Brooks County, Georgia

Hazard Mitigation Plan

2024-2029

Including the Cities of Barwick, Morven, Pavo, and Quitman

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

Effective June 10, 2024 – June 9, 2029

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Chapter 1: Introduction to the Planning Process

Summary of changes:

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

CHAPTER 1 Section	Updates to Section
I. Purpose, Need, Authority, and Statement of Problem	Language updated to reflect that this was an update to the existing plan
I. Purpose, Need, Authority, and Statement of Problem	Language was updated to reflect the new directives for the notification and invitation of the underserved population to the HMP Update process.
II. Local Methodology, Plan Update Process, and Participants	The City of Pavo was not included in the previous plan; it has been added to this plan
III. Plan Review, Analysis, and Revision	Planning Committee reviewed each section Updates made using national, state, and local data
IV. Organization of Plan	Consistent with original plan
V. Local Hazard, Risk and Vulnerability (HRV) Summary, Local Mitigation Goals, and Objectives	Updates made using national, state, and local data
VI. Multi-Jurisdictional Special Considerations	No major changes from original plan
VII. Adoption, Implementation, Monitoring, and Evaluation	Evaluation method revised and updated.
VIII. Community Data	Updates made using most recent available national, state, and local data

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

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

This document is the official plan update to the previous Brooks County Pre-Disaster Mitigation Plan Update, as approved by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA), which took effect on March 19, 2019 and expires on March 19, 2024.

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

This Plan is a direct result of research and a planning and public involvement process undertaken by the local government officials and citizens of Brooks County and the Cities of Barwick,

Morven, Pavo, and Quitman after they formed the Brooks County Hazard Mitigation Plan Update Committee (hereafter known as the HMPUC). This Plan is the result of their commitment to reduce the risks of natural hazards and the effects of those natural hazards to their communities. The Cities of Barwick, Morven, Pavo, and Quitman are the only incorporated cities located in Brooks County.

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

In order to initiate an outreach program to neighboring communities, governments, local and regional agencies, and to agencies authorized to regulate development, business, and the public, two Public Hearing Notices were published in the legal organ of the local newspaper. In addition, e-mail lists of stakeholders were kept updated and those on them were informed of meetings through e-mails, letters, and/or telephone calls. Surrounding county EMA Directors were notified of the plan update and invited to participate in the process. Also, the local nursing home and school system was contacted and invited to participate in the meetings. And finally, the Brooks County Health Department and the Archbold Brooks County Hospital were contacted and invited to participate and tri-fold color brochures were printed and placed at the hospital, health department, and DFCS for the underserved population to be apprised of the meetings and have an opportunity to get involved and give input from their perspective.

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

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

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

A. Overview

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

Potential members of the Brooks County HMPUC were contacted by telephone or by letter/e-mail concerning their participation on the Committee. Southern Georgia Regional Commission (SGRC) staff provided technical assistance to the Brooks County HMPUC. The Brooks County HMPUC was comprised of representatives from Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman and also included representatives from other groups such as the hospital, local nursing home, school system, Georgia Forestry Commission, surrounding EMA Directors from Lowndes and Thomas Counties, and individuals, as shown below, who attended meetings and/or conducted research:

Jurisdiction	Title	Name
Brooks County	EMA Director	LaToya Hampton
Brooks County	County Administrator	Jessica McKinney
City of Quitman	Mayor	Zinda McDaniel
City of Quitman	Utilities Director	David Frost
City of Quitman	Fire Chief	Floyd Demps
City of Quitman	City Manager	Raphael Maddox
City of Quitman	City Clerk	Lola Slydell
City of Quitman	Police Chief	Roy Hart
City of Quitman	Councilman	Donald Morgan
Brooks County	Fire Coordinator	Ricky Weeks
Brooks County	Road Department Director	Amy Hart
Brooks County	Planning and Zoning Coordinator	Sherry Davidson
Brooks County	Brooks Zoning and Permits	Jason Montesano
Brooks County	Sheriff	Mike Dewey
Brooks County	Books County Health Department	Shannon Walker
Brooks County	County Clerk	Patricia Williams
Archbold Brooks Hospital	Hospital Administrator	June Furney
Brooks County Ambulance Service	Manager	Joe Cowart
Blankumsee, Thomas, Wright Funeral	Owner/Manager	Kendall Blankumsee
City of Barwick	Mayor	I.J. McCann
City of Barwick	City Clerk	Connie Friedel
City of Barwick	Administration	Meg Hester
City of Barwick	Utilities Director	Kyle c/o C. Friedel
City of Morven	Mayor	Anita Hill
City of Morven	City Clerk	Sandy Rentz Yates
City of Morven	Police Chief & Utilities Director	Lynwood Yates
City of Pavo	Public Works Supervisor	Patrick O'Hearn

City of Pavo	Mayor	Marvin Bryan
City of Pavo	Upcoming Mayor	Bobby Hancock
City of Pavo	Councilwoman	Pat Hall
GEMA	Regional Planner	Alex Parks
South Health District	Director of Emergency Preparedness	Lauren Robinson
Georgia Forestry Commission	Chief Ranger District 2	Kenneth Lee Weaver
Georgia Forestry Commission	Forester	Jacob Milam
South Health District	Emergency Preparedness Director	Lauren Robinson
Quitman Presbyterian Home	Administrator	Shelly Kirkendoll
Brooks County School System	Assistant Superintendent	Tonya Healey
Brooks County Development Authority	Director	Stephanie Mata
Cook County	EMA Director	Johnny West
Lowndes County	EMA Director	Ashley Tye
Thomas County	EMA Director	Chris Jones
Thomas County	Deputy EMA Director	Lisa Griffis
Southern Georgia Regional Commission	Planning Director	James Horton

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

- Kick-off public hearing – October 18, 2023
- First workshop – November 1, 2023
- Second workshop – November 29, 2023
- Final public hearing – Need date here!!!

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

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

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

For the plan update, the Hazard Mitigation Plan Update Committee (HMPUC) used the prior Hazard Mitigation Plan as a basis, reviewing all chapters and sections and updating them as appropriate using national, state, and local data sources. The HMPUC reviewed the individual parts of the prior plan (with an emphasis on the hazards, goals, objectives, and action steps), and updated these elements through open discussion in which updates were noted by SGRC staff, who then used notes from the workshops to create the new Hazard Mitigation Plan document. The Wildfire section was updated using the Georgia Forestry Commission's "Community Wildfire Protection Plan" (see Appendix C). The CWPP was consulted to ensure consistency between the CWPP and HMP, and all action items from the CWPP that were still relevant were included as action steps in the HMP. Land use descriptions, information about zoning, and information about

community services were updated using the current joint Comprehensive Plan for the County and Cities. Other documents used were the local Emergency Operations Plan, the previous Hazard Mitigation Plan, the State of Georgia Hazard Mitigation Plan, and information from the National Climatic Data Center (NCDC). The State Hazard mitigation plan was consulted to ensure the HMP would be consistent with this plan, and data from the NCDC were used to create the Hazard Frequency Table and associated information regarding each hazard, which can be found in Chapter 2. The County and Cities do not have a Flood Mitigation Assistance Plan or a Flood Insurance Study.

B. Public Comment and Participation

The publication of a Public Notice in the legal organ is considered the legal method of notifying the public and inviting them to meetings. However, in addition to the formal public notice, an added means of engaging the public, a printed tri-fold color brochure, was developed which is intended to reach the vulnerable and underserved populations. The brochure is simple, has photos and graphics, and is easy to read and understand. It is specifically geared to reach the vulnerable and underserved populations and encourage them to get involved with the local Hazard Mitigation process. The brochure is eye-catching with a front-page color photo of a house in a flooded area with a person on the roof and the caption states: "**This Could be You**!" The pamphlet is printed in color and two language versions are available - both English and Spanish. Telephone numbers and email contact information is included on the brochures so that anyone who is not able to attend the meetings can still participate. One hundred copies of each language version were printed in color and folded for distribution. The pamphlets were then distributed to organizations/locations in Brooks County where the vulnerable and underserved populations would frequent regularly such as the Brooks County Health Department, Archbold Brooks Hospital, and the South Health District offices. The staff that delivered the pamphlets to these locations took time to meet with employees there and explain the brochure and the Hazard Mitigation process. The staff also explained the importance of why it is important to have participation from the vulnerable and underserved populations and encouraged them to distribute the pamphlets and encourage their clients to participate in the process. See Appendix H for a copy of the brochure that was distributed.

Two public hearings were held as part of the Hazard Mitigation update process where the public was invited to attend and engage in the process. The "kick-off" public hearing was advertised in the local newspaper (meeting advertisements and sign-in sheets are provided in Appendix E). A second and final public hearing was held on Need Date Here and was advertised in the local newspaper (see Appendix E). Citizens, including staff and members of the HMPUC, were present (see Appendix E). Add final public hearing comments here!!!

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

C. Mission and Vision Statements

Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman
Hazard Mitigation Plan Update Committee
Mission Statement

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

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

Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman
Hazard Mitigation Plan Update Committee
Vision Statement

This committee's vision is to institutionalize a local Hazard Mitigation ethic through leadership, professionalism, and excellence, thus leading the way to a safe, sustainable way of life for Brooks County and Cities of Barwick, Morven, Pavo, and Quitman.

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

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

Section III. Plan Review, Analysis, and Revision

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

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

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

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

Section IV. Organization of the Plan

This Plan focuses on nine (10) natural hazards, grouped into seven categories (7), chosen by the HMPUC that may affect and cause damage to Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. Chapter 2, Chapter 4, and Appendix A are each subdivided into Sections I through VII; these sections reflect the 7 natural hazards that were chosen. The natural hazards are as follows (in order of priority):

1. Hurricanes (Typhoon)/Tropical Storms/Hail
2. Tornadoes
3. Wildfires
4. Lightning
5. Floods
6. Excessive Heat/Frost Freeze
7. Drought

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

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

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

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

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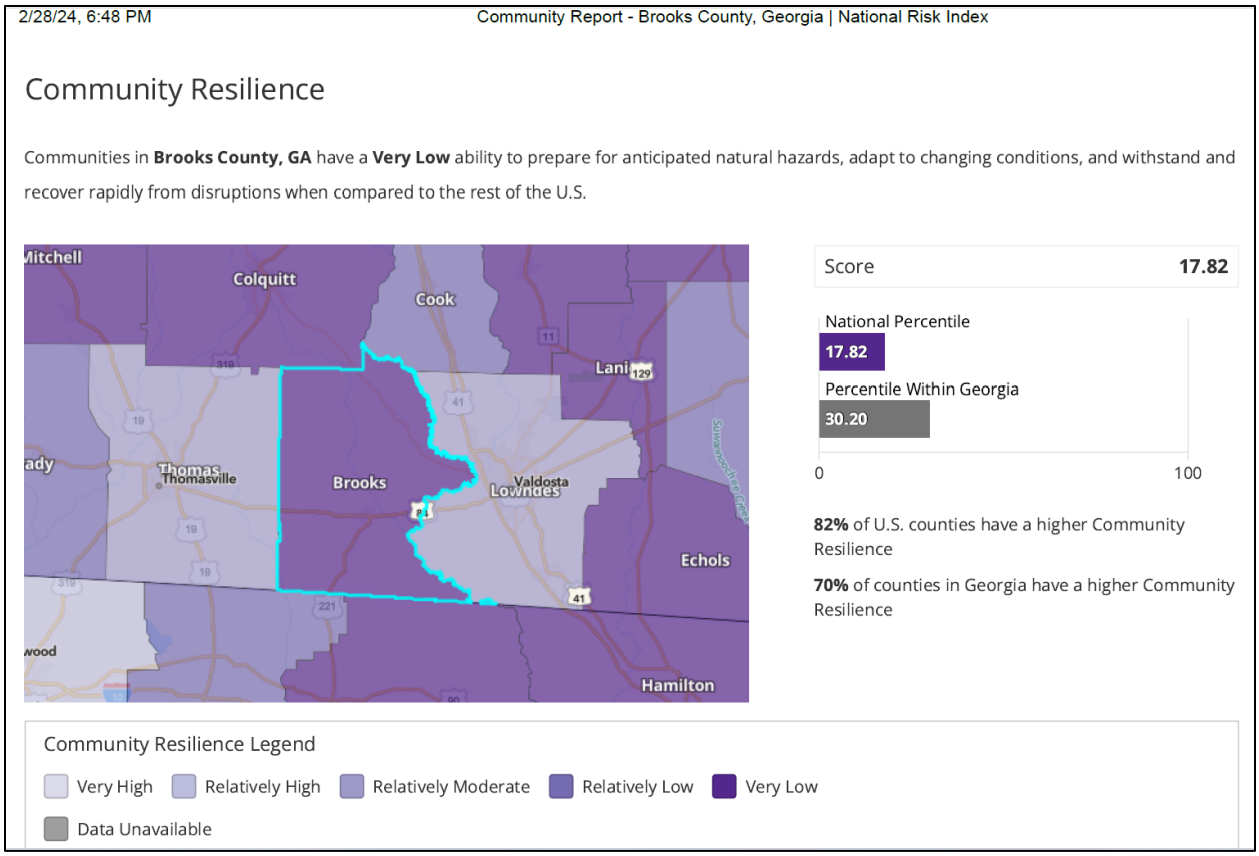
Copies of the Plan are on file and may be examined at the County and City government offices, the County Emergency Management Agency, the Southern Georgia Regional Commission office (as well as the SGRC website, www.sgrc.us), and the Georgia Emergency Management and Homeland Security Agency (GEMHSA).

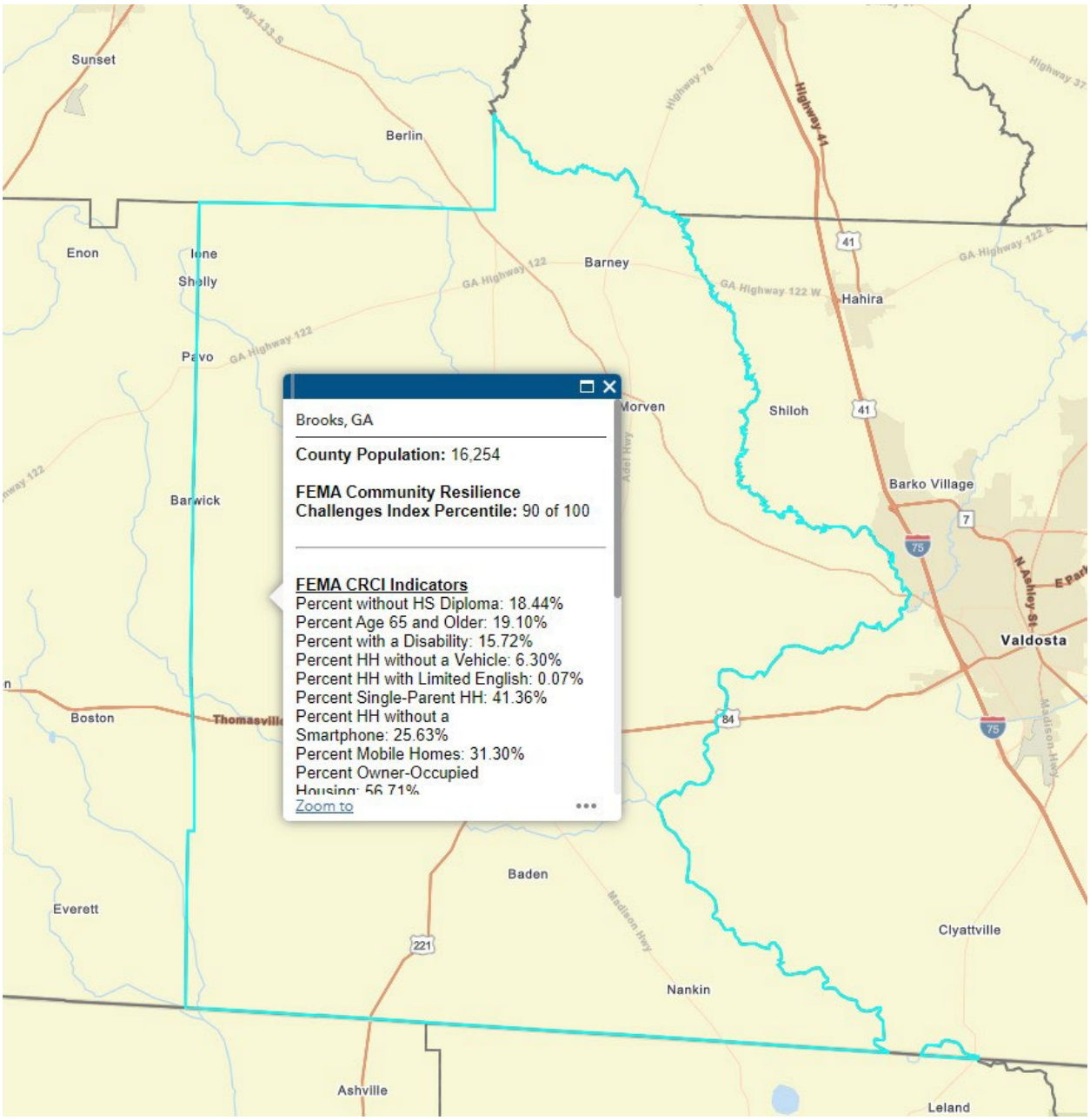
Section V. Local Hazard, Risk, and Vulnerability (HRV) Summary, Local Mitigation Goals, and Objectives

The HMPUC determined that the hazards established in the previous plan needed to be re-organized a bit and they added one new hazard to make a total of eight. Hurricanes/ Tropical Storms/Hail remains number 1 with the addition of Hail to it. Tornadoes remains number 2 and is unchanged. Number 3 was changed from Floods to Wildfires. Number 4 remains Lightning. Number 5 was changed from Extreme Heat to Floods. Number 6 was changed from Wildfires to Excessive Heat/Frost Freeze. Number 7 was added with Extreme Cold/Wind Chill. Number 8, formerly number 7, remains Drought.

Brooks County is a very large and very rural county with four small cities within its boundaries. The City of Quitman is the largest municipality with a population of 4,064, followed by Pavo with a population of 622, then Morven with a population of 506, and finally Barwick with a population of 363. The county is mainly supported by agriculture with very little industry. The poverty rate is very high aligning with a very high social vulnerability. A report from FEMA on the social vulnerability of Brooks County indicates that it has very low resilience. It can be seen that Brooks County has a very low ability to prepare for or recover after a major natural disaster. Brooks County falls below 82% of U.S. counties, and 70% of Georgia counties in its ability to mitigate natural disasters.



Source: National Risk Index for Brooks County, Georgia, FEMA
https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C13027



Source: https://fema.maps.arcgis.com/apps/webappviewer/index.html?id=90c0c996a5e242a79345cdbc5f758fc6

A Hazard, Risk, and Vulnerability (HRV) Assessment has been formulated through a variety of information obtained during the planning process. Information has been obtained from online databases, published sources, and personal accounts regarding hazards, their history in the community, and when and where they were active. This summary is provided in Chapter 2.
Following can be seen a Risk Factor Breakdown for all natural hazards that are applicable to occurrence in Brooks County. The county consistently rates "Very High" social vulnerability and "Very Low" community resilience in relation to each and every natural disaster that is applicable to Brooks County.

Risk Factor Breakdown

Hazard Type	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
Hurricane	$3,030,081	Very High	Very Low	1.42	$4,270,911	80.4
Tornado	$913,430	Very High	Very Low	1.42	$1,304,961	53
Riverine Flooding	$267,427	Very High	Very Low	1.42	$383,367	46
Lightning	$173,277	Very High	Very Low	1.42	$247,503	74.2
Strong Wind	$99,178	Very High	Very Low	1.42	$141,269	24.1
Drought	$57,570	Very High	Very Low	1.42	$78,349	62.1
Earthquake	$38,892	Very High	Very Low	1.42	$56,988	34.6
Wildfire	$32,095	Very High	Very Low	1.42	$45,572	51.8
Hail	$31,058	Very High	Very Low	1.42	$44,921	31.3
Heat Wave	$29,934	Very High	Very Low	1.42	$42,631	38.4
Landslide	$21,900	Very High	Very Low	1.42	$34,080	70.4
Winter Weather	$10,745	Very High	Very Low	1.42	$15,453	19.4
Ice Storm	$263	Very High	Very Low	1.42	$378	1.2
Cold Wave	$0	Very High	Very Low	1.42	$0	0

Source: National Risk Index for Brooks County, Georgia, FEMA
https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C13027

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

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

Section VI. Multi-Jurisdictional Special Considerations

Brooks County has a total area of 493.02 square miles with a population density of 33.06 people per square mile (US Census data, 2023). As such, certain services, including emergency services, may have large distances to cover when responding to an event, which may negatively influence emergency response times and strain resources. Brooks County contains four incorporated cities: Barwick, Morven, Pavo, and Quitman (the county seat). The Cities of Barwick and Pavo are located along the western county boundary and approximately half their incorporated area is within neighboring Thomas County. Therefore, the potential exists for confusion as to which county-level services are to be provided by which county. The Service Delivery Strategies for Brooks and Thomas Counties describe which entity will be responsible for which service, in order to minimize disputes and avoid duplication of services.

The Brooks County Fire Department has 11 fire stations, while the City of Quitman has one Fire Station. The Quitman Fire Department is funded through the City of Quitman and employs full—time firefighters to service the city limits of Quitman. The Brooks County Fire Department Headquarters, and Station 2, in the unincorporated county, are funded through the Brooks County Commissioners and employ full-time paid staff. The North Brooks, South Brooks, Morven, Tallokas, Dixie, Sand Hill, and Barney fire departments do not have paid staff and operate on a volunteer staff.

The fire stations in Brooks County all have an Insurance Services Office (ISO) rating of 5 or 5X, while the fire station in The City of Quitman has an ISO rating of 5. ISO ratings are used by insurance companies to assess the fire protection capabilities of an area, affecting property insurance rates. A lower ISO rating generally indicates a better level of fire protection.

The ISO classes of the fire stations in Brooks County and The City of Quitman are as follows:

Station	Address	Status	ISO Class
1. South Brooks	7246 Madison Highway, Quitman	Volunteer	5X
2. Station 2	50 Brookfield Drive, Valdosta	Paid	5X
3. Pavo	3032 E. Harris St., Pavo	Not Active	
4. East Brooks	1290 Park St., Valdosta	Not Active	
5. Morven	355 Park St., Morven	Volunteer	5
6. Tallokas	4225 Barwick Rd., Quitman	Volunteer	5X
7. Dixie	199 Church St., Dixie	Volunteer	5X
8. Sand Hill	8100 Tallokas Rd., Pavo	Volunteer	5X
9. Headquarters	1454 Jackson Rd., Morven	Paid	5X
10. Barney	12211 Highway 122, Barney	Volunteer	5X
11. Quitman Fire Department	205 S. Madison Street	Paid	5

Section VII. Adoption, Implementation, Monitoring, and Evaluation

After all plan development workshops were concluded, the draft plan was submitted to all local governments for their review. The draft plan was then submitted to GEMA and FEMA for their review and approval. After their approval, and any recommended changes, a second and final public hearing was held on May 6, 2024 in order to provide a further opportunity for public comment and review. After this final public hearing, resolutions adopting the plan were passed by the local governments on May 6, 2024 (Brooks County), April 16, 2024 (City of Barwick), April 16, 2024 (City of Morven), April 15, 2024 (City of Pavo), and April 2, 2024 (City of Quitman), adopting the Plan Update. Copies of the public hearing advertisements and resolutions are available in Appendix E.

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

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

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

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

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

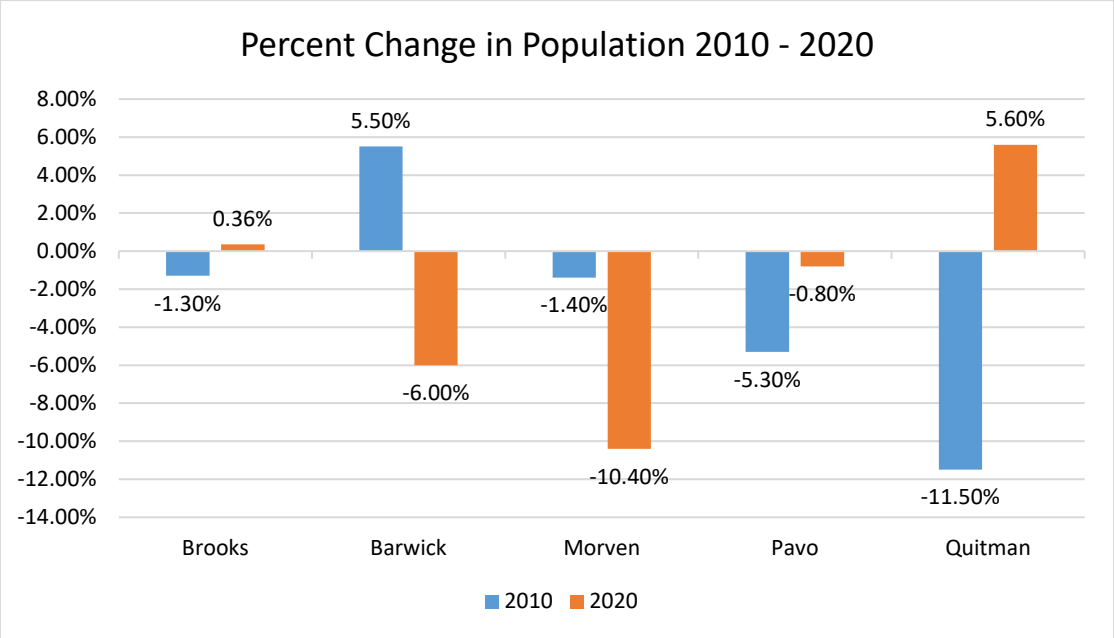
The Plan will be updated by the EMA Director and chosen representatives of all of the local governments every five years, as required by FEMA. All sections of this Plan will be updated at that time. The Plan update will be reviewed by all jurisdictions and relevant stakeholders. The requirements of this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

Section VIII. Community Data

Brooks County was founded on December 11, 1858 and was created from portions of Lowndes and Thomas Counties. The 494 square-mile county was named for Preston S. Brooks, a member of the U.S. House of Representatives. He died January 27, 1857 at 37 years old.

Brooks County is in the southern central portion of Georgia and is adjacent to the Florida border on its south side. It borders: Thomas County to its west, Lowndes County to its east and Cook and Colquitt Counties to its north.

The county's population had a minimal increase from 2010 of 16,243 to 16,301 in 2020 (https://www.census.gov/quickfacts/fact/table/brookscountygeorgia/POP010220).



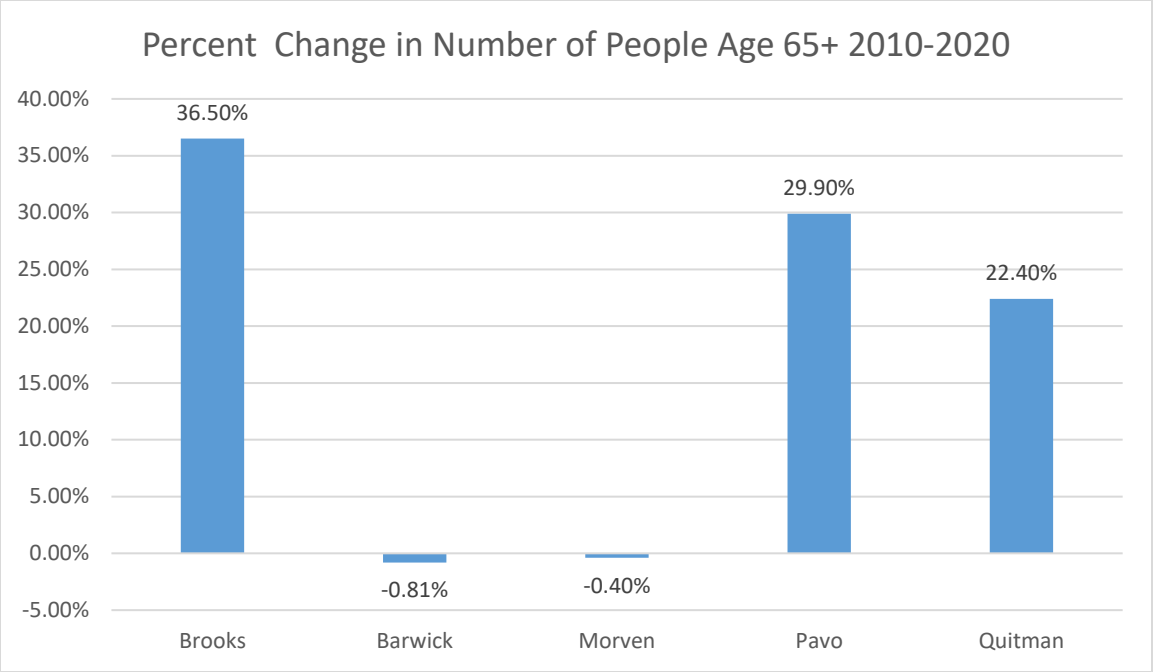
Brooks County Population: According to the U.S. Census Bureau 2020 Decennial Census, Brooks County had a population of 16,295, a slight increase of .36% over the 2010 population.

