DOUGHERTY COUNTY HAZARD MITIGATION PLAN UPDATE 2020 - 2025

Dougherty County Emergency Management Agency

Lux Mitigation and Planning Corp.

Dougherty County, Georgia

Hazard Mitigation Plan Update

2020 – 2025

Prepared for the Dougherty County Board of Commissioners

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Dougherty County's
Hazard Mitigation Plan Update 2020

This document was funded in part by the Hazard Mitigation Planning Grant awarded to the Dougherty County Emergency Management Agency by the Georgia Emergency Management Agency (GEMA) to fulfill the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000). Dougherty County's Hazard Mitigation Plan 2015 was updated by the Dougherty County Hazard Mitigation Plan Update Committee and was prepared by Lux Mitigation and Planning Corp. For additional information, please contact Dougherty County Emergency Management Agency.

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Resolution – Dougherty County

RESOLUTION – DOUGHERTY COUNTY, GEORGIA

DOUGHERTY COUNTY HAZARD MITIGATION PLAN 2020-2025

WHEREAS, Dougherty County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Dougherty County 2020 Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Board of Commissioners of Dougherty County, Georgia, that:

1) Dougherty County, Georgia, has adopted the Dougherty County 2020 Hazard Mitigation Plan; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Dougherty County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Board of Commissioners of Dougherty County, Georgia, in regular session this _____ day of _____, 20_____.

_____ _____

Chairperson County Clerk

Resolution – Dougherty County Municipalities

Requirement §201.6(c)(5)

RESOLUTION – CITY OF ALBANY, GEORGIA

DOUGHERTY COUNTY HAZARD MITIGATION PLAN 2020-2025

WHEREAS, Dougherty County and its municipalities recognize that it is threatened by several different types of natural and man-made hazards that can result in loss of life, property loss, economic hardship and threats to public health and safety; and

WHEREAS, the Federal Emergency Management Agency (FEMA) has required that every county and municipality have a pre-disaster mitigation plan in place, and requires the adoption of such plans in order to receive funding from the Hazard Mitigation Grant Program; and

WHEREAS, a Hazard Mitigation Plan is a community's plan for evaluating hazards, identifying resources and capabilities, selecting appropriate actions, and developing and implementing the preferred mitigation actions to eliminate or reduce future damage in order to protect the health, safety and welfare of the residents in the community; and

WHEREAS, the Dougherty County 2020 Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 CFR 201.6; and

WHEREAS, the Plan will be updated every five years;

NOW, THEREFORE, BE IT *RESOLVED*, by the Mayor and City Commission of Albany, Georgia, that:

1) The City of Albany, Georgia, has adopted the Dougherty County 2020 Hazard Mitigation Plan; and

2) It is intended that the Plan be a working document and is the first of many steps toward improving rational, long-range mitigation planning and budgeting for Dougherty County and its municipalities.

PASSED, APPROVED AND ADOPTED by the Mayor and Commission of the City of Albany, Georgia, in regular session this ____ day of _____, 2021.

_____ _____

Mayor City Clerk

Preface

Mitigation Vision for the Future

Emergency Managers succeed or fail based on how well they follow the following fundamental principles of emergency management, mitigation, preparedness, response, and recovery. Purposefully, our emergency management forefathers put the word mitigation first as a "means" to prevent or minimize the effects of disasters.

Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard mitigation focuses attention and resources on community policies and actions that will produce successive benefits over time. A mitigation plan states the aspirations and specific courses of action that a community intends to follow to reduce vulnerability and exposure to future hazard events. These plans are formulated through a systematic process centered on the participation of citizens, businesses, public officials, and other community stakeholders.

Mitigation forms, or should form, the very foundation of every emergency management agency. To reduce, minimize, or eliminate hazards in their communities, emergency management agencies adopt and implement mitigation practices. The Federal DMA 2000 sets the benchmark and outlines the criteria for communities with the vision to implement hazard mitigation practices in their communities.

Dougherty County and its municipalities realize the benefits achieved by the development and implementation of mitigation plans and strategies in their community. Dougherty County's elected officials, public safety organizations, planners, and many others have proven that by working together towards the development and implementation of this plan, they can reduce the loss of life and property in their communities.

