Annually
Louisville	City Administrator	Annually
Stapleton	City Official	Annually
Wadley	City Official	Annually
Wrens	City Administrator	Annually

D. Timeframe: The committee has set the first Thursday of every October for the annual review of the plan update and within two months after any natural disaster event. A public notice will be submitted to the legal organ of each jurisdiction and the notice will be published at all government and community buildings.

SECTION III. PLAN UPDATE AND MAINTENANCE

A. Public involvement: Jefferson County is committed to having active public participation during reviews and updates of the PDM Plan. Public participation will follow the guidelines set forth in 44 CFR 201.6. Future public involvement of the community will be more stringent. The original method was not as successful as anticipated in ensuring community involvement. With this in mind, two weeks before the annual April review meeting, a notice will be published in the legal organ of Jefferson County. Flyers will be placed at all government and community gathering places to ensure that citizens of the county are made aware of the annual review process. The new EMA website will also provide ongoing information about the plan and its implementation.

B. Timeframe -- At the direction of the EMA Director, the committee will convene in order to accomplish the revisions the first Thursday of every October. The EMA Director will ensure the revised plan is presented to the Jefferson County Board of Commissioners and all jurisdictions for formal adoption. In addition, all holders of the County plan will be notified of affected changes. No later than the conclusion of the five-year period following initial approval of the update plan, the EMA Director shall submit the update PDM Plan to the Georgia Emergency Management Agency and the Federal Emergency Management Agency for their review and coordination.

Conclusion

SECTION IV. Summary

Through the update process of this plan, Jefferson County has developed a more thorough hazard history, an inventory of critical facilities, and an updated contact list for emergency contacts at critical facilities. Natural hazards have been identified countywide. Goals, objectives and mitigation actions have been compiled and prioritized that would reduce the risk of lives and property as a result of the identified hazards. The committee has been able to work together effectively and efficiently to produce this document and establish a greater awareness of our risks and our mitigation strategies.

As a result of the update PDM planning process, Jefferson county officials have obtained more complete and accurate information and knowledge regarding the County's disaster history, the presence of natural hazards, and the likelihood of each of these hazards occurring within the County, and the potential impacts and challenges these hazards present to the community.

All meetings were open to the public and advertised in *The Jefferson Reporter,* providing Jefferson County citizens with the opportunity to comment on and offer suggestions concerning disaster mitigation actions within the community.

The committee found that it is difficult to predict the geographic threat, and therefore the resulting impact of some natural disasters as compared to others. Tornados and related severe weather strike randomly, usually affecting a small, localized area. On the other hand, natural disasters such as winter ice storms and drought can blanket the entire county, affecting all businesses, public facilities, and residents.

Recognizing this challenge, the committee identified both general and specific measures to aid in the mitigation of several natural hazards most likely to impact Jefferson County. These measures include, but are not limited to, the protection of critical facilities and infrastructure, progressive governmental policies, and the proactive use of codes and regulations. It is worth noting that local government policies can often be the single most important and cost efficient component of PDM.

The mission of the Jefferson County Pre-Disaster Hazard Mitigation Planning Committee is to "*Make the citizens, businesses, communities and local governments of Jefferson County less vulnerable to the effects of natural hazards through the effective administration of hazard mitigation grant programs, hazard risk assessments, wise floodplain management and a coordinated approach to mitigation policy through state, regional and local planning activities."*

The committee feels that this plan, when implemented, will help to make all of Jefferson County a safer place to live and work for all of its citizens.

SECTION II – REFERENCES

Numerous sources were utilized to ensure the most complete planning document could be assembled. In an effort to ensure that all data sources consulted are cited, references are listed in the following format: 1) Publications, 2) Web Sites, 3) Other Sources.