Barwick Population: According to the U.S. Census Bureau 2020 Decennial Census, the City of Barwick had a population of 363, a decrease of 6.0% from the 2010 population.

Morven Population: According to the U.S. Census Bureau 2020 Decennial Census, the City of Morven had a population of 506, a decrease of 10.4 from the 2010 population.

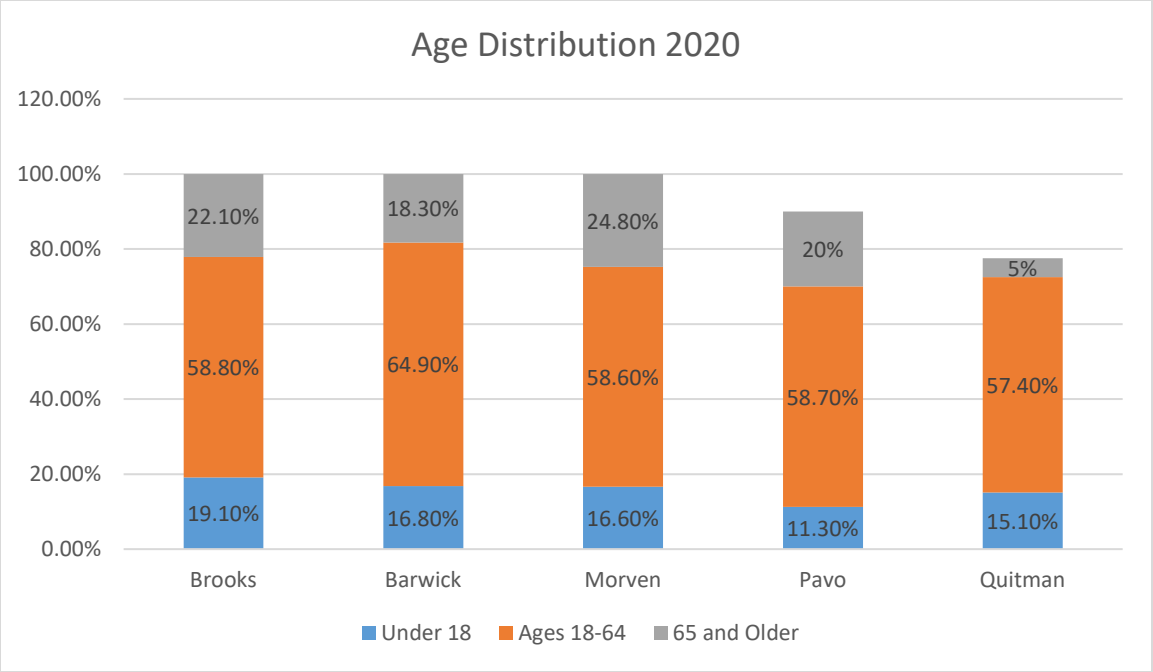
Pavo Population: According to the U.S. Census Bureau 2020 Decennial Census, the City of Pavo had a population of 622, a slight decrease of .8% from the 2010 population.

Quitman Population: According to the U.S. Census Bureau 2020 Decennial Census, the City of Quitman had a population of 4.064, an increase of 5.6% over the 2010 population.



The total number of people aged 65 and older increased significantly at 36.5% from the 2010 census. The total number of those in Barwick slightly decreased at .815 as well as the number of those in Morven decreasing at .40%. The number of those 65 and older increased by 29.9% in Pavo and 22.4% in Quitman.

Source: https://data.census.gov/profile/Brooks_County,_Georgia?g=050XX00US13027



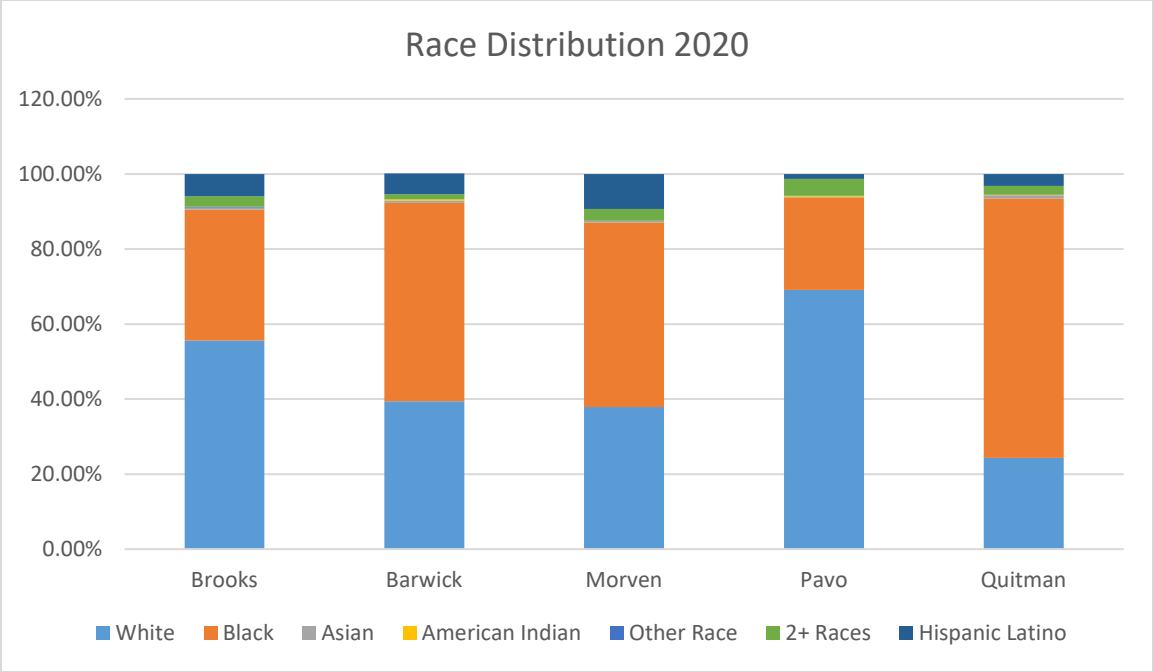
Brooks County number of citizens
Over 65 years = 3,495
18-64 years = 11,903
Under 18 years = 3,428

Barwick, City of
Over 65 years = 48
18-64 years = 185
Under 18 years = 52

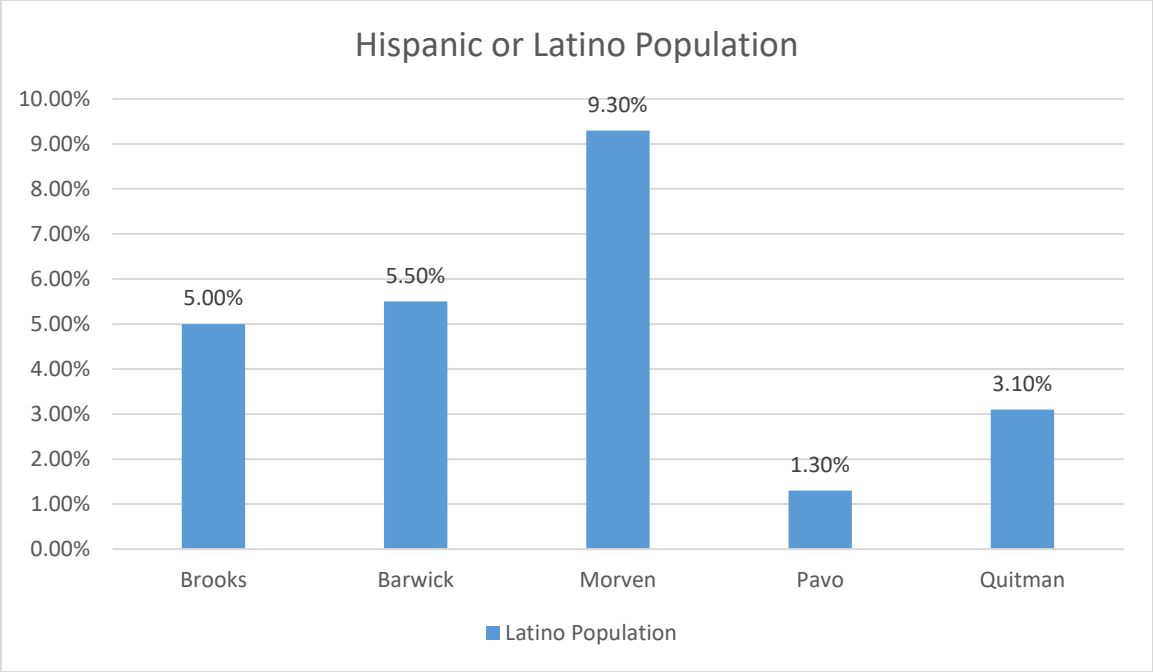
Morven, City of
Over 65 years = 146
18-64 years = 517
Under 18 years = 219

Pavo, City of
Over 65 years = 71
18-64 years = 431
Under 18 years = 125

Quitman, City of
Over 65 years = 560
18-64 years = 2,139
Under 18 years = 1,021

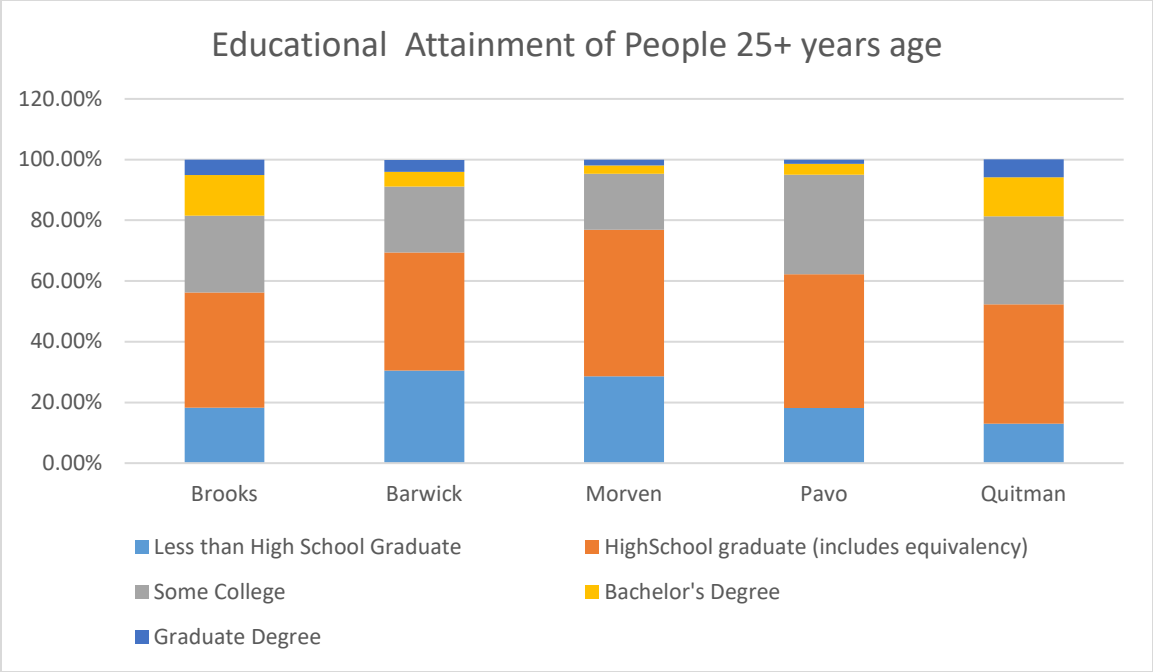


Race Distribution 2020 U.S. Census							
	White	Black	Asian	American Indian	Some Other Race	2+ Races	Hispanic/Latino
Brooks	9,066 (55.6%)	5,684 (34.9%)	67 (.40%)	24 (.10%)	42 (.30%)	457 (2.8%)	955 (5.9%)
Barwick	143 (39.4%)	192 (52.9%)	2 (.60%)	1 (.30%)	0	5 (1,40%)	20 (5.5%)
Morven	192 (37.9%)	249 (49.2%)	2 (.40%)	0	0	16 (3.2%)	47 (9.3%)
Pavo	429 (69.1%)	153 (24.6%)	1 (.16%)	2 (.30%)	0	28 (4.5%)	8 (1.3%)
Quitman	983 (24.3%)	2,805 (69.2%)	30 (.70%)	3 (.10%)	8 (.20%)	95 (2.30%)	128 (3.20%)



The percentage of the population that is Hispanic/Latino (of any race) is 5.0% in Brooks County, 5.5% in the City of Barwick, 9.3% in the City of Morven, 1.3% in the City of Pavo, and 3.10% in the City of Quitman.

Source: https://data.census.gov/profile/Brooks_County,_Georgia?g=050XX00US13027



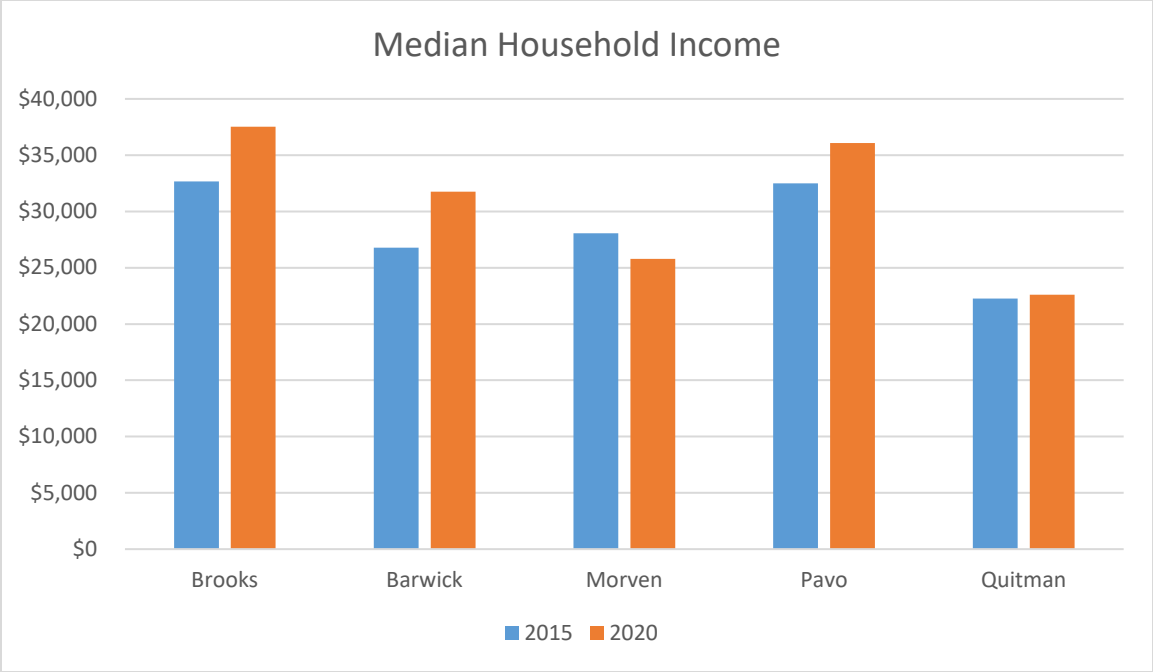
Among persons aged 25 or older, in Brooks County, 18.3% have no high school diploma, 37.9% are high school graduates (includes equivalency) with no further education, 25.3% have an associate's degree or some college, and 13.4% have a bachelor's and 5.10 have a graduate degree or higher.

Among persons aged 25 or older in the City of Barwick, 30.5% have no high school diploma, 38.9% are high school graduates (includes equivalency) with no further education, 21.7% have an associate's degree or some college, and 4.9% have a bachelor's degree and 3.9% have a graduate degree.

Among persons aged 25 or older in the City of Morven, 28.6% have no high school diploma, 48.3% are high school graduates (includes equivalency) with no further education, 18.4% have an associate's degree or some college, and 2.8% have a bachelor's degree and 1.9% have a graduate degree.

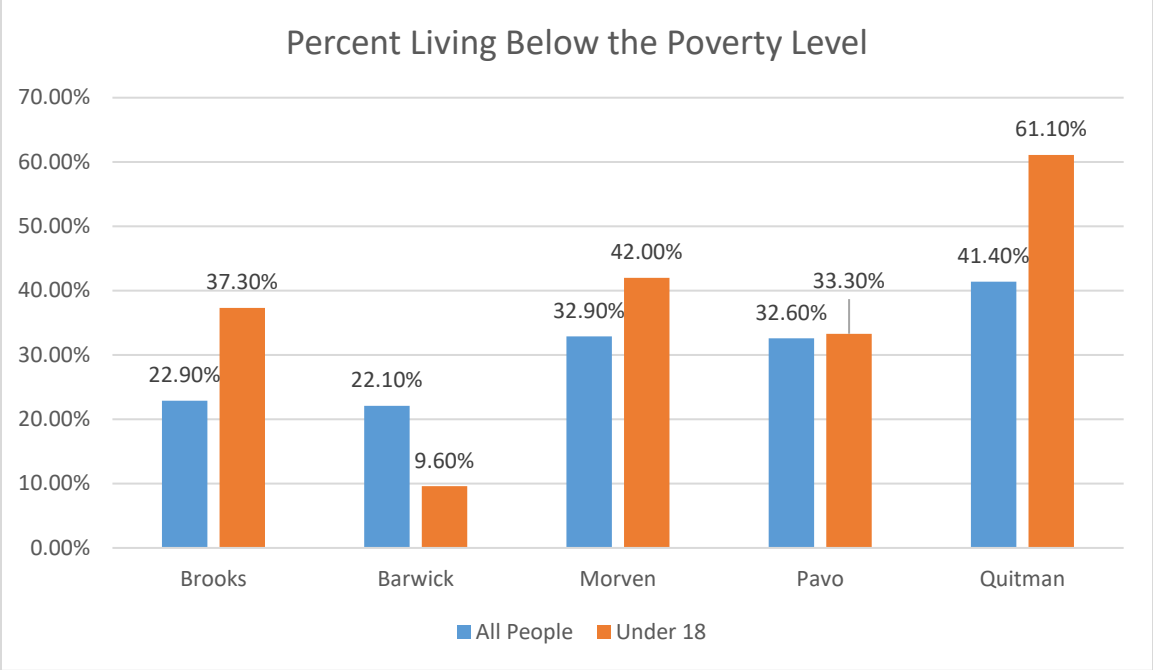
Among persons aged 25 or older in the City of Pavo, 18.2% have no high school diploma, 44.0% are high school graduates (includes equivalency) with no further education, 32.8% have an associate's degree or some college, and 3.6% have a bachelor's degree and 1.4% have a graduate degree.

Among persons 25 or older in the City of Quitman, 13% have no high school diploma, 39.3% are high school graduates (includes equivalency) with no further education, 29% have an associate's degree or some college, and 12.9% have a bachelor's degree and 5.9% have a graduate degree.



As of 2020 U.S. Census Bureau Decennial Census, the median household income in Brooks County is $37,516, the median household income in the City of Barwick is $31,750, the median household income in the City of Morven is $25,792, the median household income in the City of Pavo is $36,071, and the median household income in the City of Quitman is $22,610.

Source: https://data.census.gov/profile/Brooks_County,_Georgia?g=050XX00US13027



The percentage of the population living below the federal poverty level is estimated at 22.9% for Brooks County, 22.1 for the City of Barwick, 25.1% for the City of Morven, 32.9% for the City of Pavo, and 41.4% for the City of Quitman. For persons under 18, the percent living below the poverty level is estimated at 37.3% in Brooks County, 9.6% in the City of Barwick, 42% in the City of Morven, 33% in the City of Pavo, and 61.1% in the City of Quitman.

Source: U.S. Census Bureau (www.census.gov)

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

Summary of changes:

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

Chapter 2 Section (Previous Plan)	Updates to Section
I. Hurricanes/Tropical Storms	Updated data and information; edited for clarity, Section Title changed to read: Hurricanes (Typhoon)/Tropical Storms/Hail
II. Tornadoes	Updated data and information; edited for clarity
III. Floods	Updated data and information; edited for clarity, Floods moved to #V, New hazard here: Wildfires
IV. Lightning	Updated data and information; edited for clarity
V. Extreme Heat	Updated data and information; edited for clarity, Section changed to: Floods, Extreme Heat moved to VI
VI. Wildfires	Updated data and information; edited for clarity, Wildfires moved to III, New section VI is: Excessive Heat/Frost Freeze
VII. Drought	Updated data and information; edited for clarity

Table 2.1: Overview of updates to Chapter 2

New Chapter 2 Section	Chosen Hazards were Re-arranged in Update
I. Hurricanes (Typhoons)/Tropical Storms/Hail	
II. Tornadoes	
III. Wildfires	
IV. Lightning	
V. Floods	
VI. Excessive Heat/Frost Freeze	
VII. Drought	

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

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

Section I. Hurricanes/Tropical Storms/Hail

A. Identification of Hazard

Hurricane

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

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

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

Idalia Storm damage in Quitman, GA August 29, 2023 (203 &208 E. Lake Dr.)

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

Idalia Hurricane Damage in Quitman, GA August 29, 2023. Agriculture destroyed, streets and roads blocked, and buildings damaged.

Idalia Hurricane Damage in Quitman, GA August 29, 2023. Trees on power lines, homes damaged.

Tropical Storm

A tropical storm is defined as tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 kt (39 mph or 63 km/hr) to 63 kt (73 mph or 118 km/hr). It is a rapidly rotating storm system characterized by a low-pressure center, a closed low-level atmospheric circulation, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain and squalls.

A **Tropical Disturbance** is a discrete tropical weather system of apparently organized convection – (generally 100 to 300 miles in diameter) -- originating in the tropics or subtropics, having a non-frontal migratory character, and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

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

The **Saffir-Simpson Hurricane Wind Scale** is a 1 to 5 categorization based on the hurricane's intensity at the indicated time. The scale provides examples of the type of damage and impacts in

the United States associated with winds of the indicated intensity. The following table shows the scale broken down by winds:

SAFFIR-SIMPSON HURRICANE SCALE
(Source: NOAA http://www.nhc.noaa.gov/aboutgloss.shtml)

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

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

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

Hail
Hail is a form of ice precipitation that forms as a result of a thunderstorm. According to the NOAA National Severe Storms Laboratory, hailstones are formed when raindrops are carried upward by thunderstorm updrafts into extremely cold areas of the atmosphere and freeze. Hailstones then grow by colliding with liquid water drops that freeze onto the hailstone's surface. If the water freezes instantaneously when colliding with the hailstone, cloudy ice will form as air bubbles will be trapped in the newly formed ice. However, if the water freezes slowly, the air bubbles can escape and the new ice will be clear.

The hail falls when the thunderstorm's updraft can no longer support the weight of the hailstone, which can occur if the stone becomes large enough or the updraft weakens. Smaller hailstones can be blown away from the updraft by horizontal winds, so larger hail typically falls closer to the updraft than smaller hail. If the winds near the surface are strong enough, hail can fall at an angle or even nearly sideways. Wein-driven hail can tear up siding on houses, break windows and blow into houses, break side windows on cars, and cause severe injury and/or death to people and animals.

The largest hailstones recovered in the United States fell in Vivian, South Dakota, on June 23, 2010, with the diameter of 8 inches and a circumference of 18.62 inches. It weighed 1 lb. 15 oz.

Hail size is often estimated by comparing it to a known object. Most hailstones are made up of a mix of different sizes, and only the very largest hailstones pose serious risk to people caught in the open. When reporting hail, estimates comparing the hail to a known object with definite size are good, but measurements using a ruler, calipers, or a tape measure are best.

Hail Sizes

- Pea = ¼ inch diameter
- Mothball = ½ inch diameter
- Penny = ¾ inch diameter
- Nickel = 7/8 inch diameter
- Quarter = 1 inch – hail quarter size or larger is considered severe
- Ping-Pong Ball = 1 ½ inch diameter
- Golf Ball = 1 ¾ inch diameter
- Tennis Ball = 1 ½ inch diameter
- Baseball = 2 ¾ inch diameter
- Tea Cup = 3 inch diameter
- Softball = 4 inch diameter
- Grapefruit = 4 ½ inch diameter


Hail Photo Source: https://www.nssl.noaa.gov/education/svrwx101/hail/#:~:text=Hailstones%20are%20formed%20when%20raindrops,freeze%20onto%20the%20hailstone's%20surface

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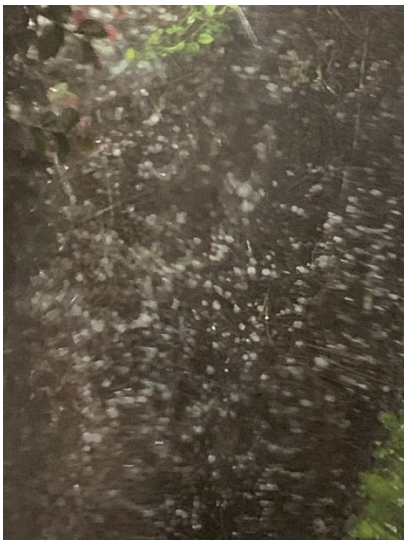

Hail Storm in Quitman, Georgia April 25, 2023 Pea to Mothball Size – James Horton

B. Profile of Events, Frequency of Occurrences, Probability

Hurricane:

Hurricane events (recorded) in Brooks County in the past five years:
Since the previous Hazard Mitigation Plan was completed, one major Hurricane event has occurred. On August 30, 2023, Hurricane Idalia caused widespread power outages for days, downed power lines, impassable roads due to fallen trees, and damage to homes and other structures.

Following is a Disaster Declaration for Brooks County, Georgia after Hurricane Idalia struck the county and caused widespread damage.

Disaster Declaration

Source: https://gema.georgia.gov/assistance/hurricane-idalia

Hurricane events (recorded) in Brooks County more than five years ago:
On October 10, 2018, Hurricane Michael made landfall in the Florida Panhandle, Damage from Hurricane and Tropical Storm force winds cause major damages into Southwest Georgia.

Hurricane Michael remained at a Category 3 strength into southwest Georgia. Widespread power outages extended into southwest Georgia with 100% of customers losing power all the way to Lee County, GA. Tropical Storm Elsa, on July 7, 2021, caused storm surge and flashing flooding from heavy rainfall.

Hurricane events in Brooks County since modern reporting began:
According to the NOAA Storm Events Database (see Appendix F), there are 13 reports of Hurricane events occurring in Brooks County (including the Cities) between 01/01/1950 and 11/29/2023.

Hurricane recurrence potential in Brooks County:
The Historic Recurrence Interval is 5.62 years. This is a 17.81% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.6, the past 20-year frequency is 0.6, and the past 50-year frequency is 0.26 (see the Hazard Frequency Table in Appendix D).

Tropical Storms:

Tropical Storm events in Brooks County since modern reporting began:
According to the NOAA Storm Events Database (Appendix F), there are 11 reports of Tropical Storm events occurring in Brooks County (including the cities of Barwick, Morven, Pavo, and Quitman) between 01/01/1950 and 11/29/2023.