The jurisdictions covered by this plan include the following:

Dougherty County
City of Albany

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CHAPTER THREE – HAZARD PROFILES (CONTINUED)

APPENDICIES

CHAPTER ONE
–
INTRODUCTION

Summary of Updates for Chapter One

The following table provides a description of each section of this chapter and a summary of the changes that have been made to the Dougherty County Hazard Mitigation Plan 2015.

Chapter 1 Section	Updates
Introduction	• Identification of Mitigation Goals
Authority	• New Section – Not in 2015 Plan
Funding	• New Section – Not in 2015 Plan
Scope	• Verbiage updated
Purpose	• Verbiage updated
Consistency with Federal Guidelines	• New Section – Not in 2015 Plan
Plan Review	• Verbiage updated • Updated mitigation meeting dates for the 2020 planning process
Hazard Mitigation Plan Update Committee	• Updated committee list to match the 2020 planning participants • Updated to meet Federal guidelines
Public Participation	• Updated to match the 2020 planning process
Multi-Jurisdictional Considerations	• Updated with requirement descriptions
Incorporation of Existing Plans, Studies, and Resources	• New Section – Not in 2015 Plan

Introduction

The Dougherty County Hazard Mitigation Plan Update is the first phase of a multi-hazard mitigation strategy for the entire community. This Plan encourages cooperation among various organizations and crosses political sub-divisions. As written, this Plan fulfills the requirements of the Federal DMA 2000. DMA 2000 provides federal assistance to state and local emergency management agencies and other disaster response organizations to reduce damage from disasters. The Act is administered by GEMA and FEMA.

It is important that state and local government, public-private partnerships, and community citizens can see the results of these mitigation efforts; therefore, the goals and strategies need to be achievable. Dougherty County's Hazard Mitigation Plan Update Committee adopted the following goals during plan development:

GOAL 1 Maximize the use of all resources by promoting intergovernmental coordination and partnerships in the public and private sectors

GOAL 2 Harden communities against the impacts of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proven effective

GOAL 3 Reduce and, where possible, eliminate repetitive damage, loss of life and property from disasters

GOAL 4 Bring greater awareness throughout the community about potential hazards and the need for community preparedness

This plan complies with all requirements and scope of work as described in Dougherty County's Hazard Mitigation Grant application.

Authority

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The DMA 2000 is the latest legislation to improve the planning aspect of that process; it reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. The DMA 2000 establishes a pre-disaster hazard mitigation program and designates new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). Section 322 identifies the new requirements for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive mitigation plan prior to the disaster.

State and local communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities. To implement the new DMA 2000 requirements, FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities.

Developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans, Dougherty County's Updated Hazard Mitigation Plan will be brought forth to each participating jurisdiction in Dougherty County to be formally adopted. The Plan shall be routinely monitored and revised to maintain compliance with the following provisions, rules, and legislation:

Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390); and

FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201.

Funding

FEMA covers 75% of the total cost of the Plan Update. Dougherty County is responsible for 25% of the total cost of the Plan Update. If Dougherty County contributes that 25% through In-Kind services (meeting attendance, Plan Update review, employee/citizen time spent on project), then Dougherty County's out-of-pocket expense for Hazard Mitigation Plan Update would be $0 (zero).

Scope

The scope of the Dougherty County Hazard Mitigation Plan Update encompasses all areas of Dougherty County, including municipalities. The Plan identifies all natural and technological hazards that could threaten life and property in Dougherty County. The scope of this Plan includes both short and long-term mitigation strategies with implementation and possible sources of project funding.

The Hazard Mitigation Plan Update is organized to incorporate the requirements of Interim Final Rule 44 CFR 201.4.

Chapter One includes an overview of the Hazard Mitigation Plan Update, the overall goals of the plan, and details of the planning process as required by Interim Final Rule 44 CFR 201.4(c)(1).

Chapter Two of the Plan details the Dougherty County profile, including the demographics, municipalities, and history of the county.

Chapter Three identifies the risk assessment process, past natural hazard events with associated losses, and current natural hazard risks. Potential losses are also analyzed as required by Interim Final Rule 44 CFFR 201.4(c)(2). Additionally, Chapter Three identifies and analyzes potential technological hazards faced by Dougherty County.

Chapter Four identifies Dougherty County's hazard mitigation goals and objectives, mitigation strategies and actions, and sources of potential funding for mitigation projects as required by Interim Final Rule 44 CFR 201.4(c)(3).