Publications:

FEMA Pre-Disaster Mitigation *How-to Guides #1, 2, 3, 7* (FEMA)
GEMA Supplements to FEMA Pre-Disaster Mitigation How-to Guides (GEMA)
The Jefferson Reporter
The Augusta Chronicle
Summary of Floods in the United States During 1990 and 1991
http://pubs.er.usgs.gov/publication/wsp2474
FLOODS IN GEORGIA. FREQUENCY AND MAGNITUDE. By. R. W. Carter.
Http://pubs.usgs.gov/circ/1951/0100/report.pdf

Georgia Archives University System of Georgia
http://cdm.sos.state.ga.us:2011/cdm/search/searchterm/FLOOD/mode/all/order/subjec/ad/desc

Web Sites:

FEMA www.fema.gov
GEMA www.gema.state.ga.us
Georgia Department of Community Affairs http://www.dca.state.ga.us/
Georgia Forestry Commission http://weather.gfc.state.ga.us
National Climatic Data Center www.ncdc.noaa.gov
SHELDUS™ | Spatial Hazard Events and Losses Database for the United States
https://sheldus.asu.edu/SHELDUS/
National Inventory of Dams http://crunch.tec.army.mil/nid/webpages/nid.cfm
cNew Georgia Encyclopedia http://www.georgiaencyclopedia.org/nge/Home.jsp
Georgia Archives University System of Georgia
http://cdm.sos.state.ga.us:2011/cdm/search/searchterm/FLOOD/mode/all/order/subjec/ad/desc
United States Census Bureau http://www.census.gov/
USDA, NASS, 2017 CENSUS OF AGRICULTURE
http://www.nass.usda.gov/Census_of_Agriculture/index.asp
http://www.sercc.com/ The Southeast Regional Climate Center (SERCC)
http://www.tornadohistoryproject.com/tornado/Georgia Tornado History Project

Other Sources:

American Red Cross
CSRA Regional Commission
Georgia Department of Natural Resources
Georgia Forestry Commission
Jefferson County, Avera, Bartow, Louisville, Stapleton, Wadley and Wrens
Jefferson County Board of Education
Jefferson County Hospital
Jefferson County Tax Assessor

APPENDICES

Appendix A – Hazard Identification, Risk Assessment and Vulnerability (HRV)

I. Hazard A - Flood
   a. Description
   b. Data – GEMA Critical Facility Inventory Report
   c. Maps

II. Hazard B– Dam Failure
   a. Description
   b. Data– GEMA Critical Facility Inventory Report
   c. Maps

III. Hazard C - Drought
   a. Description
   b. Data– GEMA Critical Facility Inventory Report
   c. Maps

IV. Hazard D - Wildfire
   a. Description
   b. Data– GEMA Critical Facility Inventory Report
   c. Maps

V. Hazard E – Severe Weather, Including Tornados, Tropical Storms, and Thunder Storms
   a. Description
   b. Data– GEMA Critical Facility Inventory Report
   c. Maps

VI. Hazard F – Winter Storm
   a. Description
   b. Data– GEMA Critical Facility Inventory Report
   c. Maps

VII. Hazard F – Earthquake
   a. Description
   b. Data– GEMA Critical Facility Inventory Report
   c. Maps

Appendix B – Growth and Development Trends / Community Information

I. Local Comp Plan Executive Summary
II. Statistics/tables from Local Comp Plan
III. Community Information

Appendix C –Planning documents

I. Executive Summary Local Emergency Operations
II. Executive Summary GEMA State Emergency Operations

III. Hazard Risk Analysis
IV. Flood Insurance Study
V. Community Wildfire Protection Plan
VI. Timber Impact Assessment GFC
VII. Executive Summary CSRA Regional Commission Regional Plan

Appendix D – Worksheets used in planning process

I. Completed GEMA/local worksheets
II. Blank GEMA/local worksheets
III. Other misc. worksheets or planning process documents

Appendix E – Copies of Required Planning Documentation

I. Public notice
II. Meeting Agendas / Meeting Minutes
III. Sign-in sheets
IV. Local proclamations (copy of all resolution)
V. GEMA/FEMA correspondence