Tropical Storm recurrence potential in Brooks County:
The Historic Recurrence Interval is 6.64 years. This is a 15.07% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.5, the past 20-year frequency is 0.05, and the past 50-year frequency is 0.22 (see the Hazard Frequency Table in Appendix D).

Hail:

Hail storm events in Brooks County since modern reporting began:
According to NOAA Storm Events Database (Appendix F), there are 19 reports of Hail Storm events occurring in Brooks County (including the cities of Barwick, Morven, Pavo, and Quitman) between 01/01/1950 and 11/29/2023.

Hail Storm recurrence potential in Brooks County:
The Historic Recurrence Interval is 3.84 years. This is a 26.03% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.5, the past 20-year frequency is 0.4, and the past 50-year frequency is 0.28 (see the Hazard Frequency Table in Appendix D).

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

C: Inventory of Assets Exposed and Potential Loss

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

An estimated 100% of the Residential property (7,442 of 7,442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $989,733,000. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (743 of 743) in the community may be affected, with a total value of $622,056,370. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

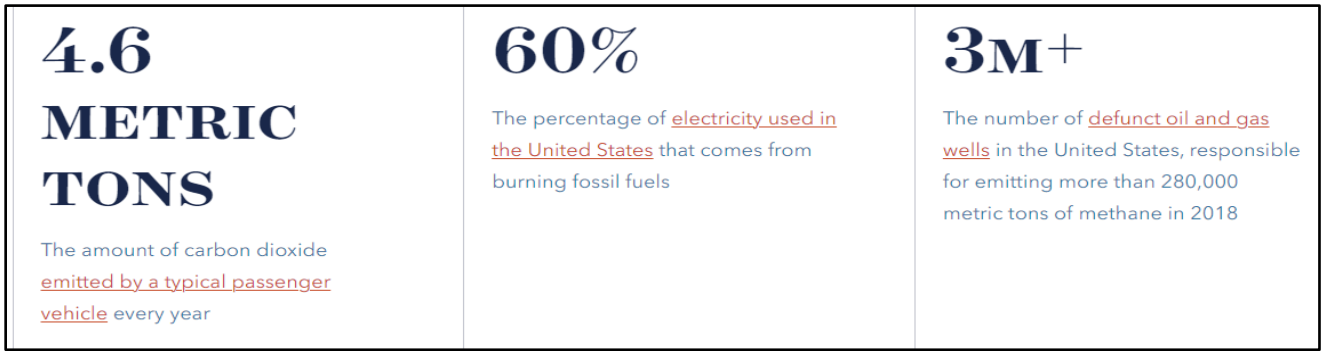
Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2022%20Farm%20Gate%20Value%20Report.pdf), the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, all of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard. 11 Critical Facilities are in areas with a wind hazard score of 2, and 44 are in areas with a wind hazard score of 3. The total value of these Critical Facilities is $ 68,805,168.

D1: Climate Change Explained – Why Natural Hazard Events are Increasing

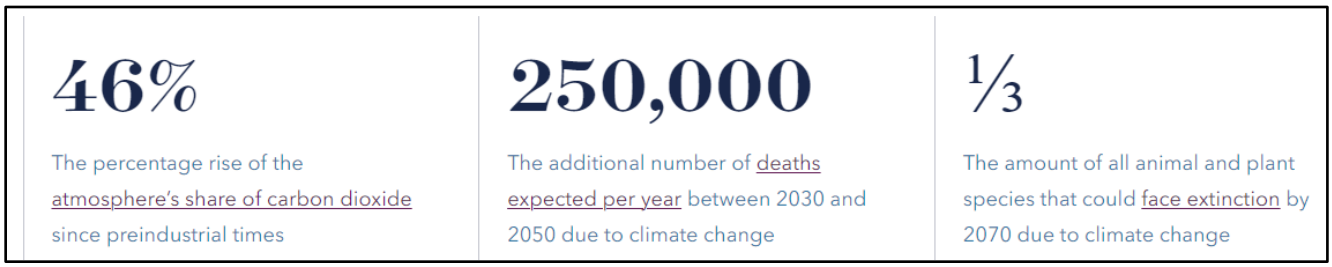
The decade between 2010 and 2019 was hotter than any other decade in the previous 1,300 years. The hotter the temperatures bring with them increased frequency and more intense weather-related disasters. Why is the temperature changing one may ask, well it is a process termed "Climate Change" and the entire world is experiencing a new phenomenon referred to as a "Climate Crisis."

What is making the earth's temperature rise and causing the effects of climate change – humans are, however humans also have the power to reverse this trend. The human population must focus on new ways of living that produce less heat to avowing further raising earth's temperature. Human activities are producing carbon emissions that are forming a gas layer in the earth's atmosphere that is not allowing enough heat to escape from the earth into space – thus causing the temperature to rise. The following graphic shows some of the larger contributors to carbon emissions which are greatly contributing to the gas build up in the atmosphere.



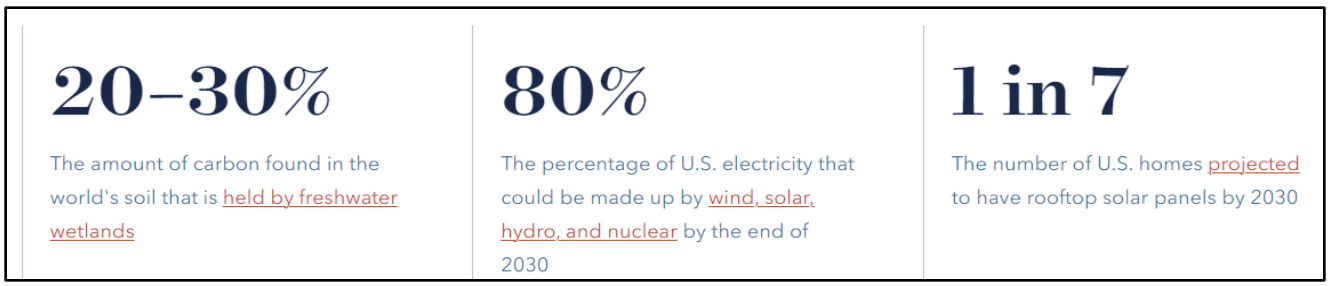
Source: https://www.nrdc.org/climate-crisis#causes

Climate change is generally defined as a significant variation of average weather conditions becoming warmer, wetter, or drier over several decades or more. It is the long-term trend that differentiates climate change from natural weather variability. Following is a graphic that depicts some of the devastating effects of global warming and climate change.



Source: https://www.nrdc.org/climate-crisis#what-is-climate-change

What can be done to combat global warming and climate change? Finding new ways to produce energy and ways to reduce carbon emissions caused by the way we live, work, and play. The following graphic depicts some ways that help reduce carbon emissions.

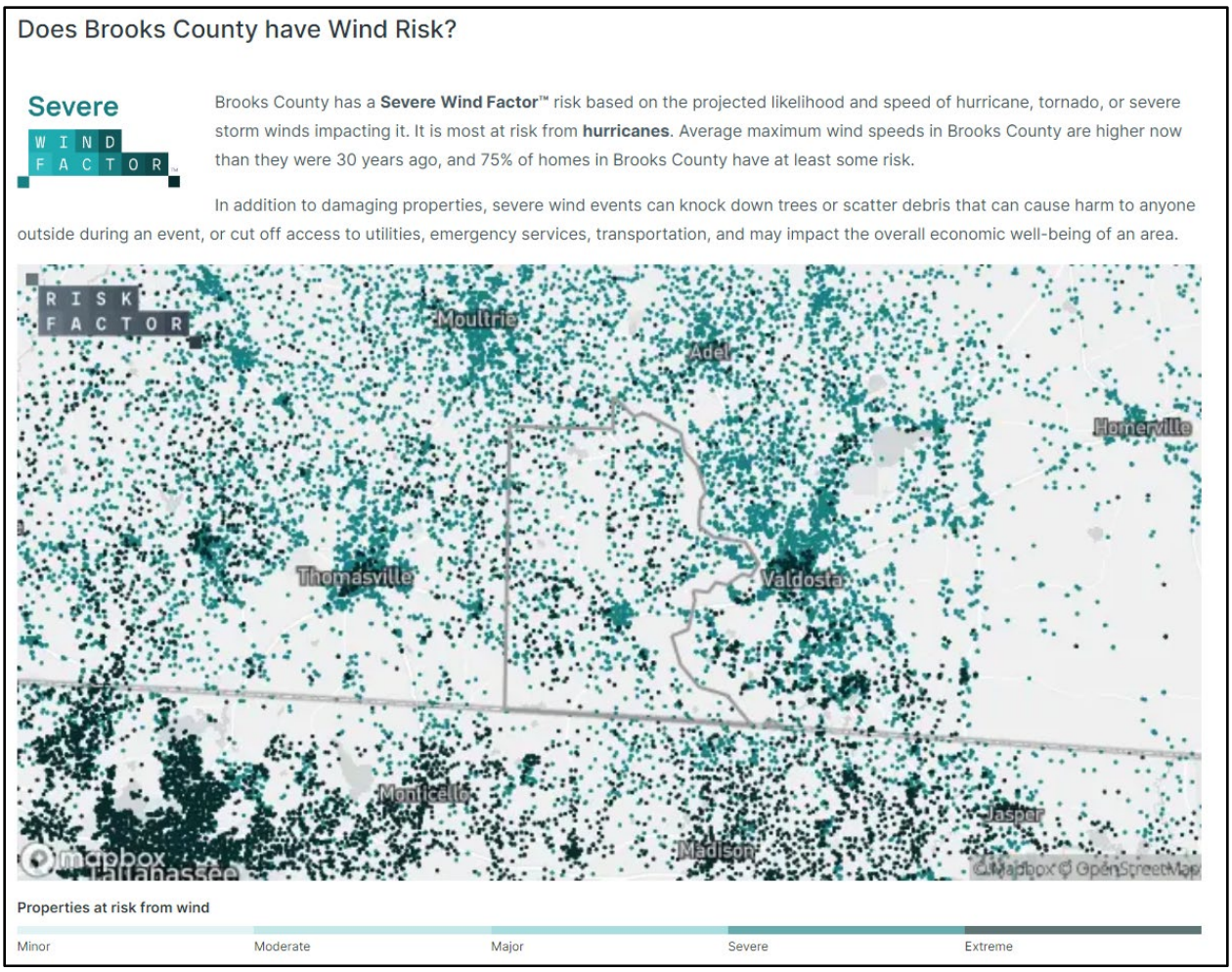


Source: https://www.nrdc.org/climate-crisis#solutions

D2. Future risk potential for hurricanes, tornadoes, or severe wind storms in Brooks County due to Climate Change

1 First Street is a 501©(3) research and technology non-profit organization dedicated to the research and development of solutions to combat climate change, which has been rapidly increasing all over the globe. The company works to connect climate change to financial risks and provides information to citizens, industry, and government.

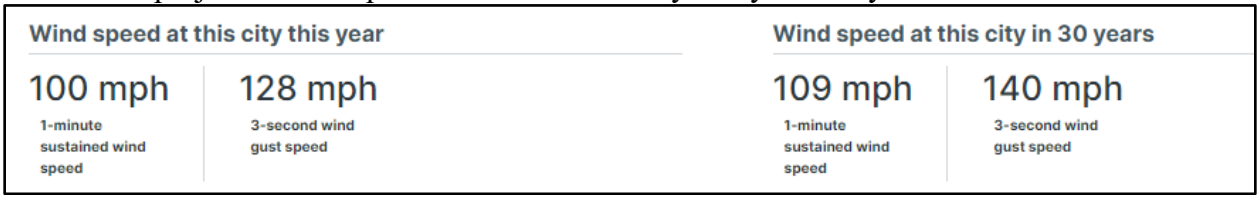
According to 1 First Street, Brooks County currently has a Severe Wind Factor risk based on the projected likelihood and speed of hurricane, tornado, or severe storm winds impacting it. It is at the most risk from Hurricanes. Average maximum wind speeds in Brooks County are higher now than they were 30 years ago, and 75% of homes in Brooks County have at least some risks. In addition to damaging property, severe winds can knock down trees that block streets and take out power lines cutting off electricity. Trees blocking streets not only block local traffic but they cut off access to emergency services and may impact overall economic well-being of an area. Severe winds can also scatter debris that can harm anyone who is outside during an event. See the following map for Brooks County's current risk from high winds.



Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/wind

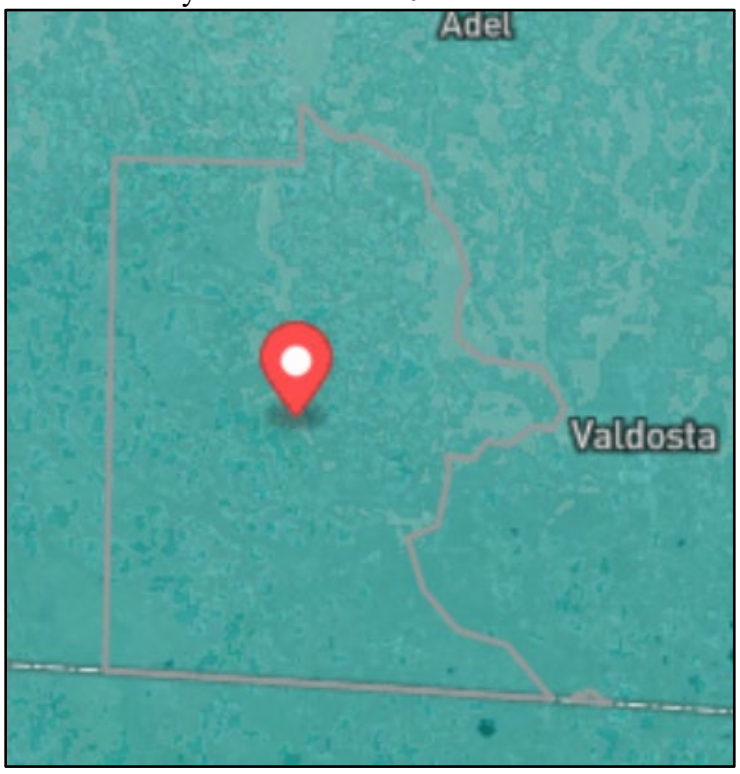
Currently Brooks County has a risk of high winds from Hurricanes that can reach all parts of the county with wind speeds of generally a maximum of 128 miles per hour. The projected speed of potential Hurricane winds 30 years from now in the future project that the general maximum wind speed will increase from its current 128 mph to 140 mph.

The intensity of a tropical storm or hurricane is measured by its 1-minute sustained wind speed. The higher the wind speed, the higher the categorization of the storm. While the categorization of the storm is often used as a proxy for its destructive capability, it is the 3-second wind gusts that actually cause the most damage to properties and infrastructure. See the following chart for the current and projected wind speeds for Brooks County today and 30 years in the future.

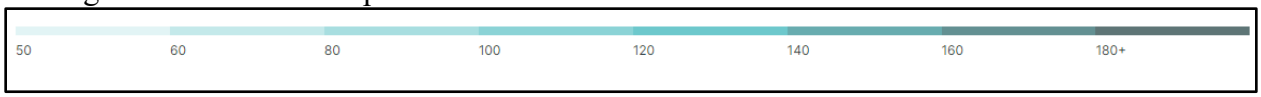


Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/wind

Following are two maps generated by 1 First Street for the current wind risk to Brooks County today and 30 years into the future.
Brooks County's wind risk in 2024.



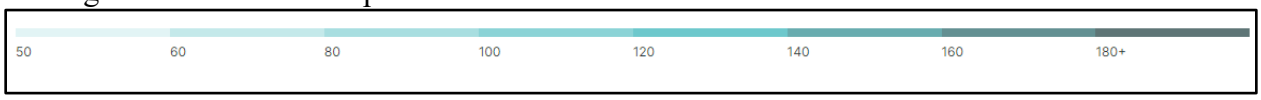
The legend is based on the speed of the wind



Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/wind

Brooks County's potential wind risk in 30 years in 2054.

The legend is based on the speed of the wind



Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/wind

One way to mitigate against the current and future potentials for damaging winds is to make sure that the local building codes are up to date, and using building materials that have been tested against severe winds.

E. Land Use and Development Trends

The unincorporated area of Brooks County has seen a slight increase in population since the last census as well as the City of Quitman. However, the cities of Barwick, Morven, and Pavo have all had slight decreases in population.

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

Hurricane/tropical storm events are usually area-wide, and no difference in severity is expected between Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. However, the impact may be more severe in places with higher population density due to more people being in danger, more people needing to evacuated, more debris from damaged buildings, and other impacts associated with higher population density. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of strong winds and other hazards.

Brooks County and the Cities of Morven, Pavo, and Quitman are members of the National Flood Insurance Program. The City of Barwick is not. (Source: https://www.fema.gov/cis/GA.html) Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman do not participate in the Community Rating System (CRS) program. As of 2017, they were not eligible, according to FEMA. (Source:https://www.fema.gov/sites/default/files/documents/fema_crs_eligible-communities_oct-2023.pdf)

Brooks County's initial Flood Insurance Rate Map (FIRM) date was 03/15/82 with the current effective date of 05/23/23, and Quitman's initial FIRM date was 04/01/82 with the current effective date of 05/23/23.

G. Overall HRV Summary of events and their impact

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

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

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

Section II. Tornadoes

A. Identification of Hazard

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

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

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

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

ENHANCED FUJITA WIND DAMAGE SCALE
(Source: http://www.spc.noaa.gov/faq/tornado/ef-scale.html)

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

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

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

Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are all vulnerable to the effects of tornadoes. According to NOAA (https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology), an average of 30 tornadoes occur per month in Georgia.

B. Profile of Events, Frequency of Occurrences, Probability

According to the NOAA Storm Events Database (see Appendix F), there are 15 reports of tornadoes occurring in Brooks County (including the Cities) between 01/01/1950 and 11/29/2023. The Historic Recurrence Interval is 4.87 years. This is a 20.55% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.6, the past 20-year frequency is 0.35, and the past 50-year frequency is 0.26 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, four tornado events have occurred. Two tornadoes occurred in 2020 with one in the Grooverville Community and the other in Morven. The other two tornadoes occurred in 2022 with one in the Nankin Community and the other in the Oaklawn Community. Source: NOAA Storm Database

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

C: Inventory of Assets Exposed and Potential Loss

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are equally vulnerable to this hazard.

An estimated 100% of the Residential property (7,442 of 7,442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $989,733,000. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (743 of 743) in the community may be affected, with a total value of $622,056,370. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2022%20Farm%20Gate%20Value%20Report.pdf) the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, all of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard. The total value of these Critical Facilities is $68,805,168.

D. Tornado risk in Georgia, and Brooks County, as a result of Climate Change

According to an April 27, 2023 article by AccuWeather for Business, the number of tornadoes across America is increasing, and some researchers are working to discover if climate change is the reason. An average of 1,200 tornadoes strike year in the United States. Recent studies do show that climate change is impacting temperatures and moisture in the atmosphere and that climate change may alter the timing and location of tornadoes.

Tornadoes cause extensive damages to businesses and property and bring on extreme economic burden to individuals and communities alike. In the first four months of 2023, more than 400 tornadoes had spawned nationwide and the numbers are increasing each year.

Climate change is causing differences in temperature and moisture in the atmosphere. The air can hold more moisture as the planet continues to warm, creating more favorable conditions for tornadoes. As a result, tornadoes are becoming more frequent and intense in areas where the climate is warmer and wetter. In addition to this, climate change is also altering wind patterns in the atmosphere. Wind shear, or the difference in wind speed and direction between different layers of the atmosphere, is a critical factor in tornado formation and intensity. As the climate changes, atmospheric circulation patterns shift, which could lead to changes in wind shear and, as a result, tornado behavior.

Evidence also suggests that climate change may alter the timing and location of tornadoes. In recent years, some areas have experienced tornado outbreaks outside their traditional tornado seasons, suggesting that tornadoes may become less predictable as the planet gets warmer. Some experts also believe that climate change is behind the shift in Tornado Alley. Source: https://afb.accuweather.com/blog/climate-change-and-the-impact-on-tornado-behavior

According to PBS News Hour, tornado activity is moving east across the United States to places where it hasn't been so prevalent in the past. Tornado activity is expected in the Great Plains, but not so much in Alabama and Georgia, but 2019 changed that perception when one of the deadliest U.S. tornadoes ripped across Alabama and Georgia with a thirty-mile path and winds reaching up to 170 miles per hour. Many people were killed by this storm.

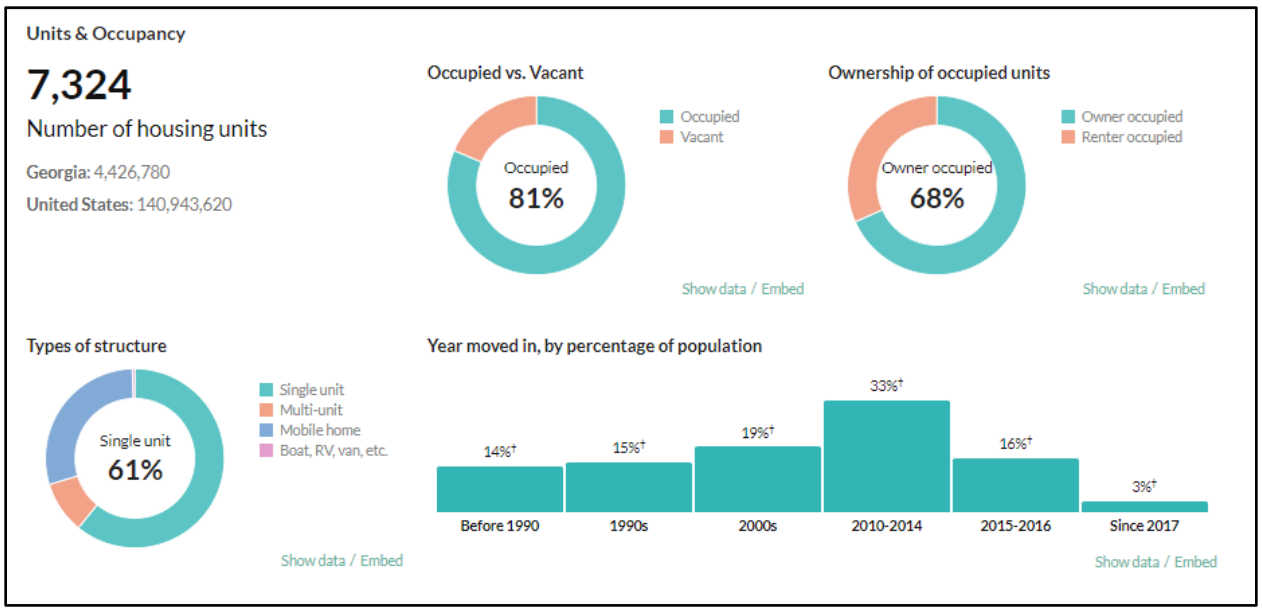
As the number and severity of tornadoes creeps east into Alabama and Georgia and the southeast, meteorologists are now terming the area as Dixie Alley. Since the turn of the millennium, the Dixie Alley has witnessed an ever-increasing onslaught of tornadoes. It is not for sure whether or not climate change is to blame, but this particular area of the U.S. has been having more tornado activity and more tornado outbreaks than it has had in the decades before.

Some believe that climate change is to blame, but scientists are not totally convinced that it is. However, there do seem to be some parallels between tornadoes creeping east and global warming, but they do not all agree that climate change is increasing the number of tornadoes overall. Source: https://www.pbs.org/newshour/science/is-climate-change-making-u-s-tornadoes-worse

E. Land Use and Development Trends

Typically, mobile/manufactured homes are most vulnerable to tornado damage. According to 2022 Census Bureau data, there are 2,124 mobile homes in Brooks County (29% of all housing units). In Barwick, Georgia, the total number of housing units, according to the Census Reporter is 165 units. The ratio of mobile homes to stick-built homes is 50% indicating that there are approximately 82 mobile homes in Barwick. Morven, Georgia has, according to the Census Reporter, 226 housing units with a ratio of mobile homes to stick-built homes at 58% which would mean that of the total number of housing units, 131 would be mobile homes. According to the Census Reporter, Pavo, Georgia has a total of 322 housing units and a ratio of mobile homes to stick-built homes of 43% which would mean that there are 138 mobile homes there. In Quitman, according to the Census Reporter, there are 1,928 housing units with a ratio of mobile homes to stick-built homes at 8% which would indicate that there are 154 mobile homes in existence there.

The estimated population of average household size in Brooks County is 2.7 persons per household, according to 2022 Census Bureau estimates. Extrapolating this figure to the numbers of mobile homes, it is estimated that there are approximately 7,095 people residing in mobile homes countywide, which includes an estimated 221 people in the City of Barwick, 353 in the City of Morven, 372 people in the City of Pavo, and 415 in the City of Quitman.



The number of housing units in Brooks County, Georgia
Source: https://censusreporter.org/profiles/05000US13027-brooks-county-ga/

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

Tornadoes tend to follow a straight path regardless of natural features or political boundaries, and no difference in severity is expected between Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. However, the impact may be more severe in places with higher population density due to more people being in danger, more people needing to evacuated, more debris from damaged buildings, and other impacts associated with higher population density. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of strong winds and other hazards. In jurisdictions with a large number of mobile homes, the damage can be expected to be more severe.

G. Overall HRV Summary of Events and their Impact

Tornadoes have the potential to cause damage at any place, at any time, throughout Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. They can form quickly and residents may not have time to find adequate shelter, or else adequate shelter facilities may not be available. The cost of the damage and potential loss of life may be higher if the event strikes populated areas as opposed to more sparsely populated or unpopulated areas, or if the event strikes areas with a large number of mobile homes.

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

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

Section III. Wildfires

A. Identification of Hazard

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

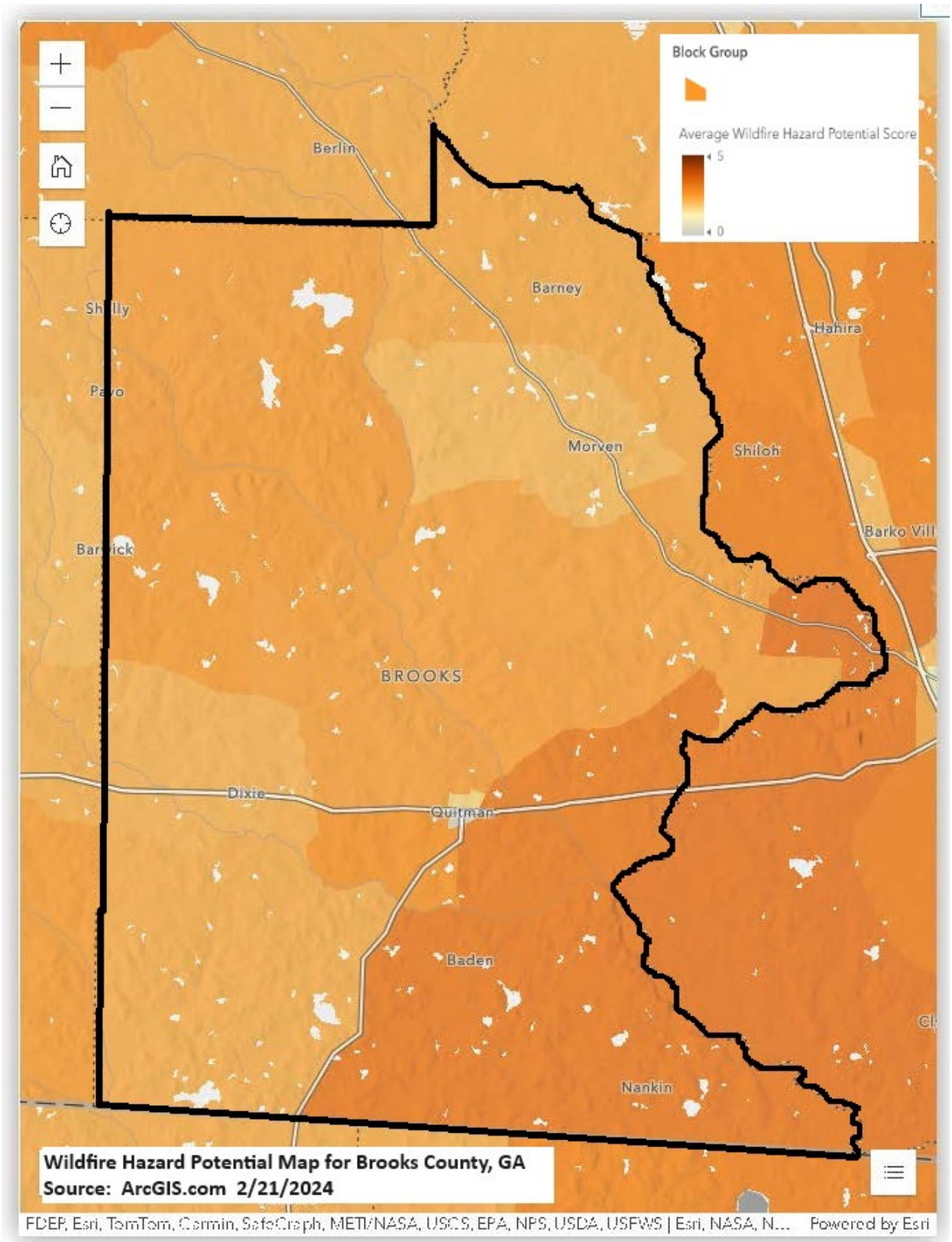
Much of southern Georgia is covered by forests, and fires play an important role in the health of forest ecosystems by breaking down organic matter into soil nutrients and helping seeds to germinate (source: NASA, https://earthobservatory.nasa.gov/Features/GlobalFire/fire_2.php). When naturally occurring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

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

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

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

Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are all vulnerable to the effects of wildfires. The USDA Forest Service assigns areas a Wildfire Hazard Potential (WHP) score of Very Low, Low, Moderate, High, or Very High. As the following map depicts, most of Brooks County ranges from “0” to “4” out of a maximum score of “5.” The lower south east quadrant of Brooks has the highest score with a rating of 4. The cities of Morven and Quitman have the lowest rating in the county with a score of 2 each. The cities of Barwick and Pavo have higher ratings with a score of 3.5.