Chapter Five identifies the maintenance and implementation strategies for the Plan. The process for evaluation of the Hazard Mitigation Plan implementation progress is also detailed as required by Interim Final Rule 44 CFR 201.4(c)(4) and (5).

Purpose

The purpose of the Dougherty County Hazard Mitigation Plan Update is to:

- Protect life, promote safety, and preserve property by reducing the potential for future damages and economic losses that result from natural and technological hazards;
- Make communities in Dougherty County safer places to live, work, and play;
- Qualify for grant funding in both the pre-disaster and post-disaster environments;
- Speed the recovery and redevelopment process following future disaster events;
- Demonstrate a firm local commitment to hazard mitigation principles; and
- Comply with state and federal legislative requirements for local multi-jurisdictional hazard mitigation plans.

Consistency with Federal and State Mitigation Policies

The Plan is intended to enhance and complement state and federal recommendations for the mitigation of natural and technological hazards in the following ways:

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

FEMA publishes several guidance documents for local governments on mitigating natural disasters. The updated Dougherty County Hazard Mitigation Plan recognizes, adopts, incorporates, and endorses the following principles:

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

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

- Develop mitigation incentives with insurance agencies and lending institutions;

- Encourage the creation of a business continuity plan for the continuance of commerce during and following a disaster; and

- Partner with local businesses to educate customers about potential hazards in the community and possible mitigation ideas.

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

- Become educated on the hazards that may impact your community;

- Become part of the process by supporting and encouraging mitigation programs that reduce vulnerability to disasters; and,

- An individual's responsibility is to safeguard his/her family, as well as themselves, prior to a disaster event.

Plan Review

Requirement §201.6(c)(1)

The contractor, Lux Mitigation and Planning, had the primary responsibility for collecting updated information and presenting pertinent data to the Plan Update Committee. An online, Dropbox folder was created for Dougherty County's Plan Update. The approved 2015 Hazard Mitigation Plan was uploaded to the Dropbox folder, and the link to the folder was emailed to all members of the Hazard Mitigation Plan Update Committee. Each chapter of the 2015 Plan was reviewed. Hazard vulnerability and risk assessment data was updated, as was critical infrastructure information.

Special attention and consideration were given to the review and edit of mitigation strategies listed in the 2015 Plan. The Plan Update Committee examined each strategy and determined whether the strategy had been completed, needed to be modified, was in progress, or no longer applied. The Committee was highly encouraged to create new mitigation strategies to meet the current needs of the county and municipalities. Mitigation strategies from other Georgia counties were reviewed to help with the creation of new strategies. When the Committee agreed a new mitigation action would be beneficial, it was tailored to Dougherty County's needs and was included in the 2020 Plan. The contractor sent the Committee, including sporadically attending participants, regular emails which contained a Dropbox link to the most updated version of the Plan and encouraged the Committee to thoroughly critique each version.

Dougherty County's Hazard Mitigation Plan Update Meeting Dates:

Wednesday, July 15, 2020	Kick-Off Welcome!
Wednesday, August 19, 2020	Hazard Identification and Prioritization; Update Critical Facilities Information
Wednesday, September 16, 2020	Community Risk Assessment Analysis; Continue to Review and Edit 2015 Hazard Mitigation Strategies
Wednesday, October 21, 2020	Finish up Review and Edit 2015 Hazard Mitigation Strategies; Identify New Mitigation Strategies
Wednesday, November 18, 2020	Review and Discuss 2020 Hazard Mitigation Plan - Draft; Update Plan Distribution List; Discuss Available Hazard Mitigation Grants

Thursday, February 25, 2021 Public Meeting #1 (Morning)

Thursday, February 25, 2021 Public Meeting #2 (Afternoon)

Each section of Dougherty County's 2015 Hazard Mitigation Plan has been revised in some manner. Therefore, a summary of those changes will be listed in the first section of each chapter. Significant additions/modifications to this Plan include the following:

- Addition of Winter Weather to Natural Hazards
- Addition of Wildfire to Natural Hazards
- Addition of Earthquake to Natural Hazards
- Addition of Tropical Cyclone to Natural Hazards
- Addition of Extreme Temperatures to Natural Hazards
- Addition of a Technological Hazards Section
- Addition of Hazardous Materials Incidents to Technological Hazards
- Addition of Dam Failure to Technological Hazards
- Addition of Transportation Incidents to Technological Hazards
- Addition of Terrorism to Technological Hazards
- Addition of Critical Infrastructure Failure to Technological Hazards
- Addition of Emergent Infectious Diseases to Technological Hazards

Hazard Mitigation Plan Update Participants

Requirement §201.6(b)(2)

The following 50 participants contributed to the update of Dougherty County's 2015 Hazard Mitigation Plan: *(in alphabetical order)*

Sam Allen
Director
Dougherty County Emergency Medical Services

Dr. Dwight L. Baker
Director
City of Albany Human Resources

Jeanna Barnes
Emergency Preparedness Director
Georgia Department of Public Health, District 8-2 Southwest

Brandy Barron
Administrative Assistant
Dougherty County Emergency Medical Services

Alphonso Bogans
General Supervisor
City of Albany Public Works, Street Department

Jeremy Brown
Project Engineer
Dougherty County Public Works, Engineering Department

Rodney Brown
Corporal
City of Albany Police Department

Sebon Burns
Deputy Chief
City of Albany Fire Department

Robert Carter
Chief Code Enforcement Officer
Dougherty County; City of Albany

Steven Carter
Chief Information Officer
City of Albany Technology and Communications Department

Sandra Cole
Region K Healthcare Coalition Facilitator
Georgia Department of Public Health, District 8-2 Southwest

Georgia Collier-Bolling
Director of Disaster Recovery and Grant Programs
Dougherty County Board of Commissioners

Troy L. Conley
Chief of Police
Dougherty County School System Police Department

John Dawson
Operations Manager
City of Albany Technology and Communications Department

Benita Dyes
Administrative Supervisor
Dougherty County Public Works

Gregory L. Elders Sr.
Chief of Police
Albany State University Police Department

Ken Faust
Captain; Uniform Division Commander
Dougherty County Sheriff's Office

Yvette Fields
Director
City of Albany Central Services Department

Paul Forgey
Director
City of Albany Planning and Development Services Department

Michael Fowler
Coroner
Dougherty County

LaTrena Greene
Administrative Assistant
City of Albany Fire Department

Tennasha Gresham
Superintendent of Operations
City of Albany Transportation Department

Jami Harper
Community Program Director
SOWEGA Council on Aging

Tina Harrell
Administrative Manager
City of Albany

Wendy Howell
Public Information Officer
Dougherty County Administration

Tateshea Irving
Assistant Chief
Dougherty County Police Department

Eddie Jones
Captain
City of Albany Police Department

Rubin Jordan
Assistant Fire Chief
City of Albany Fire Department

Vamella Lovett
Director
Dougherty County Health Department

Kenneth "Bruce" Maples
Managing Director
City of Albany Engineering and Planning Department

Carolyn Maschke
Public Information Officer/Risk Communicator
Georgia Department of Public Health, District 8-2 Southwest

Michael McCoy
County Administrator
Dougherty County Board of Commissioners

Lauren McGrath
Emergency Management Specialist
City of Albany Fire Department/ Emergency Management

Exylyn Mitchell
Materials Manager
City of Albany Central Services Department

Sonja Moody
Emergency Preparedness Interim Director
Georgia Department of Public Health, District 8-2 Southwest

Latonza Mosley
Administrative Manager
City of Albany Fire Department

Breanna Nixon
Manager, Workers' Compensation
City of Albany Risk Management Services Department

Jimmy Norman
Director of Utility Operations
City of Albany Utilities Department

Henry Jack Nutt
Energy Control/ SCADA Manager
City of Albany Utilities Department

Ryan Ramsey
Energy Control/SCADA Manager
City of Albany Utilities Department

Ricky Schutter
Emergency Management Specialist
Georgia Department of Public Health, District 8-2 Southwest

Cedric Scott
Director – Dougherty County Emergency Management Agency
Fire Chief – City of Albany Fire Department

Kathy Shemwell
Regional Director
Southwest Georgia Community Organizations Active in Disaster

Derrell Smith
Assistant Chief of Police
City of Albany Police Department

Ken Stock
Assistant City Manager
City of Albany

Sharon Subadan
City Manager
City of Albany

Rebecca Sullivan
Captain
The Salvation Army

Joria West
General Supervisor
City of Albany Public Works, Sewer Department

Phyllis Whitley-Banks
Public Information Officer/ Crisis Communications Manager
City of Albany

Hank Wilson
Emergency Preparedness Specialist 3
Georgia Department of Public Health, District 8-2 Southwest

The Plan Update Committee relied on their consultant to guide them through the update process. During meetings, the participants had productive discussions, expanded their professional networks, asked thoughtful questions, made important decisions, and provided critical input during key stages in the update process. Efforts were made to involve all county and municipal departments, as well as community organizations and local businesses, which may have a role in the implementation of mitigation actions and/or policies. These efforts included sending invitations via email to attend the Kick-off Meeting, sending reminder emails before each upcoming meeting, emailing pertinent information throughout the process, and requesting the review and critique of each chapter in the updated Plan.