Source: arcgis.com
https://www.arcgis.com/apps/MinimalGallery/index.html?appid=f31ce2334b8047608211c7b61f257ae2#viewer=7b67417ceb5249cbb5fc904469d5d716

B. Profile of Events, Frequency of Occurrences, Probability

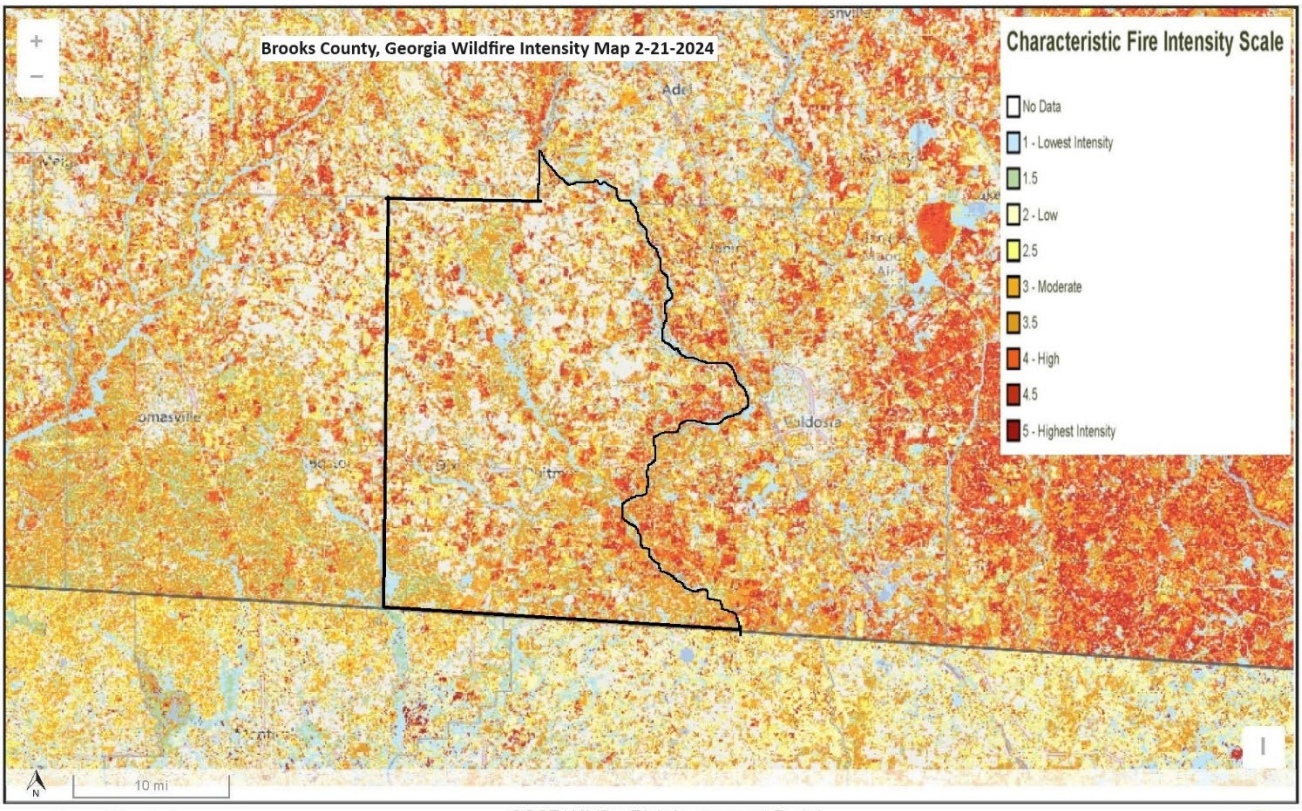
According to Georgia Forestry Commission data (see Appendix F), there are 3,830 reports of wildfires occurring in Brooks County (including the Cities) between 01/01/1967 and 12/31/2023. The Historic Recurrence Interval is 0.01 years. This is a 7,660.00% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 21.9, the past 20-year frequency is 80.2, and the past 50-year frequency is 76.6 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, 132 wildfire events have occurred, burning a total of 979.66 acres.

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

B.1 - Brooks County Southern Wildfire Risk Map

Brooks County, GA Fire Intensity Map



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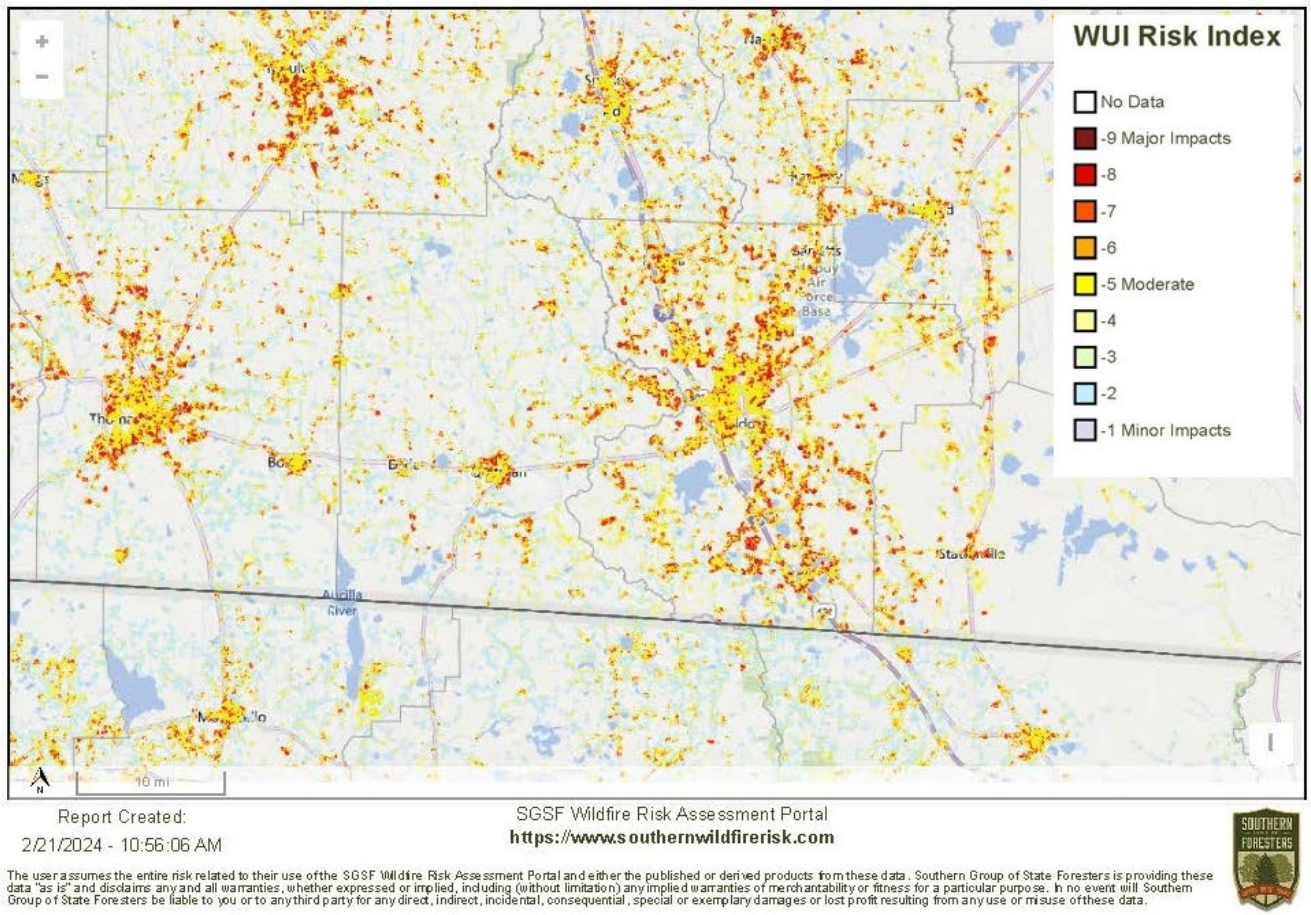
SGSF Wildfire Risk Assessment Portal
https://www.southernwildfirerisk.com



B.1a - Brooks County Wildfire Urban Interface (WUI)

C: Inventory of Assets Exposed and Potential Loss

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are equally vulnerable to this hazard.

An estimated 100% of the Residential property (7,442 of 7,442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $989,733,000. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (743 of 743) in the community may be affected, with a total value of $622,056,370. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-

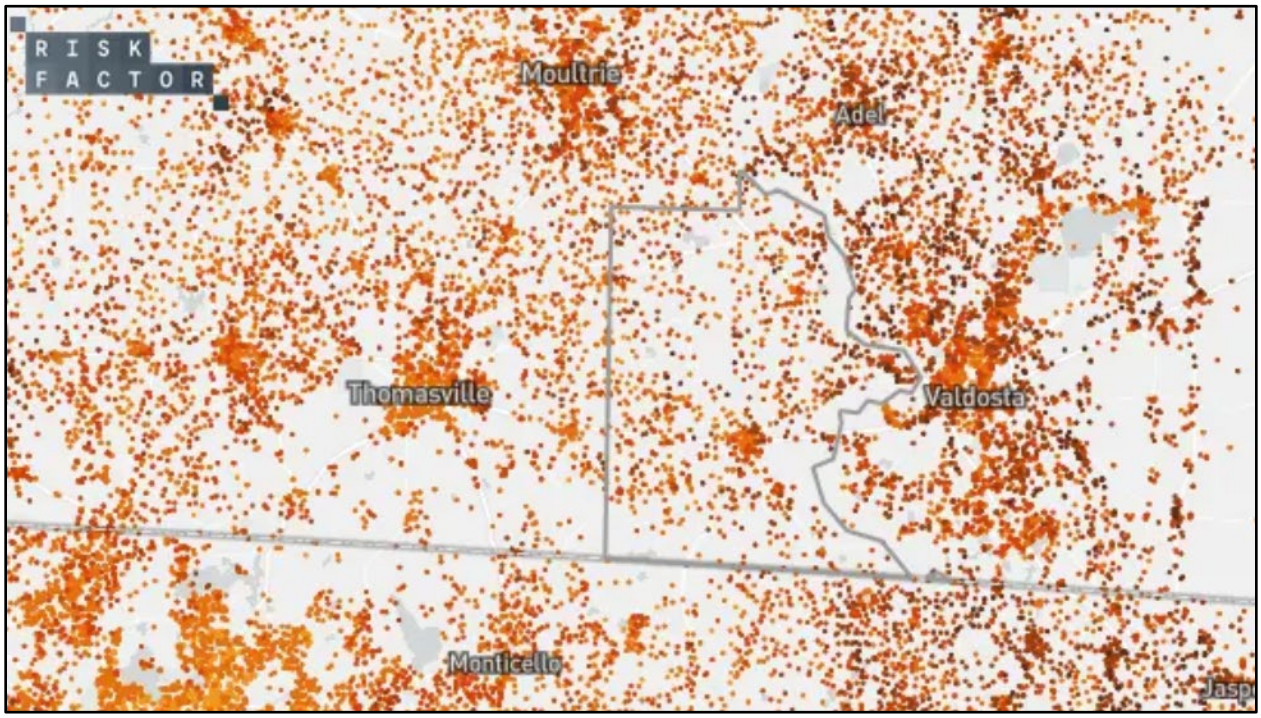
value-reports/2022%20Farm%20Gate%20Value%20Report.pdf) the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, all of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard. The total value of these Critical Facilities is $68,805,168.

D: Future risks from Wildfire in Brooks County based on Climate Change

First Street is a 501(c)(3) research and technology non-profit organization dedicated to the research and development of solutions to combat climate change, which has been rapidly increasing all over the globe. The company works to connect climate change to financial risks and provides information to citizens, industry, and government.

According to First Street, there are 9,813 properties in Brooks County that have some risk of being affected by wildfire over the next 30 years. This represents 99% of all properties in Brooks County. In addition to damaging properties, wildfire can also cut off access to utilities, emergency services, impact evacuation routes, and may impact the overall well-being of an area. Overall, Brooks County has a major risk of wildfire over the next 30 years. This is based on the level of risk the properties face rather than the proportion of properties with risk. Following is a map of Brooks County showing the risk factor over the next 30 years.

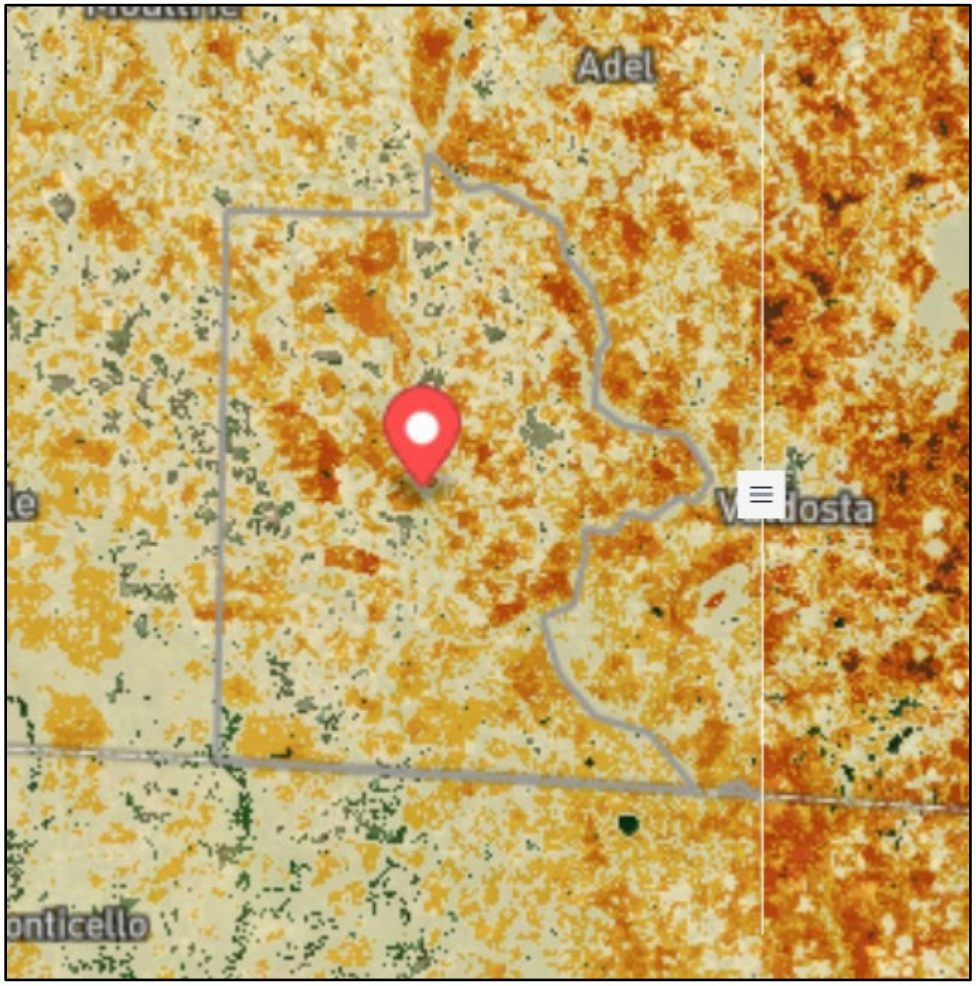


Over the next 30 years, First Street has predicted the risks that properties in Brooks County will face. Following is a list of the numbers of different types of properties at risk of damage from wildfires.

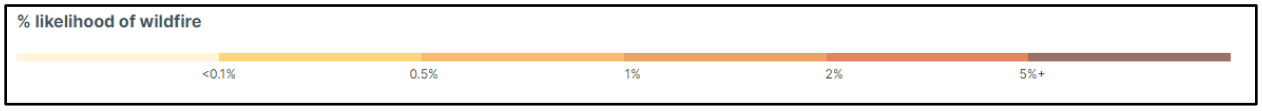
- Residential Properties: Major Risk – 6,058 homes out of a total of 6,107

- Commercial Properties: Major Risk – 354 out of a total of 356
- Critical Infrastructure: Major Risk – 46 out of a total of 46
- Social Facilities: 28 out of a total of 48

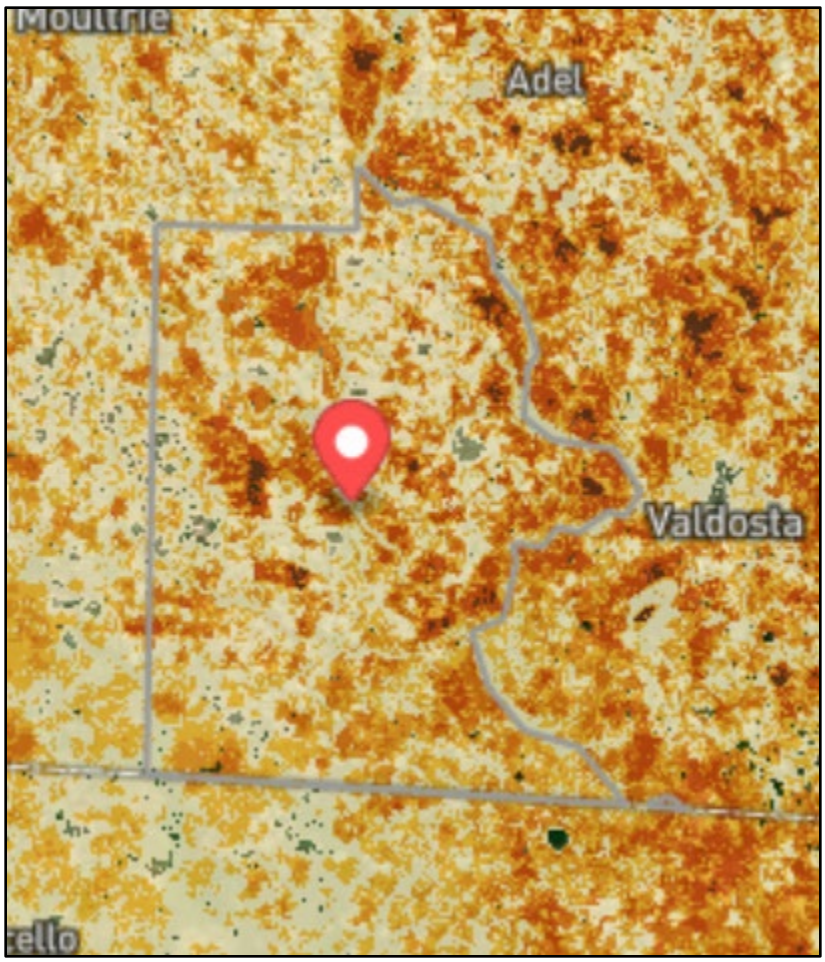
The following maps illustrate the wildfire potential in Brooks County today and 30 years into the future.



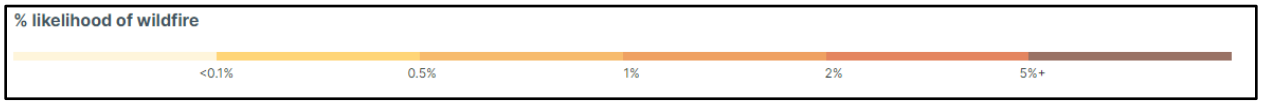
Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/fire



Current wildfire potential in Brooks County today – 2024.



Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/fire



Brooks County's projected wildfire risk in 30 years from today – the year 2054.

E. Land Use and Development Trends

Brooks County and the City of Quitman have both seen a slight increase in population between the 2010 and 2020 census records, while the cities of Barwick, Morven, and Pavo have all seen slight decreases.

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

Wildfires may happen at any place at any time, but are more likely in forested areas. Unincorporated Brooks County has more areas rated "High" for Wildfire Hazard Potential than the Cities, and unincorporated Brooks County is the only jurisdiction that has any areas rated "Very High." The impact of a wildfire would be more severe in places with higher population density due to more people being in danger and more potential for destruction of homes and other buildings. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of wildfires and other hazards.

The Brooks County Fire Department has 11 fire stations, while the City of Quitman has one Fire Station. Fire protection provide by Quitman Fire Department is from a paid staff. The Headquarters and Station 2, in the county are manned by paid staff. The North Brooks, South Brooks, Morven, Tallokas, Dixie, Sand Hill, and Barney are staffed by a volunteer department.

The fire stations in Brooks County all have an Insurance Services Office (ISO) rating of 5 or 5X, while the fire station in The City of Quitman has an ISO rating of 5. ISO ratings are used by insurance companies to assess the fire protection capabilities of an area, affecting property insurance rates. A lower ISO rating generally indicates a better level of fire protection.

The ISO classes of the fire stations in Brooks County and The City of Quitman are as follows:

Station	Address	Status	ISO Class
12. South Brooks	7246 Madison Highway, Quitman	Volunteer	5X
13. Station 2	50 Brookfield Drive, Valdosta	Paid	5X
14. Pavo	3032 E. Harris St., Pavo	Not Active	
15. East Brooks	1290 Park St., Valdosta	Not Active	
16. Morven	355 Park St., Morven	Volunteer	5
17. Tallokas	4225 Barwick Rd., Quitman	Volunteer	5X
18. Dixie	199 Church St., Dixie	Volunteer	5X
19. Sand Hill	8100 Tallokas Rd., Pavo	Volunteer	5X
20. Headquarters	1454 Jackson Rd., Morven	Paid	5X
21. Barney	12211 Highway 122, Barney	Volunteer	5X
22. Quitman Fire Department	205 S. Madison Street	Paid	5

G. Overall HRV Summary of Events and Their Impact

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

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

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

Section IV. Lightning

A. Identification of Hazard

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

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

According to NOAA (https://www.noaa.gov/jetstream/lightning), at any given moment, there can be as many as 2,000 thunderstorms occurring across the globe. This translates to more than 14.5 million storms each year. NASA satellite research indicates that these storms produce lightning flashes about 40 times a second worldwide. This is a change from the previously-accepted value of 100 flashes per-second, which was estimated in 1925.

Lightning is one of the most underrated weather hazards. It makes every single thunderstorm a potential killer, whether the storm produces on single bolt or thousands of bolts. Each year in the United States, lightning kills 20-30 people on average and injures 100's more. Tornadoes, hail, and wind gusts get the most attention, but only lightning can strike outside the storm itself. It is the first thunderstorm hazard to arrive and the last to leave.

Lightning can strike in any place at any time but, contrary to popular myth, is not attracted to metal. Tall, isolated structures with a pointy shape are most likely to be struck by lightning. When thunder and lightning are present, the best course of action is to seek shelter inside a robust building. The safest location during a thunderstorm is inside a large enclosed structure with plumbing and electrical wiring. If lightning strikes the building, the plumbing and wiring will conduct the electricity more efficiently than a human body. Sheltering under a tree increases the risk of getting struck by lightning and is more dangerous than being out in the open. Most cars protect their occupants from lightning because they have metal roofs and sides; contrary to popular myth, it is not the car's rubber tires that protect the occupants. When sheltering inside a building, one should avoid metal objects (metal doors, plumbing, electronics, etc.). (Source: https://www.noaa.gov/jetstream/lightning/lightning-safety)

Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are all equally vulnerable to the effects of lightning.

B. Profile of Events, Frequency of Occurrences, Probability

According to the NOAA Storm Events Database (see Appendix F), there is 1 report of lightning occurring in Brooks County (including the Cities) between 01/01/1950 and 11/29/2023. The Historic Recurrence Interval is 73.00 years. This is a 1.37% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.0, the past 20-year frequency is 0.0, and the past 50-year frequency is 0.02 (see the Hazard Frequency Table in Appendix D).

The one event that is listed in the NOAA database occurred on March 26, 2000 and caused two fatalities: two men, aged 28 and 29, who were outside working in a dairy field at the time. Although no lightning events have been recorded in the NOAA Storm Events Database since the previous Hazard Mitigation Plan was completed, there are many anecdotal accounts of lightning strikes being hazardous to the community. According to reports from local residents, lightning has been observed striking trees, buildings, utility poles, and houses. Lightning strikes have been observed to cause fires in the community, including wildfires. Lightning strikes have also caused trees and large tree branches to fall.

Although the most complete available data were used for this analysis, the possibility remains that other events may have occurred in the community that went unreported or underreported. There have been three lightning strikes to buildings in the last two years in Brooks County that have not been reported. One was to the Archbold-Brooks Hospital, which shut down computers and other equipment and the other was to the Brooks 911 Center in Quitman where lightning destroyed the entire electrical, telephone, computer system, causing the 911 Center to have to move to an alternate location for two months. The third report was to a home in rural Brooks County in June of 2023 where the home, located at 5300 Barwick Road, was set on fire and destroyed to an uninhabitable condition as can be seen by the following photographs.

5300 Barwick Highway Quitman, GA

Lightning struck tree to right in June 2023

Lightning transferred from tree to side of house and ignited destroying the home. The strike peeled off the exterior siding and blew out the windows igniting the interior of the house. The strike was so intense that it knocked off the refrigerator door in the kitchen when it struck.

C: Inventory of Assets Exposed and Potential Loss

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are equally vulnerable to this hazard.