All neighboring counties – Baker, Calhoun, Lee, Mitchell, Terrell, and Worth – were asked to peer review the 2020 Mitigation Plan draft. The Plan was sent to each County EMA office. Additionally, the EMA Directors from surrounding counties were asked to attend Plan Update Committee meetings in hopes they would share mitigation ideas from their own counties.

Public Participation

Requirement §201.6(b)(1)
State Requirement Element F2

Public awareness is a key component of any community's overall mitigation strategy. As citizens become more involved in decisions that affect their safety, they may develop a greater respect for the natural hazards present in their community, and thus, may take the steps necessary to reduce potential impacts of those hazards.

The following local organizations and businesses participated in the update of Dougherty County's 2015 Mitigation Plan: Albany State University, Salvation Army, Southwest Georgia Community Organizations Active in Disaster (COAD), and the SOWEGA Council on Aging

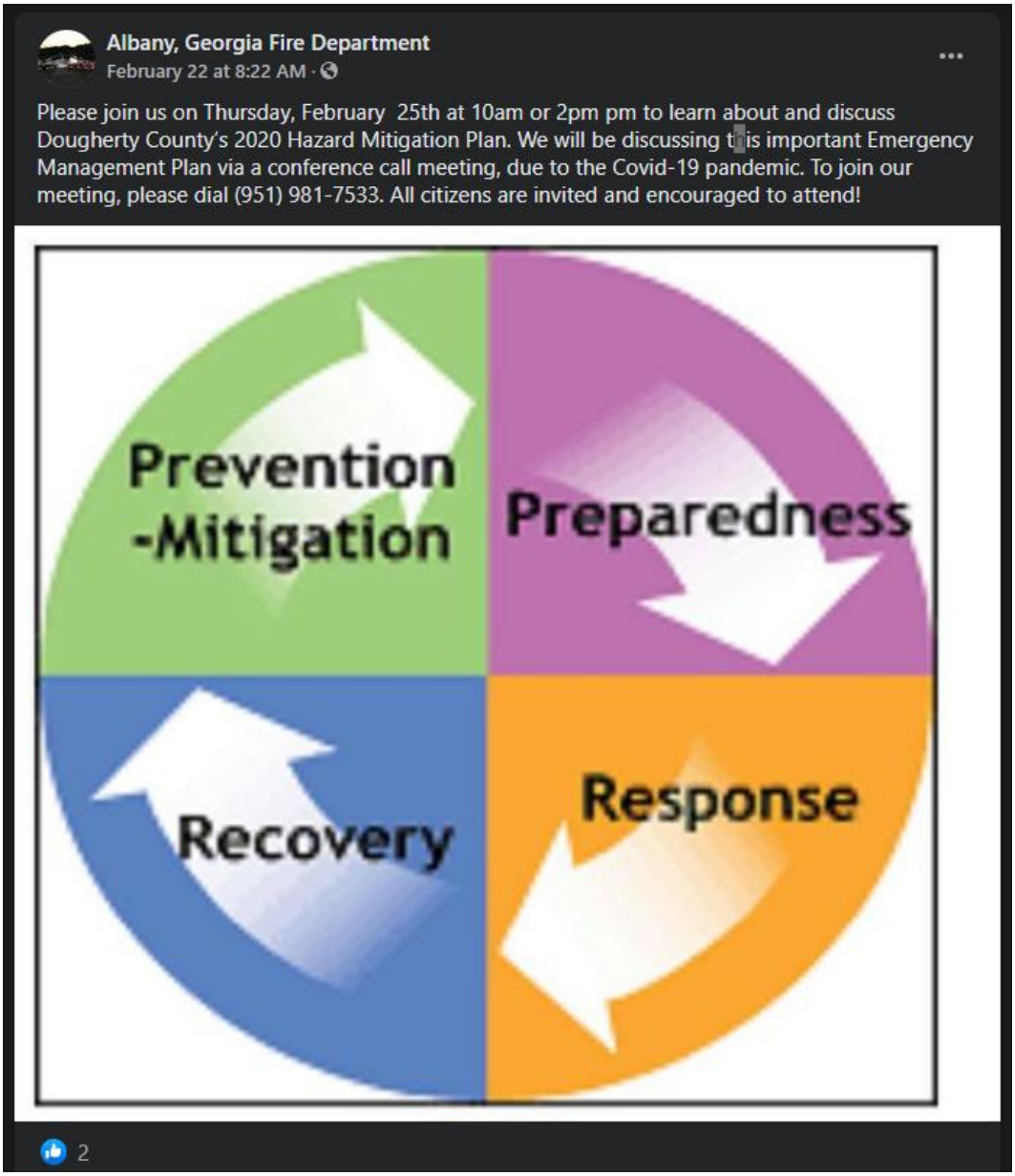
The Plan Update Committee took it upon themselves to ensure the processes undertaken for the development, implementation, and maintenance of the 2020 Hazard Mitigation Plan adequately considered public needs and viewpoints.

A list of public outreach initiatives can be found below:

- Email reminders were sent to all Plan Update Committee members, as well as other stakeholders, prior to every meeting. Recipients were encouraged to share the meeting invitation with anyone they thought would be an asset to the Plan Update process or anyone who may want to learn more about what a Hazard Mitigation Plan is.
- The Emergency Management Director for all neighboring jurisdictions – Baker, Calhoun, Lee, Mitchell, Terrell, and Worth Counties – were included on all meeting invitations and reminder emails for the Dougherty County Hazard Mitigation Plan Update.
- Two Public Meetings were held to allow the public the opportunity to both review the Cherokee County Hazard Mitigation Plan Update and provide feedback. These two Public Meetings were held virtually due to the COVID-19 Pandemic. Both meetings were held on February 25, 2021. One meeting was held in the morning and one in the afternoon. Both meetings were posted to the Albany Fire Department Facebook Page. The contractor utilized a dedicated conference call number (as advertised in the Public Meeting documentation) for both virtual Public Meetings. Upon calling in, the public would be walked through the planning process, the updated Hazard Mitigation Plan, and how the plan impacts the local community. Any feedback provided by the public would be integrated into the final Dougherty County Hazard Mitigation Plan. No members of the public participated in the two virtual Public Meetings. Documentation of attendance for both meetings can be found in Appendix G.

Documentation of Public Meeting Notice

Public Meeting Notice – February 25, 2021 Morning and Afternoon Meetings (Albany Fire Department Facebook Page)