An estimated 100% of the Residential property (7,442 of 7,442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $989,733,000. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (743 of 743) in the community may be affected, with a total value of $622,056,370. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

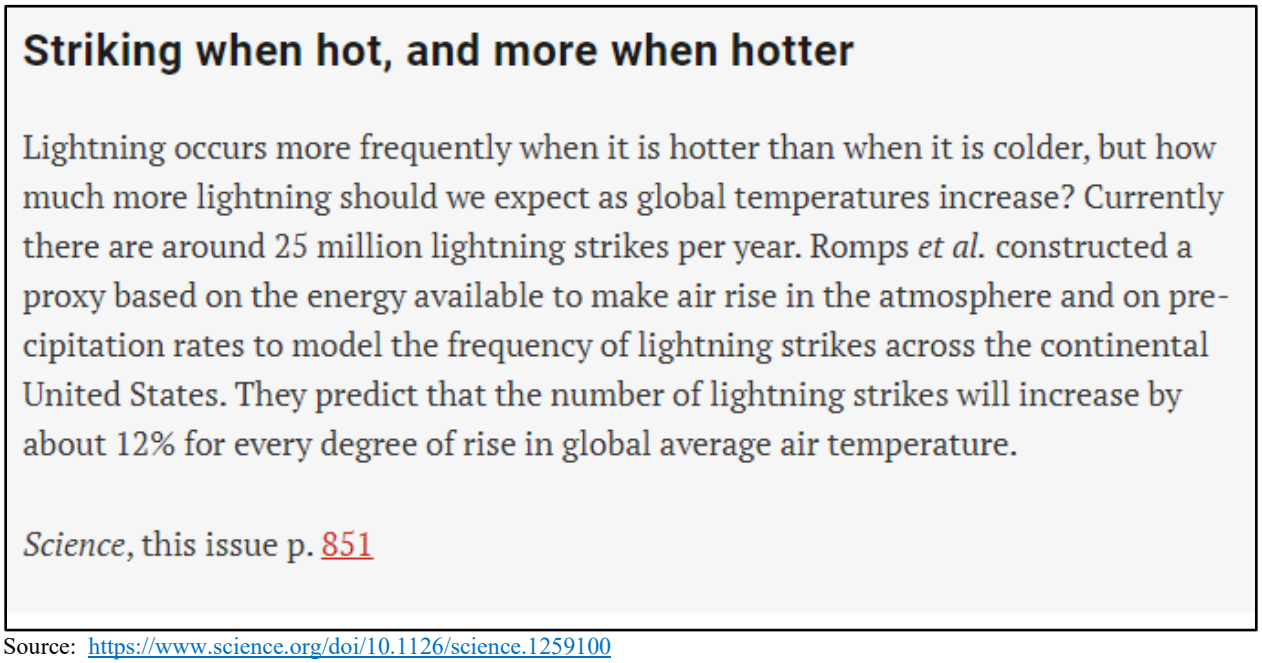
Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2022%20Farm%20Gate%20Value%20Report.pdf), the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, all of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard. The total value of these Critical Facilities is $68,805,168.

D: Future risks of lightning in Brooks County due to Climate Change

According to Royal Meteorological Society, rising global temperatures due to climate change means air is warmer, allowing it to hold more moisture, roughly 7% more moisture per each 33.8 degrees Fahrenheit of temperature increase. This boosts the chance of thunderstorms, leading to more violent storms and more lightning strikes. There is a prediction that the U.S. could see a 50% increase in the number of lightning strikes by the end of the century. Source: https://www.rmets.org/ .

There is a direct relationship between air temperature and lightning frequency. Warmer air creates larger updrafts in a thunderstorm which makes them bigger, stronger, and better at generating lightning. The more we warm the planet, the more lightning we are likely to see. In a study published in Science, for every degree of warming (1.8 degrees Fahrenheit) we can expect to see 12% more lightning. This is important because lightning strikes account for approximately 4,000 deaths worldwide each year. As global warming leads to more heat waves and droughts, this results in dryer vegetation and a higher likelihood of lightning strikes that start wildfires.
Source: https://www.youtube.com/watch?v=aSnzM3NNWXA



Striking when hot, and more when hotter

Lightning occurs more frequently when it is hotter than when it is colder, but how much more lightning should we expect as global temperatures increase? Currently there are around 25 million lightning strikes per year. Romps *et al.* constructed a proxy based on the energy available to make air rise in the atmosphere and on precipitation rates to model the frequency of lightning strikes across the continental United States. They predict that the number of lightning strikes will increase by about 12% for every degree of rise in global average air temperature.

Science, this issue p. 851

Source: https://www.science.org/doi/10.1126/science.1259100

E. Land Use and Development Trends

The unincorporated area of Brooks County has seen a slight increase in population since the last census as well as the City of Quitman. However, the cities of Barwick, Morven, and Pavo have all had slight decreases in population.

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

Lightning may happen at any place at any time, and no difference in severity is expected between Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. However, the impact may be more severe in places with higher population density due to more people being in danger, and other impacts associated with higher population density. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of lightning and other hazards. No other multi-jurisdictional differences have been identified at this time.

G. Overall HRV Summary of Events and Their Impact

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

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

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

Section V. Floods

A. Identification of Hazard

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

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

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

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

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

Flood Zone Designations and Descriptions

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

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

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

Due to the various rivers and wetlands in the unincorporated county, Brooks County is flood-prone. However, the Cities of Barwick, Morven, Pavo, and Quitman are not flood prone. Areas within flood zones are naturally more vulnerable. For more information, see the maps in Appendix A.

B. Profile of Events, Frequency of Occurrences, Probability

According to the NOAA Storm Events Database (see Appendix F), there are 6 (six) reports of floods occurring in Brooks County (including the Cities) between 01/01/1950 and 12/31/2023. The Historic Recurrence Interval is 12.17 years. This is a 8.22% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.4, the past 20-year frequency is 0.2, and the past 50-year frequency is 0.12 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan was completed, three reported flood events have occurred. The first event occurred on September 4, 2022 with heavy rain in Empress. A typical summertime pattern prevailed with scattered afternoon thunderstorms across the tri-state region. There were reports of trees and wires down, as well as isolated flooding. Flooding was reported on Highway 76 in Brooks County near Baden Road.

The second reported flood event since the last plan occurred on May 17, 2023 near the Brooks County Airport. Heavy rain and thunderstorms developed across the area with a few reports of trees down. The slow-moving storm over Thomasville produced numerous reports of flash flooding. Minor flooding was reported in Brooks County over a portion of Jackson Road north of the Moultrie Highway.

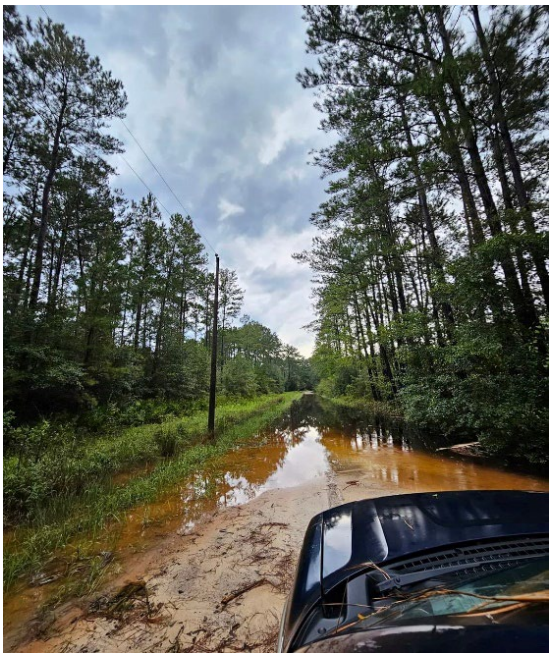
The third reported flood event in Brooks County since the last plan occurred May 22, 2023 with numerous heavy rain events and thunderstorms that produced pockets of heavy rain across the area. Amounts of 3 to 5 inches resulted in minor flooding in a few areas of the county. Minor flooding was reported at Empress Road and Knight's Ferry Road.

In September of 2023, an unreported flood occurred on the Nankin Road in South Brooks County where heavy rain produced a flood over the dirt road. The water covered the road several inches deep and made it non-passable for a few hours. A photo of this event is posted following.

A second, non-reported event occurred in Brooks County on December 2, 2023 where heavy rains and thunderstorms dropped several inches of rain on Quitman in a span of two hours. The water backed up over several streets a few inches deep making it hard to see where the road markings were located. The intersection shown in the photo is the corner of Stephens and Lee Streets. The water receded in about an hour.

In previous years, flooding events in the community have caused even greater damage. On Aug. 23, 2008, flash flooding associated with Tropical Storm Fay caused damage in the unincorporated community of Nankin estimated at $100,000 (homes were damaged). An earlier flood event in 2001 resulting from 10 inches of rain caused more than 50 roads in Brooks County to close, including US Highway 84, along with an estimated $250,000 worth of damage. In September 2000, there was another event with nearly 8.5 inches of rain causing many road closures due to high water. Railroad tracks were also washed out. Total damage was estimated at $250,000.

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



Flooded Road Nankin (Brooks Co.) Sept 2023

Flooding in Quitman December 2, 2023

C: Inventory of Assets Exposed and Potential Loss

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are equally vulnerable to this hazard.

An estimated 1.28% of the Residential property (95 of 7442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $2,630,330. Also, an estimated 25.8% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (192 of 743) in the community may be affected, with a total value of $160,490,543. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2022%20Farm%20Gate%20Value%20Report.pdf), the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, none of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) are in a flood zone. Therefore, the total value of Critical Facilities that could potentially be affected is estimated to be $0.

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

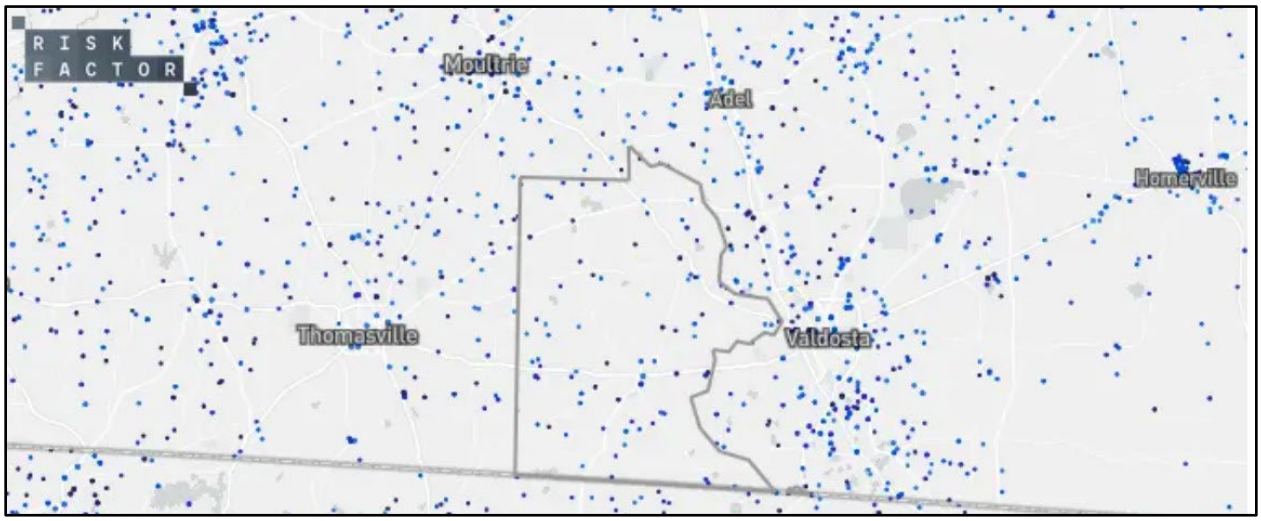
According to GMIS data, there are two Repetitive Loss Properties in Brooks County. Both are residential.

D: Future Flooding Potential/Risk in Brooks County Due to Climate Change

First Street is a 501(c)(3) research and technology non-profit organization dedicated to the research and development of solutions to combat climate change, which has been rapidly increasing all over the globe. The company works to connect climate change to financial risks and provides information to citizens, industry, and government.

A changing environment means higher seas, new weather patterns, and stronger storms. As the atmosphere warms, there is more evaporation and more water available when it rains. A warmer atmosphere also means warmer oceans, which can intensify flooding from hurricanes and offshore storms. Sea level rise also increases coastal flood risks, as higher seas mean there is more water available when high tides and coastal storms cause flooding. The risk predictions are based on projected conditions 30 years from now (now being 2024).

According to First Street, there are 693 properties in Brooks County that have a greater than 26% chance of being severely affected by flooding over the next 30 years. This represents 9% of all properties in Brooks County. However, compared to other communities, Brooks County has a minor flood factor. See the following map.



Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/flood?utm_source=redfin

In addition to property damage, flooding can also cut off access to utilities, emergency services, transportation, and may impact the overall economic well-being of the county. Overall, Brooks County has a minor risk of flooding over the next 30 years, which means that flooding is likely to impact the day-to-day life within the community. This is based on the level of risk the properties face rather than the proportion of the properties with risk.

Following are some statistics for Brooks County from First Street which indicate the numbers and risk factors of properties that may be affected by flooding due to climate change over the next 30 years.

- Residential Properties: Moderate Risk – 394 of a total of 6,107 homes at risk
- Roads: Moderate Risk – 289 of a total of 1,475 miles at risk
- Social Facilities: Minor Risk – 2 of a total of 48 facilities at risk
- Critical Infrastructure: Minimal Risk – 0 of a total of 46 facilities at risk
- Commercial Facilities: Minor Risk – 13 of a total 356 properties at risk

Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/flood?utm_source=redfin

E. Land Use and Development Trends

The unincorporated area of Brooks County has seen a slight increase in population since the last census as well as the City of Quitman. However, the cities of Barwick, Morven, and Pavo have all had slight decreases in population.

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

According to FEMA data, 16.24% of the total area of Brooks County (51,776 acres) is within a flood zone (15.16% in Zone A, 1.03% in Zone AE, and 0.05% in the 0.2 percent annual chance flood hazard zone). Approximately 3.77% of the City of Quitman (105 acres) is within a flood zone. 0.07% of the City of Morven is within a flood zone, and none of the area of the Cities of Pavo or Barwick is within a flood zone.

Brooks County and the City of Quitman are members of the **National Flood Insurance Program** (NFIP) (source: https://www.fema.gov/cis/GA.html). FEMA administers the NFIP through establishing mapped areas that are subject to flooding under certain conditions. They also establish minimum criteria for development in identified flood prone areas and underwrite flood insurance coverage. The purpose of the NFIP is to reduce future flood damage and break the cycle of

repetitive flood damage by encouraging communities to adopt and enforce floodplain management regulations and by providing affordable insurance to property owners, renters, and businesses.

As of late 2024, these jurisdictions are in compliance with NFIP requirements and intend to remain in compliance by enforcing flood plain ordinances which prohibit or severely limit development in floodplains. For example, the Brooks County Building Official is responsible for managing the Withlacoochee/Little River Corridor Protection District (Brooks County Zoning Ordinance §10-5) includes the Withlacoochee River, the Little River, all river islands, and a 100-foot horizontal buffer on both sides of the river as measured from the river banks. Certain restrictions on building and land use exist within this district, intended to protect river waters, control erosion, and absorb flood waters. Brooks County also has a Wetlands District (Zoning Ordinance §10-6). The following chart confirms participation in the National Flood Insurance Program for Brooks County and the City of Quitman. Brooks County has been participating since 1978 and Quitman has been participating since1982.

FEMA

Community Status Book Report

Communities Participating in the National Flood Program

Click here for not participating

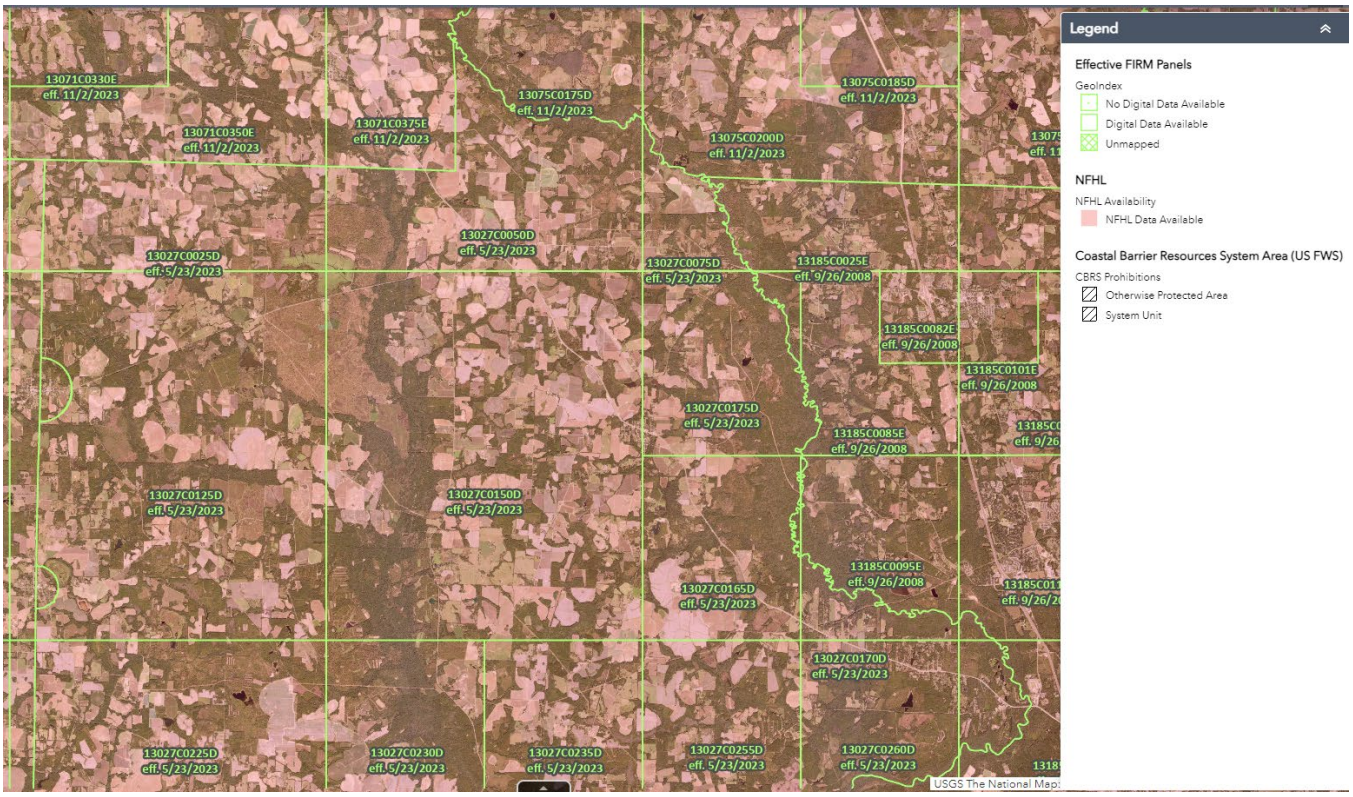
GEORGIA

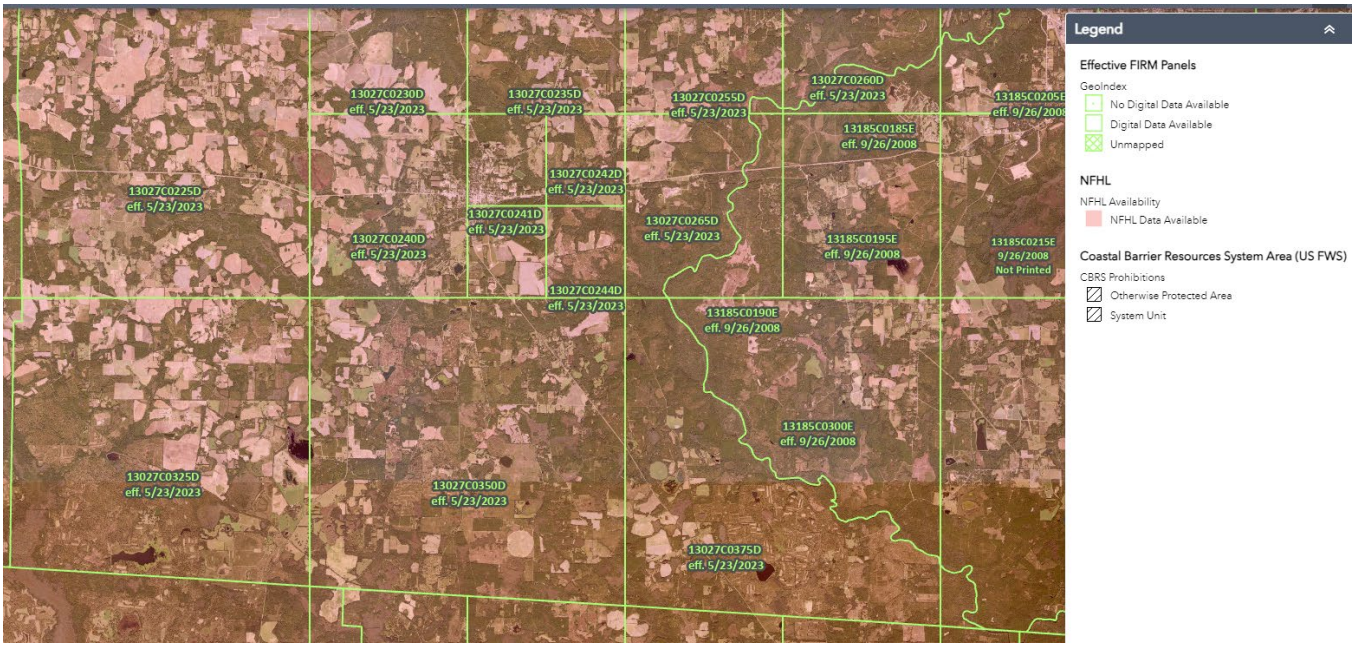
CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal	CRS Entry Date	Curr Eff Date	Curr Class	% Disc SFHA	% Disc Non SFHA
	03/15/1980.											
130020#	BROOKLET, TOWN OF	BULLOCH COUNTY	04/05/74	07/03/86	08/05/10(M)	07/03/86	No					
130281B	BROOKS COUNTY*	BROOKS COUNTY	02/03/78	03/15/82	05/23/23	05/03/82	No					
130430#	BROOKS, TOWN OF	FAYETTE COUNTY		03/18/96	(NSFHA)	06/27/00	No					
130477#	BROXTON, CITY OF	COFFEE COUNTY		09/11/09	09/11/09(M)	10/12/22	No					
130284#	PULASKI, TOWN OF	CANDLER COUNTY	04/04/75	12/17/10	12/17/10(M)	02/19/16	No					
130540B	PUTNAM COUNTY*	PUTNAM COUNTY		09/26/08	01/26/23	09/26/08	No					
130015B	QUITMAN, CITY OF	BROOKS COUNTY	03/29/74	04/01/82	05/23/23	04/01/82	No					
130156#	RABUN COUNTY *	RABUN COUNTY	04/28/78	06/19/85	09/17/10	06/19/85	No					
130553#	RANDOLPH COUNTY*	RANDOLPH COUNTY		09/17/10	09/17/10(M)	09/17/10	No					

Source: https://www.fema.gov/cis/GA.html

The cities of Barwick, Morven, and Pavo are not members of the National Flood Insurance Program. (Source: https://www.fema.gov/cis/GA.html). Morven and Pavo have been members in the past and were members in 2017 when the previous plan was updated. However, since that time, Morven and Pavo have dropped their membership in the program due to financial constraints and the fact that they have very little flood potential. Barwick has never participated due to the fact that they don't have serious flood areas and due to financial constraints. See the flood boundary maps for Brooks County in Appendix A3.3a; page 58-65.

Following see the FIRM Maps for Brooks County and its incorporated cities of Barwick, Morven, Pavo, and Quitman:

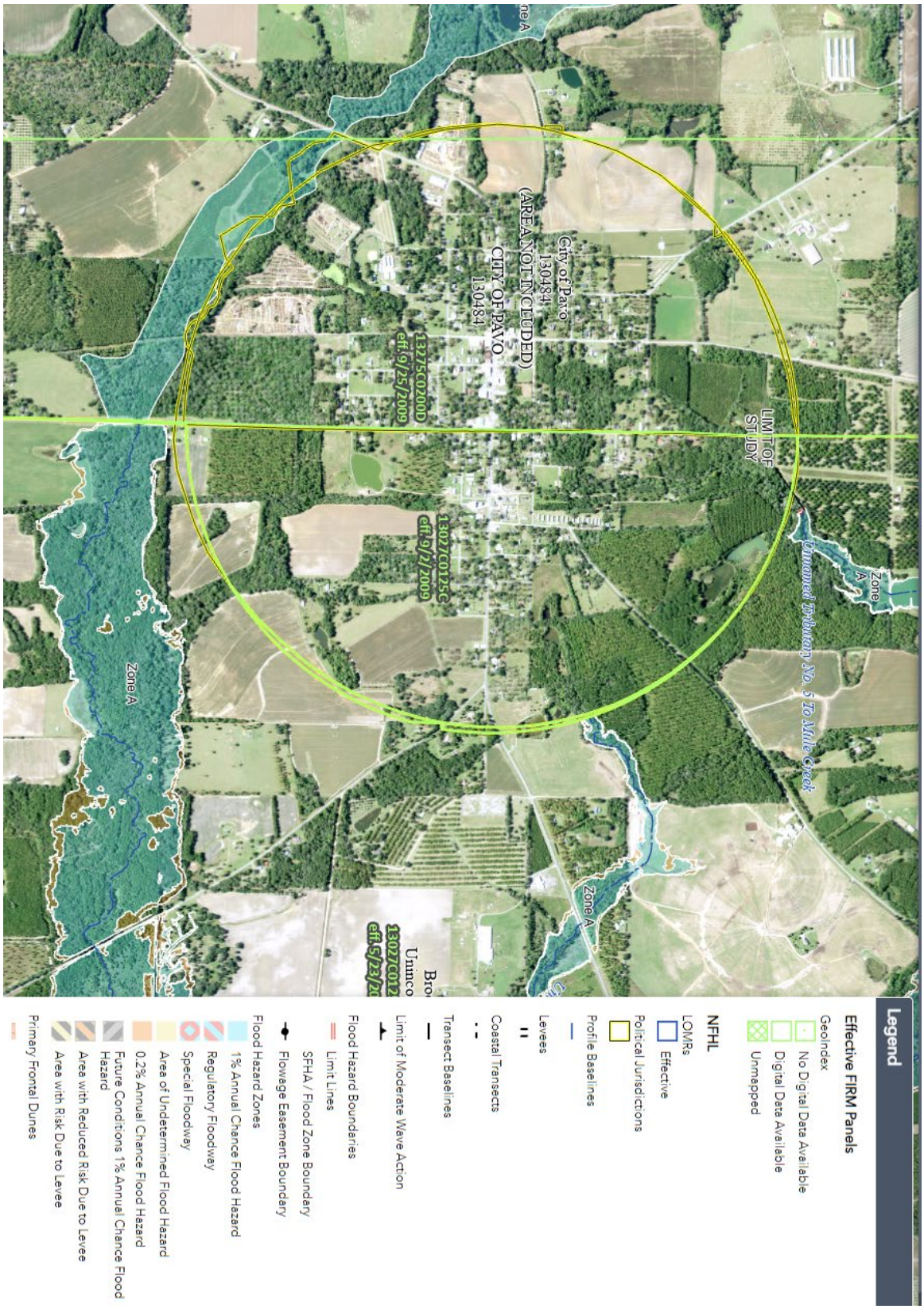




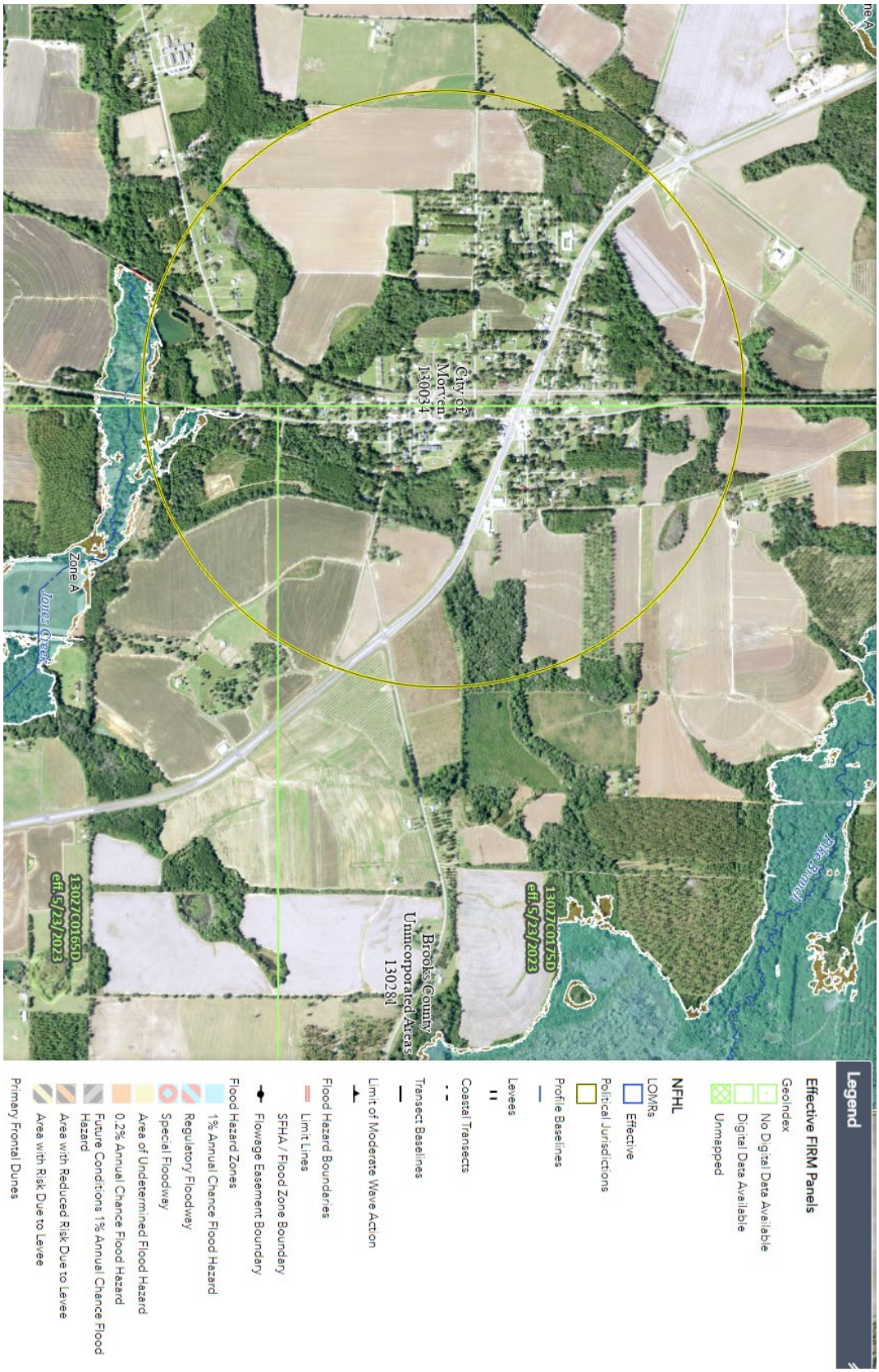
Brooks County, Georgia FIRM Map
Source: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

City of Barwick, Georgia (Brooks County) NFIP Map

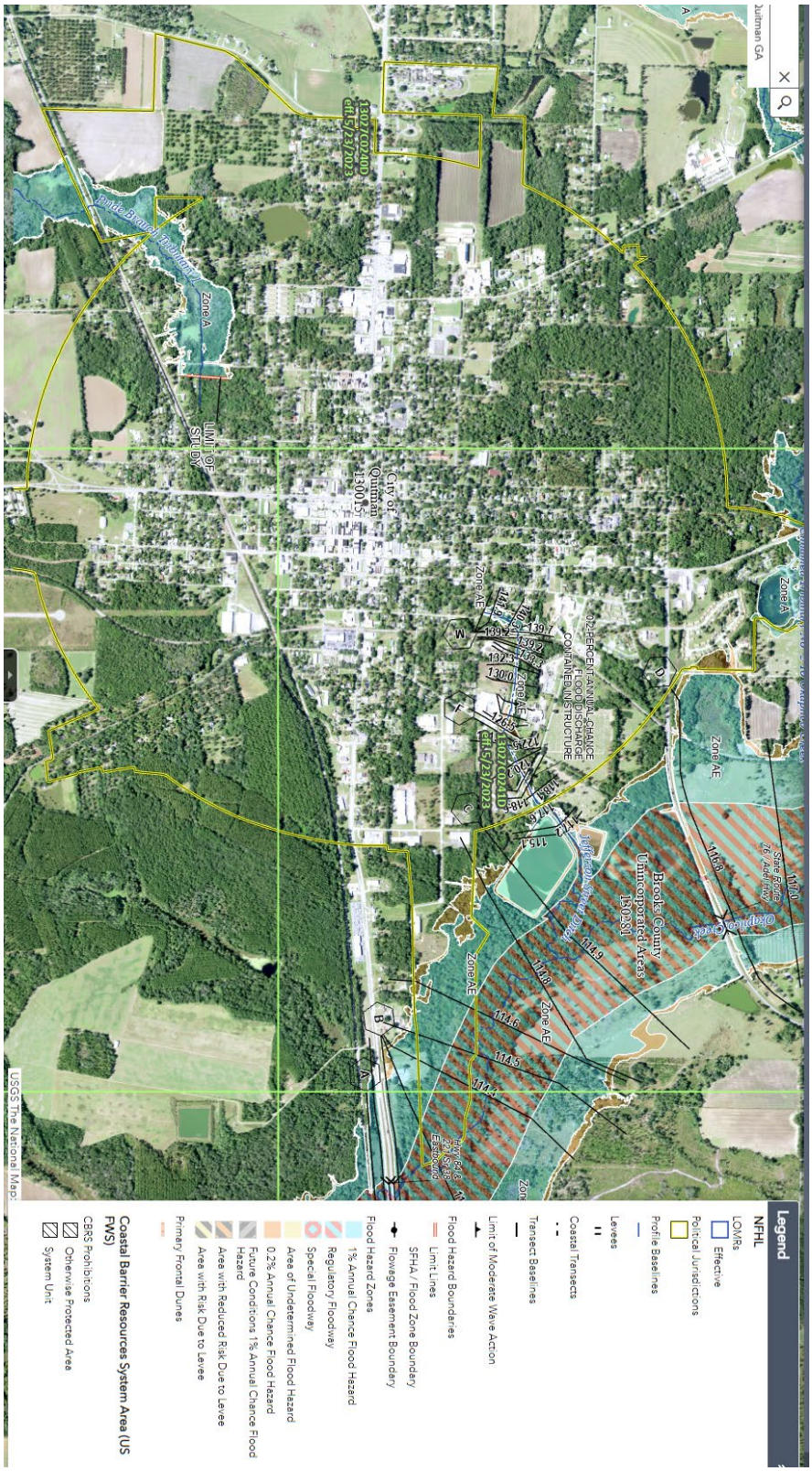
Source: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd



City of Pavo, Georgia (Brooks County) NFIP Map
Source: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd



City of Morven, Georgia (Brooks County) NFIP Map
Source: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd



Quitman, Georgia (Brooks County) NFIP Map
Source: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

F1. Post Flood Event: Inspection/Damage Assessment Policy:

In addition to the participation in the National Flood Insurance Program, Brooks County also has in place mechanisms for flood event damage determinations through the EMA Director working with the Brooks County Department of Inspections, Building Inspector, for the unincorporated areas of Brooks County and the City of Quitman. The EMA Director and Building Inspector will, following a flood event, or any other event that causes damage to structures in flood areas, make damage determinations to structures in the flood hazard areas that have been affected by the flood. They will perform damage assessments, using the market value, to determine if they constitute SI (Substantial Improvements), or SD (Substantial Damage) and inform property owners of how to apply for permits for repairs. The SI method means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of the construction of the improvement. The term usually includes structures that have incurred "substantial damage," regardless of the cause of the damage and regardless of the cost of the repair work actually performed. The SD means "damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. Most damage of this type occurs during a single and sudden natural disaster event. Source: https://www.fema.gov/sites/default/files/2020-07/fema_p213_08232018.pdf

Once the repair work has begun, the EMA Director and the Building Inspector will conduct field investigations during construction to make sure that the work complies with issued permits and work with owners to correct any violations found. The final step of the process is for the Brooks County officials to coordinate with property owners and insurance adjusters on all NFIP flood insurance claims and Increased Cost of Compliance (ICC) coverage.

The Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP). Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman do not participate in the Community Rating System (CRS) program. As of October 2023, they were not eligible, according to FEMA (source: https://www.fema.gov/sites/default/files/documents/fema_crs_eligible-communities_oct-2023.pdf)

Brooks County's initial Flood Insurance Rate Map (FIRM) date was 03/15/82 with the current effective date of 05/23/23, and Quitman's initial FIRM date was 04/01/82 with the current effective date of 05/23/23.

G. Overall HRV Summary of Events and their Impact

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

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

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

Section VI. Excessive Heat/Frost Freeze

A. Identification of Hazard

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

Heat:

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

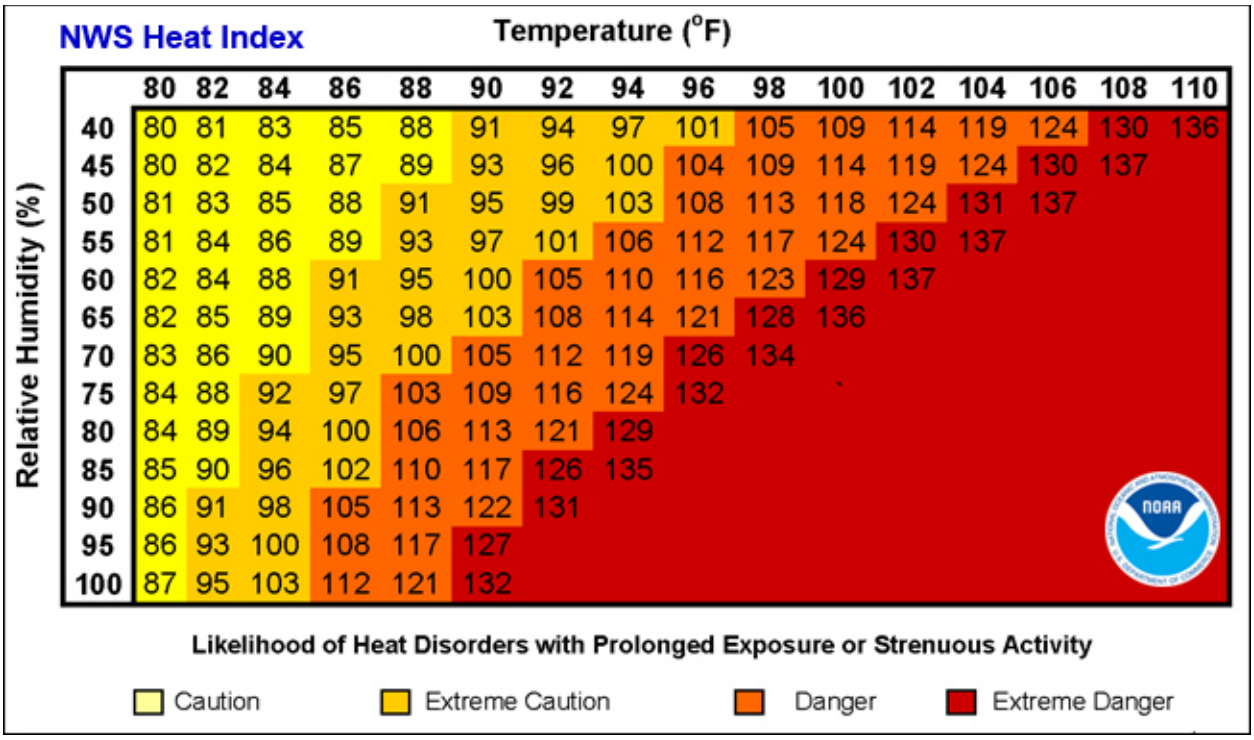
"It's not the heat, it's the humidity". That's a partly valid phrase you may have heard in the summer, but it's actually both. The heat index, also known as the apparent temperature, is what the temperature feels like to the human body when relative humidity is combined with the air temperature. This has important considerations for the human body's comfort. When the body gets too hot, it begins to perspire or sweat to cool itself off. If the perspiration is not able to evaporate, the body cannot regulate its temperature. Evaporation is a cooling process. When perspiration is evaporated off the body, it effectively reduces the body's temperature. When the atmospheric moisture content (i.e. relative humidity) is high, the rate of evaporation from the body decreases. In other words, the human body feels warmer in humid conditions. The opposite is true when the relative humidity decreases because the rate of perspiration increases. The body actually feels cooler in arid conditions. There is direct relationship between the air temperature and relative humidity and the heat index, meaning as the air temperature and relative humidity increase (decrease), the heat index increases (decreases). (Source: National Weather Service).

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

Heat Index category and effects

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

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



Source: https://www.weather.gov/ama/heatindex

The National Weather Service's Tallahassee district includes approximately 40 counties that span Florida, Alabama, and Georgia. Brooks County, Georgia is included in the National Weather Service Tallahassee District.

The National Weather Service issues heat notifications based on the severity of the heat. Following are some of the types of notifications related to high temperatures:

- **Excessive Heat Watch** - Is issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain. A Watch provides enough lead time so that those who need to prepare can do so, such as city officials who have excessive heat event mitigation plans.

- **Heat Advisory** – A heat advisory is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Advisory is when the maximum heat index temperature is expected to be 100 degrees or higher for at least two days, and night time air temperatures will not drop below 75 degrees, however, these criteria vary across the country, especially in areas that are not used to dangerous heat conditions. Take precautions to avoid heat illness. If you don't take precautions, you may become seriously ill or even die.

- **Excessive Heat Warning –** Is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this warning is when the maximum heat index temperature is expected to be 105 degrees or higher for at least two days and night time air temperatures will not drop below 75 degrees, however these criteria vary across the country, especially for areas not used to extreme heat condition. If you don't take precautions immediately when conditions are extreme, you may become seriously ill or even die. (Source: https://www.weather.gov/safety/heat-ww)

Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are all equally vulnerable to the effects of extreme heat.

Frost/Freeze:

The major hazard presented by frost/freeze does relate to infrastructure, but is more commonly referenced with agricultural production and the human population. Despite the comparatively warm climate of this region, there are many residents who are not adequately prepared to handle extreme cold events (for example, the elderly, people with chronic health/breathing conditions, people with homes with no or poor heating, and the unhoused). The risk is particularly high for the elderly and the young. Extreme Cold is a hazard that may result in loss of life or damage to property and the economy. Due to weather forecasting methods, most extreme cold events can be predicted with some level of accuracy ahead of time.

Frost/Freezing weather can affect agricultural crops and humans as well. Crops can be damaged or killed completely by low temperatures. People as well can be killed by low temperatures if not protected from the cold by warm clothing or shelter. Cold weather and freezing can also damage buildings and infrastructure through freezing and bursting water pipes causing flooding and spalling of masonry, brick, or stone walls, floors, decks, steps, etc.

In humans exposed to extreme cold, the blood vessels constrict and blood thickens slightly. Breathing becomes shallow. These changes can cause chest pain in people with heart disease.

Frost is a covering of ice crystals on the ground or other surfaces in the form of scales, needles, feathers, or fans. It is produced by the depositing of water vapor to a surface cooler than 32 degrees Fahrenheit. The deposition occurs when the temperature of the surface falls below the frost point.

As with the term "freeze," this condition is primarily significant during the growing season. If a frost period is sufficiently severe to end the growing season or delay its beginning, it is commonly referred to as a "killing frost." Because frost is primarily an event that occurs as the result of radiational cooling, it frequently occurs with a thermometer level temperature in the mid-30's.

When a freeze occurs in plants, it is more impactful than a frost because it is a longer event and occurs when the interior temperature of the plant reaches 32 degrees Fahrenheit. The frozen inside of the plant warms during the day and the cells release water and break down. This results in brown and black spots, as well as mushy areas that result in the death of annual plants.

- **Frost Advisory**: Is issued by the National Weather Service when there is an 80% or greater chance of significant frost with minimum temperatures of 33 - 36 degrees Fahrenheit – issued up to 24 hours in advance. A Frost Advisory is issued during the growing season for agricultural crops when widespread frost formation is expected over an extensive area. Surface temperatures are usually in the mid 30's Fahrenheit.

- **Freeze Warning**: Is issued by the National Weather Service when there is an 80% or greater chance of minimum temperatures at or below 32 degrees Fahrenheit during the growing season – issued up to 24 hours in advance.

- **Frost Point:** When the dew point is below freezing.

- **Frostbite:** When human tissue damage occurs as a result of exposure to intense cold.

B. Profile of Events, Frequency of Occurrences, Probability

Excessive Heat:

According to National Weather Service data (see Appendix F), there are 39 reports of extreme heat events occurring in Brooks County (including the Cities) between 01/01/1950 and 12/31/2023. The Historic Recurrence Interval is 1.87 years. This is a 53.42% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 0.5, the past 20-year frequency is 1.7, and the past 50-year frequency is 0.78 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan became effective, 5 extreme heat events have occurred. These were all Excessive Heat Events.

- The first event occurred on August 7, 2023 when the above average temperatures and above average dew points resulted in high heat index values in excess of 113 over a large portion of southwest and south-central Georgia during the August 7-8 time period.
- The second event occurred on August 8, 2023 when the above average temperatures and above average dew points resulted in high heat index values in excess of 113 over a large portion of southwest and south-central Georgia during the August 7-8 time period.
- The third event occurred on August 12, 2023 when the above average temperatures and above average dew points resulted in high heat index values in excess of 113 over a large portion of southwest and south-central Georgia during the August 12-14 time period.
- The fourth event occurred on August 13, 2023 when the above average temperatures and above average dew points resulted in high heat index values in excess of 113 over a large portion of southwest and south-central Georgia during the August 12-14 time period.
- The fifth and final event of Excessive Heat since the last plan occurred on August 14, 2023 when the above average temperatures and above average dew points resulted in high heat index values in excess of 113 over a large portion of southwest and south-central Georgia during the August 12-14 time period.

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

Frost/Freeze:

According to the National Weather Service data (see Appendix F), there are zero (0) reports of Extreme Cold/Wind Chill for Brooks County between 01/01/1950 and 12/31/2023.

C: Inventory of Assets Exposed and Potential Loss

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are equally vulnerable to this hazard.

An estimated 100% of the Residential property (7,442 of 7,442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $989,733,000. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (743 of 743) in the community may be affected, with a total value of $622,056,370. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2022%20Farm%20Gate%20Value%20Report.pdf), the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, all of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard. The total value of these Critical Facilities is $68,805,168.

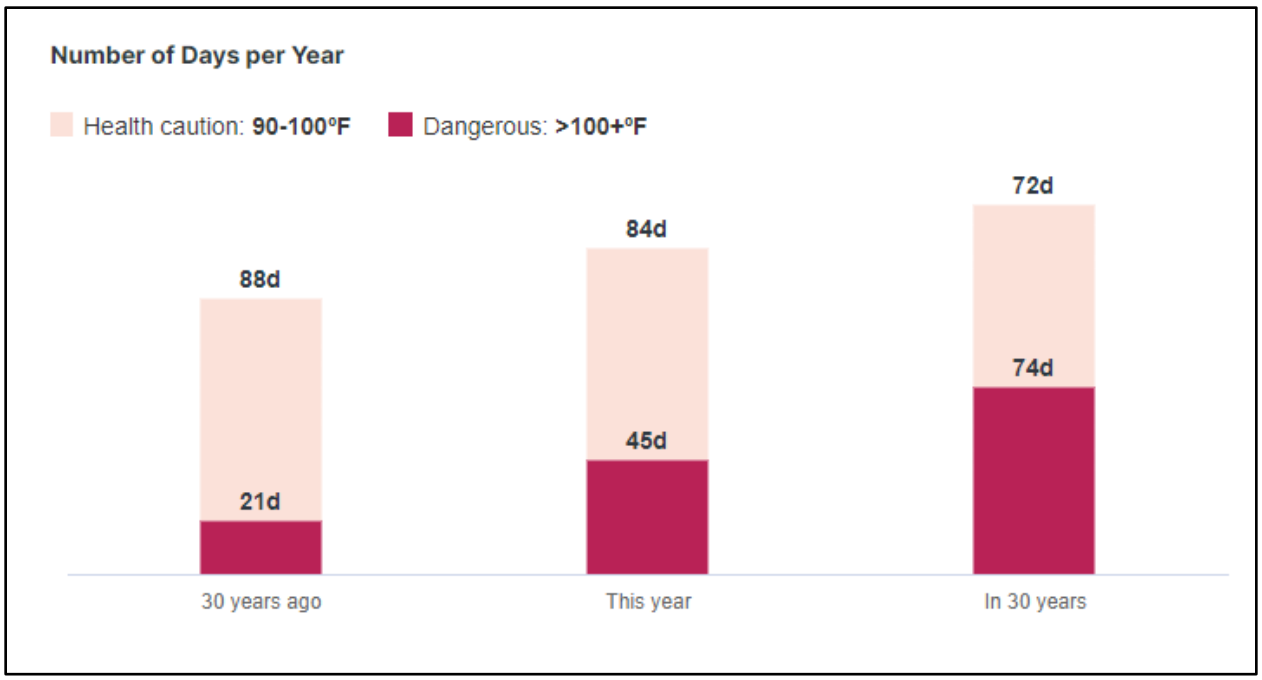
D. Heat Risk in Brooks County due to the effects of Climate Change

First Street is a 501(c)(3) research and technology non-profit organization dedicated to the research and development of solutions to combat climate change, which has been rapidly increasing all over the globe. The company works to connect climate change to financial risks and provides information to citizens, industry, and government. The risk predictions are based on projected conditions 30 years from now (now being 2024).

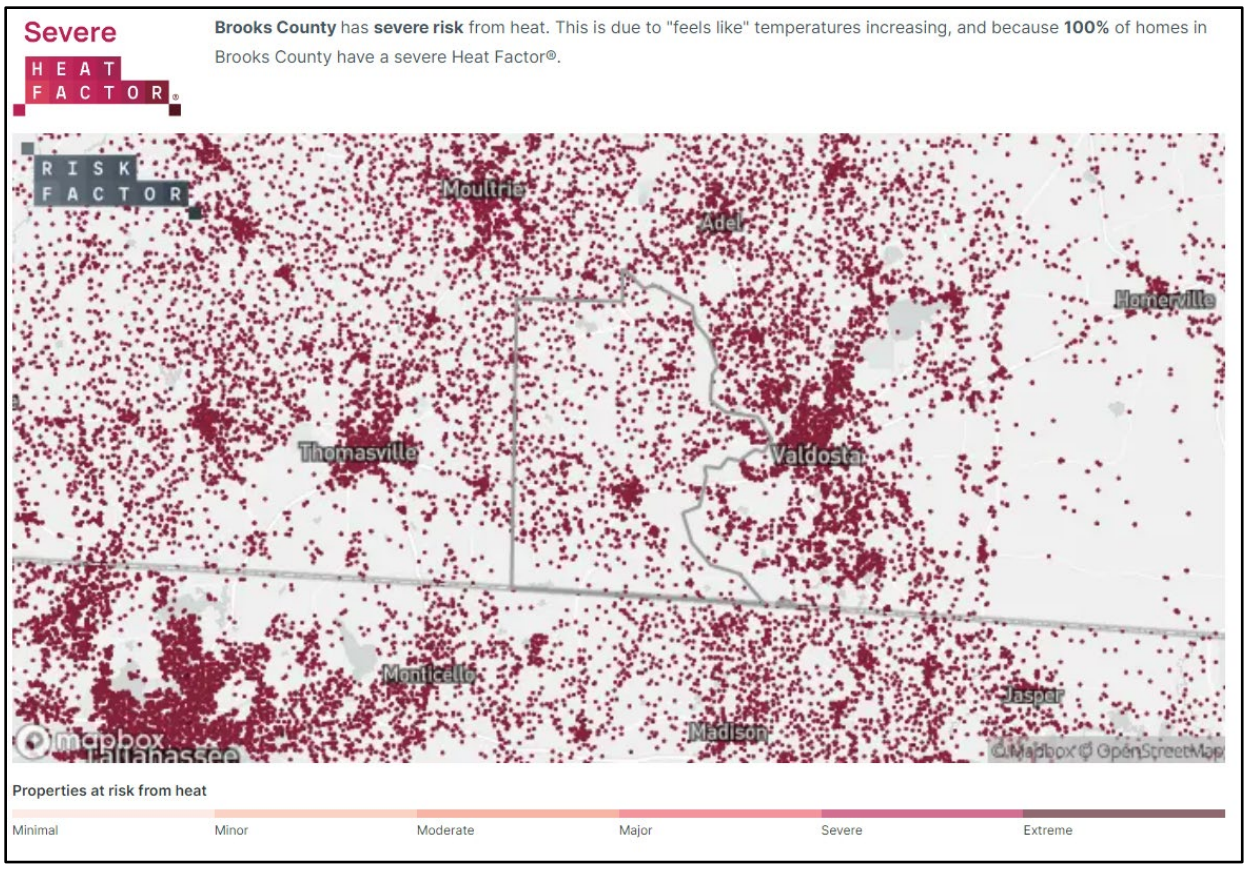
According to First Street, Brooks County will have a Severe Heat Risk Factor in the future due to climate change. The projected severe risk from heat is due to the "feels like" temperatures increasing, and because 100% of homes in Brooks County have a severe Heat Factor.

With increasing average temperatures, dangerously hot days and heatwaves may occur more often. Temperatures exceeding 90 degrees Fahrenheit can be can be physically hazardous for high-risk individuals. When temperatures exceed 100 degrees Fahrenheit, it can be dangerous for everyone.

The following graphic shows the difference between the temperatures in Brooks County 30 years ago, today, and 30 years from now in the future. Today, Brooks County experiences approximately seven (7) hot days per year, but in 30 years, Brooks County is expected to experience 20 hot days per year.

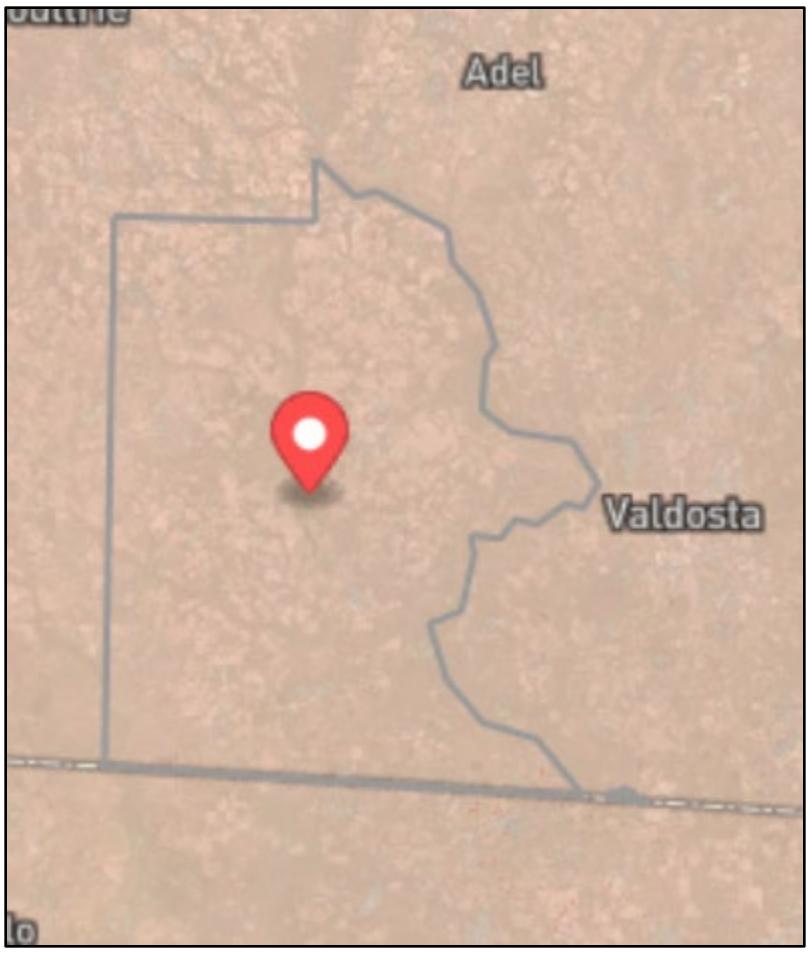


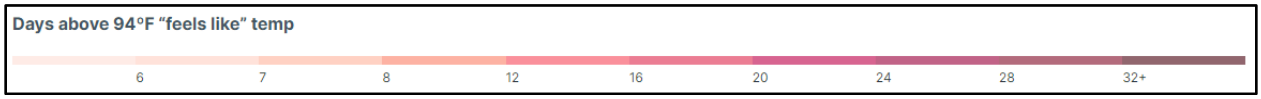
Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/heat



Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/heat

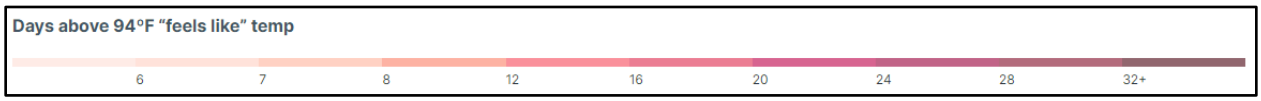
First Street has produced maps to illustrate the heat risk factor that will potentially develop in Brooks County over the next 30 years. The following maps show the current 2024 conditions and the projected 2054 heat projections.