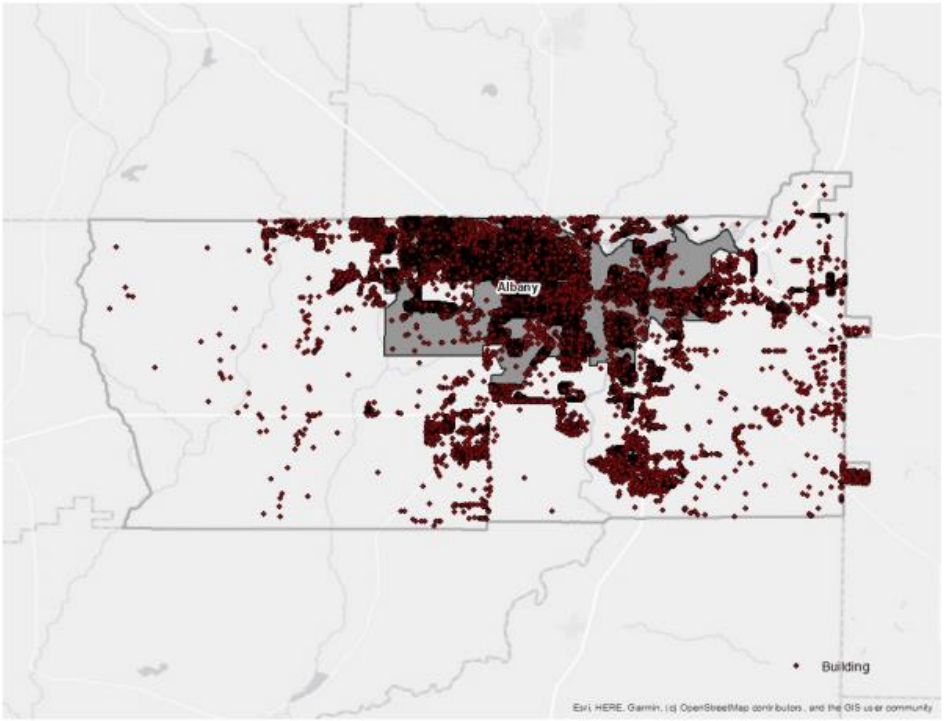


Multi-Jurisdictional Considerations

FEMA does not require cities and towns to adopt a local Hazard Mitigation Plan. However, the Federal DMA 2000 requires that all municipalities, wishing to be eligible to receive Hazard Mitigation Grants through FEMA, must adopt a local multi-hazard mitigation plan and must update that plan every five years. Dougherty County's most recent Hazard Mitigation Plan was approved by FEMA in 2015. The 2020 Mitigation Plan is the third five-year update. This FEMA-approved 2020 Hazard Mitigation Plan makes Dougherty County and City of Albany eligible for FEMA's Hazard Mitigation Grant Program, Flood Assistance Mitigation Grants, and Pre-Disaster Mitigation Grants.

As set forth by Georgia House Bill 489, the Emergency Management Agency is the implementing agency for projects pertaining to hazard mitigation. Dougherty County is dedicated to work in the best interests of the County, as well as its municipalities. A few mitigation strategies in Dougherty County's 2020 Mitigation Plan apply to a specific municipality. Unless noted otherwise, mitigation strategies apply equally to all jurisdictions. During the creation and update of this Plan, Dougherty County Emergency Management Agency solicited and received participation from the following Dougherty County municipality: City of Albany.

Distribution of Buildings in Dougherty County



Source: 2021 Dougherty County HAZUS Report

Incorporation of Existing Plans, Studies, and Resources

Requirement §201.6(b)(3)

State Requirement Element F3

Existing Plans

2015 Dougherty County Pre-Disaster Hazard Mitigation Plan
2014 State of Georgia Hazard Mitigation Plan
2019 State of Georgia Hazard Mitigation Plan
Dougherty County Local Emergency Operations Plan
Georgia Forestry Commission's Dougherty Co. Community Wildfire Protection Plan
Dougherty County Joint Comprehensive Plan

Studies

2021 Hazard Risk Analyses (HAZUS Report)
2017 United States Department of Agriculture Ag Census
2010 United States Census and 2018/2019 Census Estimates
2009 Dougherty County Flood Insurance Study
Radeloff, V. C., R. B. Hammer, S. I Stewart, J. S. Fried, S. S. Holcomb, and J. F. McKeefry. 2005. *The Wildland Urban Interface in the United States*. Ecological Applications 15:799-805.

Resources

2014 City of Boston Natural Hazard Mitigation Plan Update
2010 Camden County Joint Hazard Mitigation Plan Update
2010 Northern Virginia Hazard Mitigation Plan Update
National Climactic Data Center
National Weather Service
Dougherty County Tax Assessor's Data
Dougherty County Website
Georgia Mitigation Information System Database
Colorado State University (Hurricane mapping)
United States Geological Survey
FEMA Flood Insurance Rate Maps
National Flood Insurance Program
United States Coast Guard National Response Center Data
Georgia Department of Transportation
Georgia Safe Dams Program
Southern Group of State Foresters Wildfire Risk Assessment

Application of Existing Plans and Studies

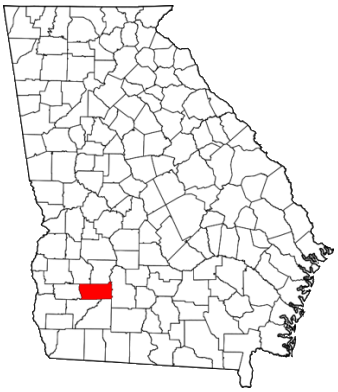
Existing Planning Mechanism	Reviewed? Yes/No	Incorporation into 2020 Mitigation Plan
2015 Dougherty County Hazard Mitigation Plan	Yes	Baseline for the 2020 Plan; updated mitigation strategies; updated hazards; updated Dougherty County information
2019 State of Georgia Hazard Mitigation Plan	Yes	Hazard descriptions; potential hazards; mapping mechanisms; potential mitigation strategies that could be adopted on a local level
Dougherty County Local Emergency Operations Plan (LEOP)	Yes	Identification of current resources; identification of current capabilities
Georgia Forestry's Dougherty County Community Wildfire Protection Plan (CWPP)	Yes	Mitigation strategies for wildfire and drought; historical data
2017 USDA Agriculture Census	Yes	Agricultural data regarding potential losses for drought and wildfire
2010 United State Census and 2018/2019 US Census Estimates	Yes	To update Dougherty County's profile information
2009 Dougherty County Flood Insurance Study	Yes	Identify potential flood prone areas; prioritization of flood-related mitigation strategies
Dougherty County Comprehensive Plan	Yes	To identify future development trends; identify mitigation strategies to curb trends in a direction that considers the hazards of the area
Dougherty County Flood Mitigation Hazard Plan	Yes	Identify potential flood prone areas; prioritization of flood-related mitigation strategies
2021 Dougherty County HAZUS Report	Yes	Hazard Analysis