The above map shows the current view of Brooks County's heat potential of 7 days in 2024.

Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/heat



The above map shows Brooks County's projected "feels like" temp for 30 years in to the future in 2054.

Source: https://riskfactor.com/county/brooks-county-ga/13027_fsid/heat

E. Land Use and Development Trends

The unincorporated area of Brooks County has seen a slight increase in population since the last census as well as the City of Quitman. However, the cities of Barwick, Morven, and Pavo have all had slight decreases in population.

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

Extreme heat may happen at any place at any time, and no difference in severity is expected between Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. However, the impact may be more severe in places with higher population density due to more people being in danger. In jurisdictions without building codes and inspections, structures may exist that are not built to code and therefore may be especially vulnerable to the effects of hot weather and other hazards. Power failures exacerbate extreme heat events because of the ensuing lack of air conditioning. No other multi-jurisdictional differences have been identified at this time.

G. Overall HRV Summary of Events and Their Impact

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

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

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

Section VII. Drought

A. Identification of Hazard

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

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

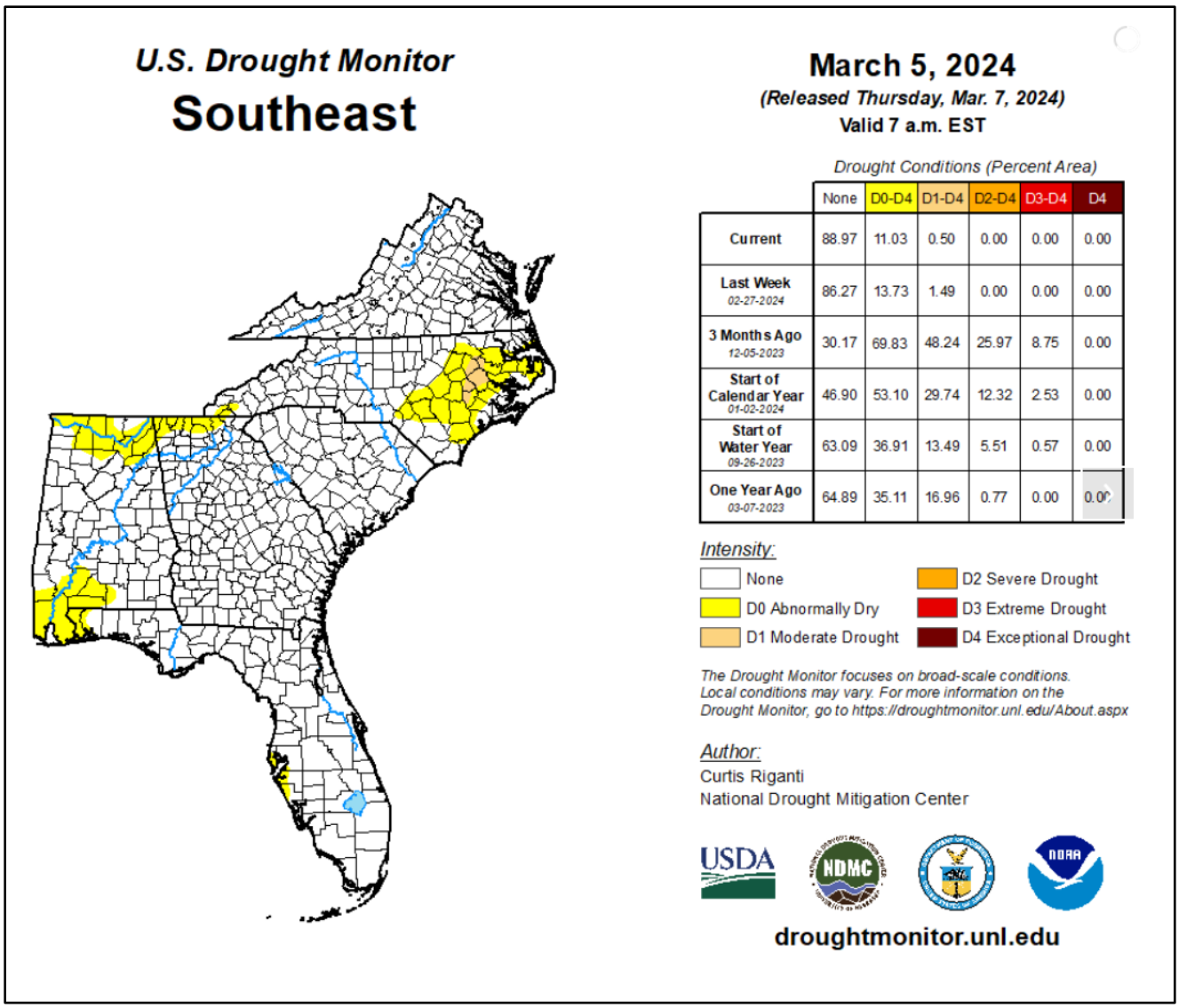
Crops (including trees) are usually most adversely affected by drought events, along with community residents whose water supplies are restricted or cut off (especially those using individual wells). Residents of unincorporated Brooks County have wells, which may go dry during drought periods, thus leaving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

The U.S. Drought Monitor (http://droughtmonitor.unl.edu), established in 1999, is a weekly map of drought conditions that is produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the NDMC. The Drought Monitor summary map identifies general drought areas, labelling droughts by intensity, with D0 being the least intense and D4 being the most intense. Following is a legend describing the drought intensity numbering system.

Category	None	D0	D1	D2	D3	D4
Description	Normal or wet conditions	Abnormally Dry	Moderate Drought	Severe Drought	Extreme Drought	Exceptional Drought

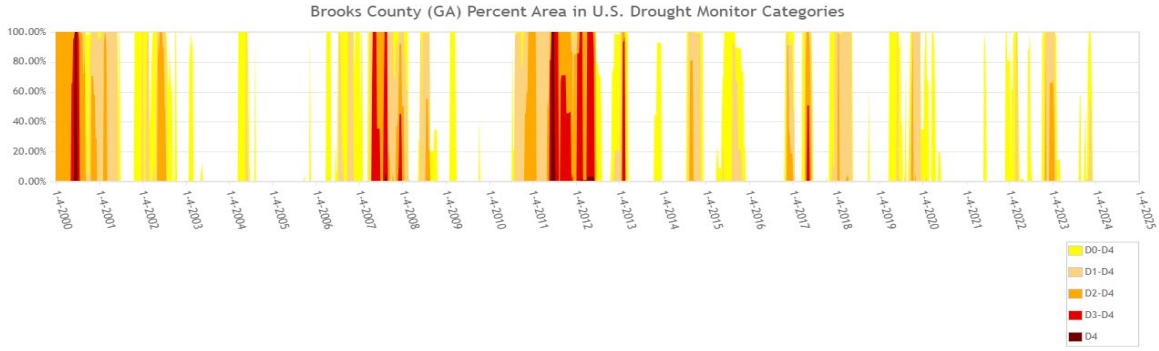
(Source: https://droughtmonitor.unl.edu/About/WhatistheUSDM.aspx)

The following graphic shows Georgia, with its counties including Brooks County, as part of a southeast region for drought monitoring purposes. The chart included gives the current drought conditions and goes back one year. Brooks County is currently shown as having no drought conditions. However, as a whole, parts of the southeast region have experienced drought conditions over the last year. The portions that experienced drought comprised approximately 30% of the area. Of that 30% that experienced drought, the majority experienced only abnormally dry conditions and a smaller percentage, 16.96% of the area experienced moderate drought, while a fraction of the area, less than one percent, experienced severe drought.



Source: https://sercc.com/drought-maps/

The following graphic shows the US Drought Monitory Time Series for Brooks County, GA since 2000 and shows a range of the drought status by year.



Source: https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx

Agriculture is one of the most well-known and monitored resources that is affected by drought. Row crops that are monitored by the U.S. Drought Monitor include: barley, corn, cotton, durum, peanuts, rice, sorghum, soybean, spring wheat, sugar beet, sugarcane, sunflowers and winter wheat production.

Specialty crops monitored by the U.S. Drought Monitor include: vegetable crop resources, fruit crop resources, and cranberry crop resources. Livestock & Forage are also monitored as well and include the following: alfalfa hay, cattle inventory, hay inventory, hog inventory, milk cow inventory, and sheep inventory. Grassland productivity is also monitored for drought purposes.

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: ▪ short-term dryness slowing planting, growth of crops or pastures Coming out of drought: ▪ some lingering water deficits ▪ pastures or crops not fully recovered
D1	Moderate Drought	▪ Some damage to crops, pastures ▪ Streams, reservoirs, or wells low, some water shortages developing or imminent ▪ Voluntary water-use restrictions requested
D2	Severe Drought	▪ Crop or pasture losses likely ▪ Water shortages common ▪ Water restrictions imposed
D3	Extreme Drought	▪ Major crop/pasture losses ▪ Widespread water shortages or restrictions
D4	Exceptional Drought	▪ Exceptional and widespread crop/pasture losses ▪ Shortages of water in reservoirs, streams, and wells creating water emergencies

Drought intensity numbering system chart and description of impacts

Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are all equally vulnerable to the effects of drought.

B. Profile of Events, Frequency of Occurrences, Probability

According to the NOAA Storm Events Database (see Appendix F), there are 29 reports of drought events occurring in Brooks County (including the Cities) between 01/01/1950 and 12/31/2023. The Historic Recurrence Interval is 2.52 years. This is a 39.73% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is 1, the past 20-year frequency is 1.4, and the past 50-year frequency is 0.58 (see the Hazard Frequency Table in Appendix D).

Since the previous Hazard Mitigation Plan became effective, 4 drought events have occurred.

- The first of the four drought events that have occurred since the last plan was reported on January 1, 2018 and when D2 drought conditions developed and expanded across portions of southwest Georgia during the week of 1/9/2018 and continued into February.
- The second event was reported on October 23, 2019 when D2 drought conditions developed across southwest and south-central Georgia around October 8th and persisted through October 22nd.
- The third event was reported on December 31, 2022 when D2 drought conditions were present across portions of southwest and south-central Georgia in December and continued into part of January.
- The fourth and final event since the last plan was reported on January 24, 2023 when D2 drought conditions continued across portions of southwest and south-central Georgia through January 24th before beneficial rain improved the drought status.

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

C: Inventory of Assets Exposed and Potential Loss

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are equally vulnerable to this hazard.

An estimated 100% of the Residential property (7,442 of 7,442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $989,733,000. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (743 of 743) in the community may be affected, with a total value of $622,056,370. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2022%20Farm%20Gate%20Value%20Report.pdf), the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, all of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard. The total value of these Critical Facilities is $68,805,168.

D: Drought risks in Brooks County due to Climate Change

A drought in 2007 lowered water levels in Lake Lanier, which threatened metropolitan Atlanta's water supply and interfered with recreational activities. Droughts could become more severe as the climate warms. Credit: Bill Kinsland, National Weather Service.

next half century. But the amount of available water is likely to decrease, and soils are likely to become drier in most of the state, except along the coast.

As temperatures rise, less water is likely to flow into the Chattahoochee and other major rivers. Decreased river flows can lower the water level in Lake Lanier and other reservoirs, which may limit municipal water supplies for Atlanta and other cities. Lower water levels may also impair ecosystems, swimming, and other recreational activities, and reduce hydroelectric power generation.

Agriculture and Forest Resources

Changing the climate will have both harmful and beneficial effects on farming. Although hotter temperatures alone would tend to depress crop yields, higher concentrations of atmospheric carbon dioxide increase yields, and that fertilizing effect is likely to offset the harmful effects of heat on cotton, peanuts, soybeans, and wheat—if adequate water is available. More severe droughts, however, could cause crop failures. Higher temperatures are likely to reduce livestock productivity, because heat stress disrupts the animals' metabolism.

Warmer temperatures and changes in rainfall are unlikely to substantially reduce forest cover in Georgia, although the composition of trees in the forests may change. More droughts would reduce forest productivity, and climate change is also likely to increase the damage from insects and disease. But longer growing seasons and increased carbon dioxide concentrations could more than offset the losses from those factors. Forests cover about half of the state, with oak-pine forests common in the north, loblolly-shortleaf pine forests common in the center, and longleaf-slash pine forests common in the south. Changing the climate may enable oak-pine forests to become the most common forest type throughout the state.

Human Health

Hot days can be unhealthy—even dangerous. Certain people are especially vulnerable, including children, the elderly, the sick, and the poor. High air temperatures can cause heat stroke and dehydration and affect people's cardiovascular and nervous systems. Seventy years from now, most of Georgia is likely to have 45 to 75 days per year with temperatures above 95°F, compared with about 15 to 30 such days today.

Warmer air can also increase the formation of ground-level ozone, a key component of smog. Ozone has a variety of health effects, aggravates lung diseases such as asthma, and increases the risk of premature death from heart or lung disease. EPA and the Georgia Environmental Protection Division have been working to reduce ozone concentrations. As the climate changes, continued progress toward clean air will be more difficult.

In large metropolitan areas like Atlanta, buildings and paved surfaces create an "urban heat island" that raises temperatures above surrounding areas and can worsen the health impacts of a heat wave. Stock photo.

The sources of information about climate and the impacts of climate change in this publication are: the national climate assessments by the U.S. Global Change Research Program, synthesis and assessment products by the U.S. Climate Change Science Program, assessment reports by the Intergovernmental Panel on Climate Change, and EPA's *Climate Change Indicators in the United States*. Mention of a particular season, location, species, or any other aspect of an impact does not imply anything about the likelihood or importance of aspects that are not mentioned. For more information about climate change science, impacts, responses, and what you can do, visit EPA's Climate Change website at www.epa.gov/climatechange.

Source: https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ga.pdf

EPA United States Environmental Protection Agency

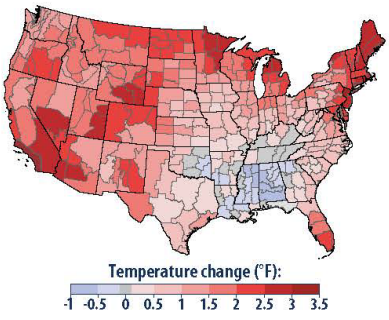
August 2016
EPA 430-F-16-012

What Climate Change Means for Georgia

In the coming decades, Georgia will become warmer, and the state will probably experience more severe floods and drought. Even today, more rain is falling in heavy downpours, and sea level is rising about one inch every decade. Higher water levels are eroding beaches, submerging low lands, and exacerbating coastal flooding. Like other southeastern states, Georgia has warmed less than most of the nation during the last century. But during the next few decades, the changing climate is likely to harm livestock, increase the number of unpleasantly hot days, and increase the risk of heat stroke and other heat-related illnesses.

Our climate is changing because the earth is warming. People have increased the amount of carbon dioxide in the air by 40 percent since the late 1700s. Other heat-trapping greenhouse gases are also increasing. These gases have warmed the surface and lower atmosphere of our planet about one degree (F) during the last 50 years. Evaporation increases as the atmosphere warms, which increases humidity, average rainfall, and the frequency of heavy rainstorms in many places—but contributes to drought in others.

Greenhouse gases are also changing the world's oceans and ice cover. Carbon dioxide reacts with water to form carbonic acid, so the oceans are becoming more acidic. The surface of the ocean has warmed about one degree during the last 80 years. Warming is causing snow to melt earlier in spring, and mountain glaciers are retreating. Even the great ice sheets on Greenland and Antarctica are shrinking. Thus the sea is rising at an increasing rate.



Rising temperatures in the last century. Georgia has warmed less than most of the United States. Source: EPA, Climate Change Indicators in the United States.

Rising Seas and Retreating Shores

Sea level is rising more rapidly in Georgia than along most coasts because the land is sinking. If the oceans and atmosphere continue to warm, sea level is likely to rise one to four feet in the next century along the coast of Georgia. Rising sea level submerges wetlands and dry land, erodes beaches, and exacerbates coastal flooding.

Coastal Storms, Homes, and Infrastructure

Tropical storms and hurricanes have become more intense during the past 20 years. Although warming oceans provide these storms with more potential energy, scientists are not sure whether the recent intensification reflects a long-term trend. Nevertheless, hurricane wind speeds and rainfall rates are likely to increase as the climate continues to warm.

Whether or not storms become more intense, coastal homes and infrastructure will flood more often as sea level rises, because storm surges will become higher as well. Rising sea level is likely to increase flood insurance rates, while more frequent storms could increase the deductible for wind damage in homeowner insurance policies. Parts of Savannah and Brunswick are vulnerable to coastal flooding, which is likely to become more severe as sea level rises.

Water Resources, Flooding, and Drought

Changing the climate is likely to increase the severity of both inland flooding and droughts. Since 1958, the amount of precipitation falling during heavy rainstorms has increased by 27 percent in the Southeast, and the trend toward increasingly heavy rainstorms is likely to continue.

Rising temperatures are likely to increase the demand for water but make it less available. Warmer temperatures increase the rate at which water evaporates (or transpires) into the air from soils, plants, and surface waters. Because irrigated farmland would need more water, the total demand for water is likely to increase 10 to 50 percent during the

Source: https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ga.pdf

E. Land Use and Development Trends

The unincorporated area of Brooks County has seen a slight increase in population since the last census as well as the City of Quitman. However, the cities of Barwick, Morven, and Pavo have all had slight decreases in population.

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

Residents of unincorporated Brooks County have wells, which may go dry during drought periods, thus leaving those residents without water for extended periods of time. The Cities of Barwick, Morven, Pavo, and Quitman have municipal water systems.

No other multi-jurisdictional differences have been identified at this time.

G. Overall HRV summary of events and their impact

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

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

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

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

Section I. Hazardous Materials Release

A. Identification of Hazard

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

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

B. Profile of Events, Frequency of Occurrences, Probability

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

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

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

According to the USDOT Pipeline and Hazardous Materials Safety Administration's Office of Hazardous Materials Safety database (see Appendix F), there are 5 reports of Hazardous Materials

Release events occurring in Brooks County (including the Cities) between 01/01/1978 and 12/31/2023. The Historic Recurrence Interval is 14.60 years. This is a 6.85% Historic Frequency Chance per year. The past 10-year Record Frequency Per Year is null, the past 20-year frequency is null, and the past 50-year frequency is 0.1 (see the Hazard Frequency Table in Appendix D). Three of these events were related to highway transportation and two were related to rail transportation. Materials released included aviation fuel, petroleum oil, phosphoric acid, ammonium nitrate, and gasoline.

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

COUNTY: BROOKS
HAZARD FREQUENCY TABLE

Hazard	Number of Events in Historic Record	Number of Years in Historic Record	Number of Events in Past 10 Years 2013	Number of Events in Past 20 Years 2003	Number of Events in Past 50 Years 1973	Historic Recurrence Interval (years)	Historic Frequency % chance/year	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year
Hurricane/Tropical Storm	13	73	6	12	13	5.62	17.81%	0.6	0.6
Floods	15	73	8	11	15	4.87	20.55%	0.8	0.55
Hail	19	73	5	8	14	3.84	26.03%	0.5	0.4
Tornado	15	73	6	7	13	4.87	20.55%	0.6	0.35
Lightning	1	73	0	0	1	73.00	1.37%	0	0
Drought	29	73	10	28	29	2.52	39.73%	1	1.4
Extreme Heat/Excessive Heat	39	73	5	34	39	1.87	53.42%	0.5	1.7
Frost/Freeze	1	73	1	1	1	73.00	1.37%	0.1	0.05
Wildfires	3830	50	219	1604	3830	0.01	7660.00%	21.9	80.2
Winter Storm	2	73	2	2	2	36.50	2.74%	0.2	0.1

NOTE: The historic frequency of a hazard event over a given period of time determines the historic recurrence interval. For example: If there have been 20 HazMat Releases in the County in the past 5 years, statistically you could expect that there will be 4 releases a year.

Realize that from a statistical standpoint, there are several variables to consider. 1) Accurate hazard history data and collection are crucial to an accurate recurrence interval and frequency. 2) Data collection and accuarcy has been much better in the past 10-20 years (NCDC weather records). 3) It is important to include all significant recorded hazard events which will include periodic updates to this table.

By updating and reviewing this table over time, it may be possible to see if certain types of hazard events are increasing in the past 10-20 years.

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

In Worksheet 3A: Inventory of Assets (appearing in Appendix A), we estimate that all of Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman are equally vulnerable to this hazard.

An estimated 100% of the Residential property (7,442 of 7,442) in Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard, with a total value of $989,733,000. Also, an estimated 100% of the Commercial, Industrial, Agricultural, Religious/Non-Profit, Government, Education and Utility properties (743 of 743) in the community may be affected, with a total value of $622,056,370. The values are based on the most recent available tax roll data for Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman, provided by the Brooks County Tax Assessor's Office.

Damage to crops is not taken into account in any of these figures. According to the Center for Agribusiness & Economic Development's 2021 Georgia Farm Gate Value Report (https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2021_GeorgiaFGVReportDec2022%20(1).pdf), the total farm gate value of agricultural production in Brooks County is $195,081,331.

According to the inventory database reports and maps, all of the 55 Critical Facilities and Infrastructure for Brooks County (including the Cities of Barwick, Morven, Pavo, and Quitman) could be affected by this hazard. The total value of these Critical Facilities is $68,805,168.

E. Land Use and Development Trends

Residential land use in Brooks County is widely dispersed, except in the City of Quitman, where some relatively higher residential density exists. Recently, significant new development has occurred in the Troupeville area on the eastern edge of the county, close to Interstate 75, meaning that there is an increased population that could be vulnerable should a severe hazardous materials event occur on the Interstate highway.

Brooks County and the City of Quitman have zoning regulations; the Cities of Barwick, Morven, and Pavo do not. The County and the Cities of Morven and Quitman have mandatory building and fire codes which are enforced by a building inspector; the Cities of Barwick and Pavo do not. All Cities and the County participate in joint comprehensive planning and in the required updates of the Service Delivery Strategy.

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

F. Multi-Jurisdictional Differences

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

State highways carrying truck traffic pass through all the jurisdictions, but the only major four-lane highway is US-84, passing from east to west through the County and the City of Quitman.

A CSX rail line passes east-west through the unincorporated County, including the community of Dixie, and through the City of Quitman. The short-line Georgia & Florida Railway, operated by Albany-based OmniTRAX, passes roughly north-south through the County and through the Cities of Morven and Quitman. Due to its denser population and location on a major highway and two freight rail lines, the City of Quitman is much more vulnerable to a transportation-related hazardous materials release than most other areas of the community.

There is also a developing industrial park on the south side of the City of Quitman. There are no commercially navigated waterways in the community.

G. Overall HRV Summary

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

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

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

Chapter 4: Local Natural Hazard Mitigation Goals and Objectives

Summary of Changes:

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

Chapter 4 Section	Updates to Section
I. Hurricanes (Typhoons)/Tropical Storms/Hail	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
II. Tornadoes	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
III. Wildfires	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and added new Action Steps (if applicable)
IV. Lightning	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
V. Floods	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
VI. Excessive Heat/Frost Freeze	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)
VII. Drought	Updated Goals, Objectives, and Action Step Formatting, Numbering and Data Fields, Updated or Deleted Prior Action Steps and Added New Action Steps (if applicable)

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

Overall Community Mitigation Goals, Policies, and Values Narrative

While Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman each operate autonomously, there is a high level of cooperation exhibited when it comes to hazard mitigation and emergency planning efforts. Each local government has designated representatives to participate in the emergency management process, whether it be during planning, response, or recovery phases. The local Emergency Management Agency hosts regular meetings to gather all of the relevant local, regional and state partners together to develop effective plans and strengthen relationships among all of the stakeholders. Working together, the jurisdictions have been able to access resources available through several state and federal sources that have been instrumental in improving the technical capabilities of these communities to more effectively mitigate hazards and provide more accurate warning and preparatory information to their citizens.

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

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

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

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

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

A list of the comprehensive range of Mitigation Goals, Objectives, and Action Steps was compiled from the input of the HMPUC, as well as from others within the community. Members of the

HMPUC prioritized the identified comprehensive range of Mitigation Goals, Objectives, and Action Steps based on what was anticipated to be most beneficial to the community. The benefits of all action steps were determined to be greater than the costs involved.

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

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

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

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

The Legal and Regulatory Capability Survey (below) describes the authorities available to the jurisdictions and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local jurisdictions to implement hazard mitigation activities.

Regulatory Tools/Plans	Regulatory Type: Ordinance, Resolution, Codes, Plans, Etc.	Local Authority	State Prohibited	Higher Authority
Building Codes	• International Building Code – 2018 Edition • International Residential Code – 2018 Edition • International Plumbing Code – 2018 Edition	Yes	No	No

	• International Mechanical Code – 2018 Edition • International Fuel Gas Code – 2018 Edition • International Energy Conservation Code – 205 Edition • International Fire Code – 2018 Edition • International Electric Code – 2020 Edition • International Swimming Pool and Spa Code – 2018 Edition (with amendments)			
Capital Improvements Plan	Brooks County Comprehensive Plan	Yes	No	No
Comprehensive Plan	Brooks County Comprehensive Plan	Yes	No	No
Economic Development Plan	Brooks County Comprehensive Plan	Yes	No	Yes
Zoning Ordinances	City of Quitman Zoning Ordinance Brooks County Zoning Ordinance (Barwick, Morven, and Pavo do not have a zoning ordinance)	Yes	No	No

Section I. Hurricanes/Tropical Storms

A. Community Mitigation Goals

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

B. Identification and Analysis of Comprehensive Range of Mitigation Options

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

5. Existing Buildings and Infrastructure:

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

C. Mitigation Strategy and Recommendations

Goal 1.1: Prevent or reduce damage caused by Hurricanes/Tropical Storms in Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman.

Objective 1.1.1: Enhance the ability of the Brooks County Emergency Management Agency to respond effectively and efficiently to emergency needs during and after a hurricane event.

Action Step 1: Become a designated "Storm Ready Community."	
Responsible Department	EMA, County Manager
Anticipated Cost	Staff Time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 2: Implement the "Community Emergency Response Team" (CERT) program.	
Responsible Department	EMA, County Manager
Anticipated Cost	$5,000
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Goal 1.2: Reduce the risks and vulnerability of citizens and critical facilities to damage resulting from hurricanes.

Objective 1.2.1: Protect life, health and property of residents from force of hurricanes.

Action Step 3: Ensure % of city leaders of Brooks, Barwick, Morven, Pavo & Quitman receive required NIMS training. In addition, hospital, nursing homes & first responders receive this training.	
Responsible Department	EMA, Local Elected Officials, Mayors & City/ County Managers
Anticipated Cost	$1,500
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	New

Action Step 4: Distribute programs on personal emergency preparedness, i.e., emergency survival kits to websites, brochures, and social media.	
Responsible Department	EMA
Anticipated Cost	$1000
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 5: Encourage the American Red Cross to teach the Citizen's Disaster Course on a frequent basis.	
Responsible Department	EMA, American Red Cross
Anticipated Cost	$10,000
Existing & Potential Funding Sources	GEMA, FEMA, General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 6: Encourage businesses to develop emergency plans.	
Responsible Department	EMA
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 7: Increase public awareness of the Early Warning Communication/Notification System, NOAA weather radios, and available community safe shelters by publishing articles on websites, social media, in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools.	
Responsible Department	EMA, Media
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 8: Install auxiliary, mobile, and/or fixed generators (including transfer switches and soft start systems) where needed, including all designated evacuation and emergency shelters, community water systems, and critical facilities.	
Responsible Department	EMA, ARC, Shelter Owners, City of Quitman, Colquitt EMC, Georgia Power
Anticipated Cost	$700,000
Existing & Potential Funding Sources	DOHS - GEMA, FEMA, AFG
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 9: Trim tree lines around roads, homes, utilities and businesses.	
Responsible Department	City of Quitman, Brooks County Road Dept., Colquitt EMC, Georgia Power
Anticipated Cost	$50,000
Existing & Potential Funding Sources	General Funds and private business funding
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 10: Seek funding to retrofit public buildings to reinforce windows, roofs and doors.	
Responsible Department	Building Inspections Office, BC Schools, hospitals
Anticipated Cost	$500,000
Existing & Potential Funding Sources	DOHS - GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 11: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.	
Responsible Department	Building Inspections Office
Anticipated Cost	$10,000
Existing & Potential Funding Sources	DOHS- GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 12: Review building codes for proper wind strength and safety regulations and for consistency with state and federal regulations.	
Responsible Department	Building Inspections Office, County Manager, City Managers
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 13: Construct a WeatherSTEM station in Brooks County, Barwick, Morven, Pavo & Quitman	
Responsible Department	EMA, County Manager, City Managers
Anticipated Cost	$10,000 per unit
Existing & Potential Funding Sources	GEMA and FEMA Grants
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	New

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy:

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 3: Educate homeowners and builders on individual safe rooms.	Removed - Completed

Action Step	Changes
Action Step 3. Ensure % of city leaders of Brooks, Barwick, Morven, Pavo & Quitman receive required NIMS training. In addition, hospital, nursing homes & first responders receive this training.	New Action Step
Action Step 4: Distribute programs on personal emergency preparedness, i.e., emergency survival kits to website, brochure, & social media.	Updated wording
Action Step 5: Encourage the American Red Cross to teach the Citizen's Disaster Course on a frequent basis.	Updated Cost & Funding
Action Step 7: Increase public awareness of the Early Warning Communication/Notification System, NOAA weather radios, and available community safe shelters by publishing articles on websites, social media, in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools.	Updated wording
Action Step 8: Install auxiliary, mobile, and/or fixed generators (including transfer switches) where needed, including all designated evacuation and emergency shelters, community water systems, and critical facilities.	Updated Cost
Action 11: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.	Updated Cost
Action Step 13: Construct a weatherSTEM station in Brooks County, Barwick, Morven, Pavo & Quitman	New Action Step

Section II. Tornadoes

A. Community Mitigation Goals

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

B. Identification and Analysis of Comprehensive Range of Mitigation Options

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

5. Existing Buildings and Infrastructure:

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

C. Mitigation Strategy and Recommendation:

Goal 2.1: Enhance the ability of the Brooks County Emergency Management Agency to respond effectively and efficiently to emergency needs during and after a tornado event.

Objective 2.1.1: Ensure that community facilities and programs are in place to facilitate EMA's emergency response.

Action Step 1: Become a designated "StormReady Community."	
Responsible Department	EMA, County Manager
Anticipated Cost	Staff Time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 2: Implement the "Community Emergency Response Team" (CERT) program.	
Responsible Department	EMA, County Manager
Anticipated Cost	$5,000
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Goal 2.2: Reduce the risks and vulnerability of citizens and critical facilities to tornado damage.

Objective 2.2.1: Protect the life, health, and property of residents from the force of tornadoes.

Action Step 4: Distribute program materials on personal emergency preparedness, e.g., emergency survival kits.	
Responsible Department	EMA
Anticipated Cost	$1,000
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 5: Encourage the American Red Cross to teach the Citizen's Disaster Course on a frequent basis.	
Responsible Department	EMA
Anticipated Cost	$10,000
Existing & Potential Funding Sources	General Funds, GEMA, & FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 6: Encourage businesses to develop emergency plans.	
Responsible Department	EMA
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 7: Increase public awareness of the Early Warning Communication/Notification System, NOAA weather radios, and available community safe shelters by publishing articles in the local newspaper, websites, & social media, holding town hall meetings, and providing bulletins to local churches and the schools.	
Responsible Department	EMA, Media
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 8: Install auxiliary, mobile, and/or fixed generators (including transfer switches) where needed, including all designated evacuation and emergency shelters, community water systems, and critical facilities.	
Responsible Department	EMA, ARC, Shelter Owners, City of Quitman, Colquitt EMC, Georgia Power, county and city managers
Anticipated Cost	$700,000
Existing & Potential Funding Sources	DOHS-GEMA, FEMA,
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 9: Trim tree lines around roads, homes, utilities and businesses.	
Responsible Department	City of Quitman, Brooks County Road Dept., Colquitt EMC, Georgia Power
Anticipated Cost	$50,000
Existing & Potential Funding Sources	General Funds and business funding
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 10: Seek funding to retrofit public buildings to reinforce windows, roofs and doors.	
Responsible Department	Building Inspections Office, BC Schools, Hospital
Anticipated Cost	$500,000
Existing & Potential Funding Sources	DOHS-GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 11: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.	
Responsible Department	Building Inspections Office
Anticipated Cost	$10,000
Existing & Potential Funding Sources	DOHS-GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 12: Review building codes for proper wind strength and safety regulations and for consistency with state and federal regulations.	
Responsible Department	Building Inspections Office, County Manager, City Managers
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy:

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 1: Become a designated "StormReady Community."	Formerly Action Step 3.2.2
Action Step 2: Implement the "Community Emergency Response Team" (CERT) program.	Formerly Action Step 3.2.3
Action Step 3: Educate homeowners and builders on individual safe rooms.	Removed - Completed
Action Step 3: Distribute program materials on personal emergency preparedness, e.g., emergency survival kits.	Formerly Action Step 4
Action Step 4: Encourage the American Red Cross to teach the Citizen's Disaster Course on a frequent basis.	Formerly Action Step 5; Updated funding
Action Step 5: Encourage businesses to develop emergency plans.	Formerly Action Step 6
Action Step 6: Increase public awareness of the Early Warning Communication/Notification System, NOAA weather radios, and available community safe shelters by publishing articles on websites, social media, in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools.	Formerly Action Step 7: Updated wording
Action Step 7: Install auxiliary, mobile, and/or fixed generators (including transfer switches) where needed, including all designated evacuation and emergency shelters, community water systems, and critical facilities.	Formerly Action Step 8; Updated costs & funding
Action Step 8: Trim tree lines around roads, homes, utilities and businesses.	Formerly Action Step 9
Action Step 9: Seek funding to retrofit public buildings to reinforce windows, roofs and doors.	Formerly Action Step 10; Updated Departments
Action Step 10: Initiate an inspection program at critical facilities to identify construction weaknesses subject to high wind damage.	Formerly Action Step 11; Updated Costs
Action Step 11: Review building codes for proper wind strength and safety regulations and for consistency with state and federal regulations.	Formerly Action Step 12

Section III. Wildfire

A. Community Mitigation Goals

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

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

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

5. Existing Buildings and Infrastructure:

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

C. Mitigation Strategy and Recommendation

Goal 3.1: Prevent damage resulting from wildfires, reduce the threat of wildfires, and protect the life and property of residents from wildfires in Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman.

Objective 3.1.1: Minimize the threat of wildfires to persons and properties in the community.

Action Step 1: Identify specific mitigation projects for funding assistance.	
Responsible Department	EMA, County Manager, City Managers, City Councils
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 2: Update the Community Wildfire Protection Plan.	
Responsible Department	Georgia Forestry Commission
Anticipated Cost	Staff time
Existing & Potential Funding Sources	Georgia Forestry Commission
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 3: Purchase 2 Tanker Pumpers	
Responsible Department	Brooks County
Anticipated Cost	$1.1 million
Existing & Potential Funding Sources	General funds, DOHS – GEMA,FEMA, AFG
Jurisdiction	Brooks County
Timeframe	2024-2029
Priority	High
Status	New

Action Step 4: Purchase 2 Fire Engines	
Responsible Department	Quitman Fire Department
Anticipated Cost	$500,000 each
Existing & Potential Funding Sources	General funds, DOHS – GEMA,FEMA, AFG
Jurisdiction	City of Quitman
Timeframe	2024-2029
Priority	High
Status	New

Action Step 5: Construct a new fire station for the City of Quitman	
Responsible Department	Quitman Fire Department
Anticipated Cost	$500,000
Existing & Potential Funding Sources	General funds, DOHS – GEMA,FEMA, AFG
Jurisdiction	City of Quitman
Timeframe	2024-2029
Priority	Medium
Status	New

Action Step 6: Lower ISO rating for the City of Quitman by inventorying & evaluating water system piping to determine sizes and conditions of the existing system and determine which pipes needs to be replaced for higher water flow to meet the requirement of the ISO rating system.	
Responsible Department	Quitman Fire Department
Anticipated Cost	$50,000
Existing & Potential Funding Sources	General funds, DOHS – GEMA,FEMA, AFG
Jurisdiction	City of Quitman
Timeframe	2024-2029
Priority	Medium
Status	On-going

Action Step 7: Expand dry hydrant capabilities by installing fire department connections on 25 deep pit wells, along with three 10,000 gallons storage tanks at the existing fire stations.	
Responsible Department	Fire Departments, EMA
Anticipated Cost	$100,000
Existing & Potential Funding Sources	General funds, DOHS – GEMA,FEMA, AFG
Jurisdiction	Brooks County
Timeframe	2024-2029
Priority	High
Status	On-going

Action Step 8: Replace Antiquated Water and Sewer lines and equipment prone to failure in Brooks County and the cities of Barwick, Morven, Pavo, and Quitman	
Responsible Department	Local Government
Anticipated Cost	$10,000,000.00
Existing & Potential Funding Sources	General funds, and CDBG funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	New

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy:

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 3: Purchase 3 fire engines	Removed - Completed
Action Step 3: Purchase 2 Tanker Pumpers	New Action Step
Action Step 4: Construct County-Operated EMS Facility	Completed
Action Step 4: Purchase 2 Fire Engines	Replaced Action Step 4 with new action step
Action Step 6: Lower ISO rating for the City of Quitman by inventorying & evaluating water system piping to determine sizes and conditions of the existing system and determine which pipes needs to be replaced for higher water flow to meet the requirement of the ISO rating system.	Updated wording to specify
Action Step 7: Expand dry hydrant capabilities and Investigate options for fitting deep pit wells with attachments for firefighting.	Updated wording
Action Step 8: Replace Antiquated Water and Sewer lines and equipment prone to failure in Brooks County and the cities of Barwick, Morven, Pavo, and Quitman	New Action Step

Section IV. Lightning

A. Community Mitigation Goals

As previously indicated in Chapter 2, this hazard may cause substantial damage to life, property, and the economy in Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. Lightning is unpredictable and can happen at any place and at any time. Because of the potential for injury, death, and property damage, the HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps contained in Section C below should be implemented to reduce this hazard's potential impact on the community.

B. Identification and Analysis of Comprehensive Range of Mitigation Options

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

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

C. Mitigation Strategy and Recommendation:

Goal 4.1: Protect Citizens of Brooks County from the threat of lightning strikes.

Objective 4.1.1: Provide tools necessary for warning of lightning strikes.

Action Step 1: Educate public on the risks of lightning through social media posts.	
Responsible Department	EMA, Hospital
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 2: Make lightning warning system information available to other entities having significant outdoor activities such as golf courses, businesses, airports, etc through weatherSTEM.	
Responsible Department	EMA
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 3: Essential and critical facilities with critical electronics should install a lighting protection system.	
Responsible Department	Building Inspections
Anticipated Cost	$1.5-2 million
Existing & Potential Funding Sources	DOHA-GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	New

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy:

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 1: Educate public on the risks of lightning through social media posts.	Update wording; departments
Action Step 2: Make lightning warning system information available to other entities having significant outdoor activities such as golf courses, businesses, airports, etc through weatherSTEM.	Update wording
Action Step 3: Anywhere with critical electronics install a lighting protection system. Priority on essential and critical facilities.	New action step

Section V. Floods

A. Community Mitigation Goals

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

The major flooding sources in Brooks County are the Withlacoochee River and Little River, which runs along the eastern border of the county and Okapilco Creek and flows through in the middle of the county. The southern boundary interfaces with Florida. The majority of Brooks County, northwestern portion, central Brooks County and the southeastern corner, is located in the Withlacoochee River sub-basin of the Suwannee River basin. Most of the southern end is located within the Aucilla River sub-basin of the larger Aucilla-Waccasassa basin. The northeastern portion of the county is located in the Little River sub-basin of the Suwannee River basin. Due to these facts, the Brooks County HMPUC believes that the comprehensive range of Mitigation Goals, Objectives, and Action Steps listed below should be implemented to reduce the threat of flood damage in Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman.

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

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

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

C. Mitigation Strategy and Recommendations:

Goal 5.1: Minimize flood damage in Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman.

Objective 5.1.1: Minimize losses to existing and future structures, especially community critical facilities, due to localized flooding caused by excessive rainfall, and river flooding.

Action Step 1: Petition FEMA to update local Flood Insurance Rate (FIRM) Maps.	
Responsible Department	EMA, Zoning Inspections Officer
Anticipated Cost	Staff Time
Existing & Potential Funding Sources	GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 2: Review data on storm events to determine where repetitive localized flooding occurs as a result of inadequate drainage infrastructure.	
Responsible Department	EMA, County Engineer, Brooks County Road Dept
Anticipated Cost	Staff Time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 3: Identify and pursue grant opportunities to upgrade deficient drainage systems.	
Responsible Department	EMA
Anticipated Cost	$4,000,000
Existing & Potential Funding Sources	General Funds, GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 4: Utilize GIS data to determine possible locations for flood containment areas.	
Responsible Department	EMA
Anticipated Cost	$20,000
Existing & Potential Funding Sources	General Funds, Grants
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Objective 5.1.2: Protect and preserve flood-prone areas for green space use, such as community parks and recreation areas.

Action Step 5: Monitor comprehensive land use plans to ensure mapping of lands to be permanently protected.	
Responsible Department	Planning Commission & Planning and Zoning Administrator
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 6: Monitor existing subdivision regulations to promote conservation of floodplains, wetlands, and groundwater recharge areas.	
Responsible Department	Planning Commission & Planning & Zoning Administrator
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 7: Seek funding from private foundations, individuals, federal and state grants, and local communities to leverage available green space grant funds.	
Responsible Department	EMA, County Engineer
Anticipated Cost	$2,000,000
Existing & Potential Funding Sources	USDA, GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 8: Repair storm drain covers/grate where broken or drained	
Responsible Department	Brooks County, Barwick, Morven, Pavo, Quitman
Anticipated Cost	$8,100 per drain
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	New

Action Step 9: Continue compliance with NFIP through review, adoption and updates to flood protection ordinances and maps, and work towards database to record depth of flooding in order to determine extent and possible damage.	
Responsible Department	EMA, Brooks County, City of Barwick, City of Morven, City of Pavo, City of Quitman
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy.

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 2: Review data on storm events to determine where repetitive localized flooding occurs as a result of inadequate drainage infrastructure.	Updated departments
Action Step 4: Utilize GIS data to determine possible locations for flood containment areas.	Updated cost
Action Step 5: Monitor comprehensive land use plans to ensure mapping of lands to be permanently protected.	Updated Department
Action Step 6: Monitor existing subdivision regulations to promote conservation of floodplains, wetlands, and groundwater recharge areas.	Updated Department
Action Step 8: Educate public and private organizations on methods for preserving parks and recreation areas.	Removed - Completed
Action Step 8: Repair storm drain covers/grate where broken or drained	Replaced action step 8 with new action step

Action Step	Changes
Action Step 9: Continue compliance with NFIP through review, adoption and updates to flood protection ordinances and maps, and work towards database to record depth of flooding in order to determine extent and possible damage.	Updated Priority

Section VI. Excessive Heat/Frost Freeze

A. Community Mitigation Goals

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

B. Identification and Analysis of Comprehensive Range of Mitigation Options

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

5. Existing Buildings and Infrastructure:

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

C. Mitigation Strategy and Recommendation:

Goal 6.1: Ensure the citizens of Brooks County are warned of conditions of extreme heat.

Objective 6.1.1: Employ methodology for determining "Heat Stress" days in Brooks County and forecasting the danger.

Action Step 1: Identify and designate emergency shelters, in consultation with appropriate organizations (Senior Citizen Centers, hospitals, churches, health department, etc.), and promote their use during extreme heat events.	
Responsible Department	EMA
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	New

Action Step 2: Educate the community of heat risks, via brochures, announcements, etc.	
Responsible Department	EMA
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	New

Action Step 3: Annex behind the agricultural building will have free water distribution for local pick up in times designated for extreme heat.	
Responsible Department	EMA, Fire Department staff
Anticipated Cost	Staff Time
Existing & Potential Funding Sources	GEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	As Needed
Status	New

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy:

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 3: Purchase diffusers for fire hydrants.	Removed-Completed
Action Step 3: Annex behind the agricultural building will have free water distribution for local pick up in times designated for extreme heat.	Replaced Action Step 3 with new action step

Section VII. Drought

A. Community Mitigation Goals

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

B. Identification and Analysis of Comprehensive Range of Mitigation Options

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

5. Existing Buildings and Infrastructure:

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

C. Mitigation Strategy and Recommendations

Goal 7.1: Protect Brooks County from the effects of drought conditions.

Objective 7.1.1: Ensure adequate drinking water supply is available during drought conditions.

Action Step 1: Develop a comprehensive study that will allow community leaders to understand when public and domestic underground water systems' water levels are threatened.	
Responsible Department	EMA, City of Quitman, City of Pavo, City of Morven, City of Barwick, Health Dept.
Anticipated Cost	$20,000
Existing & Potential Funding Sources	US EPA GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 2: Apply for a mitigation grant to finance a study of underground water levels, weather conditions, and usage that will forecast threats to public and domestic water systems.	
Responsible Department	EMA, City of Quitman, City of Pavo, City of Morven, City of Barwick, Health Dept.
Anticipated Cost	$20,000
Existing & Potential Funding Sources	US EPA, GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

Action Step 3: After the development of the comprehensive study of underground water supplies serving the public and domestic water systems, develop a tiered plan to provide temporary water supplies for domestic consumption on an as needed basis.	
Responsible Department	EMA, City of Quitman, City of Pavo, City of Morven, City of Barwick, Health Dept.
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy:

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 1-3: Develop a comprehensive study that will allow community leaders to understand when public and domestic underground water systems' water levels are threatened.	No changes
Action Step 2: Apply for a mitigation grant to finance a study of underground water levels, weather conditions, and usage that will forecast threats to public and domestic water systems.	No changes
Action Step 3: After the development of the comprehensive study of underground water supplies serving the public and domestic water systems, develop a tiered plan to provide temporary water supplies for domestic consumption on an as needed basis.	No changes

Chapter 5.
Local Technological Hazard Mitigation Goals and Objectives

Overall Community Mitigation Goals, Policies, and Values Narrative

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

Goal 1: Protect the public health and safety;

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

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

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

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

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

Section I. Hazardous Materials Release

A. Community Mitigation Goals

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

B. Identification and Analysis of Comprehensive Range of Mitigation Options

1. Structural and Non-Structural Mitigation:

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

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

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

3. Community Values, Historic and Special Considerations:

Historic buildings exist in the community, a few of which are Critical Facilities. There are historic and special considerations that pose significant challenges with regard to the retrofitting of historic buildings in order to make them more resilient to natural hazards. The Quitman Historic District is listed in the National Register of Historic Places, as are several individual properties in Brooks County.

4. New Buildings and Infrastructure:

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

5. Existing Buildings and Infrastructure:

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

C. Mitigation Strategy and Recommendations

Goal 1.1: Protect the health and safety of residents of Brooks County.

Objective 1.1.1: Enhance the ability of the Brooks County Emergency Management Agency to coordinate effectively and efficiently the emergency response during and after a hazardous materials release.

Action Step 1: Continue to train Hazmat responders	
Responsible Department	EMA, City & County Managers
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Objective 1.2: Minimize the effect of hazardous material spills.

Action Step 2: Maintain HazMat response training	
Responsible Department	EMA, City and County Managers, Fire Departments
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 3: Seek funding to expand HazMat training to first responders (fire, police, sheriff, EMS)	
Responsible Department	EMA, City and County Managers, Fire Departments
Anticipated Cost	Staff time
Existing & Potential Funding Sources	HMEP, FEMA, GEMA, DHS and general funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 4: Increase public awareness and procedures to follow if a hazardous material spill event occurs by publishing articles in the local newspaper, holding town hall meetings, radio announcements and providing bulletins to local churches and schools.	
Responsible Department	EMA
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds, GEMA, FEMA
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 5: Train local government officials on proper response procedures for hazardous material spill events.	
Responsible Department	Local Emergency Operations Planning Committee, EMA, Fire Departments
Anticipated Cost	Staff time
Existing & Potential Funding Sources	HMEP, General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 6: Review and update Standard Operating Procedures (SOP) for responding to a hazardous material spill event.	
Responsible Department	Local Emergency Operations Planning Committee, EMA, Fire Departments
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 7: Provide workplace training on decontamination steps.	
Responsible Department	Local Emergency Operations Planning Committee, EMA, Fire Departments
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	High
Status	Ongoing

Action Step 8: Review annually all hazardous material transportation routes (relocate routes if necessary)	
Responsible Department	Local Emergency Operations Planning Committee, EMA, GDOT
Anticipated Cost	Staff time
Existing & Potential Funding Sources	General Funds
Jurisdiction	Brooks County, Barwick, Morven, Pavo, Quitman
Timeframe	2024-2029
Priority	Medium
Status	Ongoing

D. Special Multi-Jurisdictional Strategy and Considerations:

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

E. Local Public Information and Awareness Strategy:

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

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

F. Changes from the Previous Plan

Action Step	Changes
Action Step 1: Continue to train Hazmat responders	Formerly Action Step 10.2.1
Action Step 2: Maintain HazMat response training	Formerly Action Step 10.3.1
Action Step 3: Seek funding to expand HazMat training to first responders (fire, police, sheriff, EMS)	Formerly Action Step 10.3.2
Action Step 4: Increase public awareness and procedures to follow if a hazardous material spill event occurs by publishing articles in the local newspaper, holding town hall meetings, radio announcements and providing bulletins to local churches and schools.	Formerly Action Step 10.3.3
Action Step 5: Train local government officials on proper response procedures for hazardous material spill events.	Formerly Action Step 10.3.4
Action Step 6: Review and update Standard Operating Procedures (SOP) for responding to a hazardous material spill event.	Formerly Action Step 10.3.5
Action Step 7: Provide workplace training on decontamination steps.	Formerly Action Step 10.3.7
Action Step 8: Review annually all hazardous material transportation routes (relocate routes if necessary)	Formerly Action Step 10.3.8

Chapter 6:
Executing The Plan

Summary of changes:

- Revised and updated language.

Section I.
Implementation of the Action Plan

A. Administrative Actions

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

B. Authority and Responsibility

The Brooks County Commission and the Cities of Barwick, Morven, Pavo, and Quitman have authorized the submission of this Plan to both GEMA and FEMA for approval.

As determined by the City and County governments and the HMPUC, the Brooks County EMA Director will be responsible for this Plan and its continued usage as a planning document. The EMA Director will oversee implementation, monitoring, and updates for all jurisdictions. The respective jurisdictions will be responsible for the implementation of their specific mitigation activities as proposed in this plan.

C. Prioritization

1. Methodology for Prioritization

In prioritizing the implementing of the action steps identified in this plan, those hazards deemed to pose the greatest threat will be given the primary consideration. In prioritizing the implementation feasibility of the action steps and projects, local governments will take into consideration the additional factors of cost and time. Those activities requiring smaller amounts of money and staff time to implement will be given highest implementation priority. Those steps requiring additional funding for equipment or staff time beyond the normal budgets of the communities will be incorporated into the budget process, when possible, based on the cost-benefit analysis described below.

2. Use of Cost Benefit Analysis

The data provided in Worksheet 3 will be utilized to quantify the number of persons and/or property at risk from each hazard. Combined with the criteria in Worksheet 4, this will

allow local governments to assess the potential value of at-risk properties and the resulting benefits from the proposed action steps.

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

3. Use of Other Calculations
Additional calculations that were performed included: Availability of potential funding sources; overall feasibility; measurable milestones; public and political support for the proposed actions; and the STAPLEE criteria.

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

D. Incorporation of Local Hazard Mitigation Plan into other Plans/Planning Measures

An important implementation mechanism that is highly effective and low-cost is the incorporation of the goals, objectives, and recommendations of this hazard mitigation plan into other local plans and policies.

The former Brooks County Hazard Mitigation Plan 2019-2024, was unfortunately not specifically integrated into other Brooks County planning mechanisms, but the newly adopted Hazard Mitigation Plan, 2024-2029 should be considered in the updates of the Brooks County Comprehensive Plan FY28 - FY32 and any other local plans that can relate to the hazard mitigation plan.

As previously stated, mitigation is most successful when it is incorporated into the day-to-day functions of the EMA Director and local officials. It will be the responsibility of the HMPC representatives from each participating jurisdiction to determine and pursue opportunities for integrating the requirements of this plan with other local planning documents and ensure that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the most current Hazard Mitigation Plan.

This Plan will be reviewed by Brooks County and the Cities of Barwick, Morven, Pavo, and Quitman. The requirements of this Hazard Mitigation Plan will be taken into consideration and will be incorporated into Comprehensive Plans, Five-Year Short-Term Work Program, Capital Improvement Plans, Local Emergency Operations Plans, and all other such Plans as appropriate.

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

To facilitate inclusion of this Plan, the Brooks County Commission and the Cities of Barwick, Morven, Pavo, and Quitman will provide a copy of this Plan to the persons and/or committees responsible for writing and updating plans.

Section II.
Evaluation and Monitoring

A. Method

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

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

B. Criteria Used to monitor and evaluate the plan

The major criteria to measure plan success will be the number of goals, objectives, and action steps, or components thereof, that have been completed, which in turn will result in savings of life, money, and property. The Brooks County EMA Director will communicate with each participating city and the Brooks County Commissioners on the effectiveness of the plan mitigation planning and for pre and post natural disaster events and update the plan as necessary between required 5-year updates.

Section III.
Plan Update and Maintenance

A. Public Involvement

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

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

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

- The public will be directly involved in the update and review of the Plan.
- Copies of the plan will be kept on hand at appropriate agencies throughout the community.
- The plan will be available City, County, and/or Regional Commission websites, and will contain an e-mail address and phone number the public can use for submitting comments and concerns about the plan.
- A public meeting will be held annually to provide the public with a forum for expressing concerns, opinions, and ideas. The EMA will set meeting schedules and dates and use County resources to publicize and host this meeting.

B. Timeframe

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

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

Chapter 7:
Conclusion

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

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

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

References

Brooks County Board of Tax Assessors (http://www.qpublic.net/ga/Brooks/)

Brooks County website (http://www.brookscountyga.us/)

City of Barwick website (http://www.barwickga.com/)

City of Quitman website (http://www.cityofquitmanga.com)

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https://www.nhc.noaa.gov/aboutgloss.shtml

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FEMA Community Status Book Report – Communities Participating in the National Flood Insurance Program
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NOAA National Weather Service Heat Index
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https://www.weather.gov/safety/heat-ww

Southeast Regional Climate Center
https://sercc.com/drought-maps/

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Appendices

Appendix Contents

3. Floods – NOAA data
4. Lightning – NOAA data
5. Extreme Heat – NWS data
6. Wildfires – GFC data
7. Drought – NOAA data
8. Hazardous Materials Release – USDOT data

II. Critical Facilities Inventory

Appendix G. HAZUS Report

Appendix H. Tri-fold Brochure for General Public