CHAPTER TWO
–
DOUGHERTY COUNTY PROFILE

Summary of Updates for Chapter Two

The following table provides a description of each section of this chapter and a summary of the changes that have been made to the Dougherty County Hazard Mitigation Plan 2015.

Chapter 2 Section	Updates
Past Hazards	• This information involved a review of the hazards listed in the previous plan. • Information was updated for the last 50 years
History	• Expanded and updated from previous plan
Past Events	• New Section – Not in 2015 Plan • Identification of major hazard events in Dougherty County for the last 50 years • Focus on Federal Declarations and events since the last Hazard Mitigation Plan Update
Demographics	• New Section – Not in 2015 Plan
Economy	• New Section – Not in 2015 Plan
Government	• New Section – Not in 2015 Plan
Municipalities	• New Section – Not in 2015 Plan
Transportation	• New Section – Not in 2015 Plan
Climate	• New Section – Not in 2015 Plan
Utilities	• New Section – Not in 2015 Plan •
NFIP Compliance	• New Section – Not a standalone section in 2015 Plan



Past Hazards

Dougherty County, Georgia, has faced many natural hazards in its long history. Severe thunderstorms have been the most prevalent of these hazards. In the last 50 years, Dougherty County has been subjected to 239 documented severe thunderstorm events. These events include torrential rainfall, hail, thunderstorm-force winds, and lightning.

Tornadoes, which can sometimes spawn from severe thunderstorms, have also occurred, although with much less frequency. In Dougherty County, there have been 12 documented tornadoes in the last 50 years.

Because of heavy rainfall, either within Dougherty County or upstream, flooding has also occurred. In the National Climactic Data Center (NCDC) databases of the National Weather Service, there is documentation of 28 flooding events for Dougherty County.

Winter storms and heavy snowfall have affected Dougherty County over the last 50 years. Because these natural events are barely an annual occurrence, the pre-planning and preparedness component of emergency management is not as robust as northern or western states that routinely see this type of weather. The NCDC recorded 3 winter storms or heavy snow events for Dougherty County with one of those events occurring in the last five years.

Dougherty County has been impacted by other less severe or less frequent hazards in the past. These hazards include, but are not limited to, the following: drought, excessive heat, tropical cyclones, earthquakes, and wildfires.

Dougherty County has had sixteen Presidential Disaster Declarations (FEMA-declared major disasters) – eight of which have occurred since the adoption of the 2015 Hazard Mitigation Plan (two related to Hurricane Irma, two related to severe storms/tornadoes, two related to Hurricane Michael, and two related to COVID-19 pandemic).

History

Dougherty County was created out of Baker County in 1853. The county was named for Judge Charles Dougherty of Athens to show appreciation for his support of states' rights. In 1854 and 1856 portions of Worth County were transferred to Dougherty County.

The original inhabitants were the Creek Indians who left the area after the Creek Wars. The first settlers that came to the area were wealthy cotton farmers. These farmers were attracted to southwest Georgia's rich soil and navigational possibilities of the Flint River. Many of these first settlers settled around the new town of Albany. As the town population saw rapid growth, the settlers made the decision to petition the state assembly for their own county.

As the farming culture changed, Dougherty's County reliance on cotton gave way to the cultivation of pecans and peanuts. During the 1930s, cattle ranching and meatpacking plants arrived as part of the local economy. Future changes to the local economy occurred during World War II when two training fields for Allied pilots were constructed. After the war, the Marine Corps Logistics Base was constructed which is still operational today.

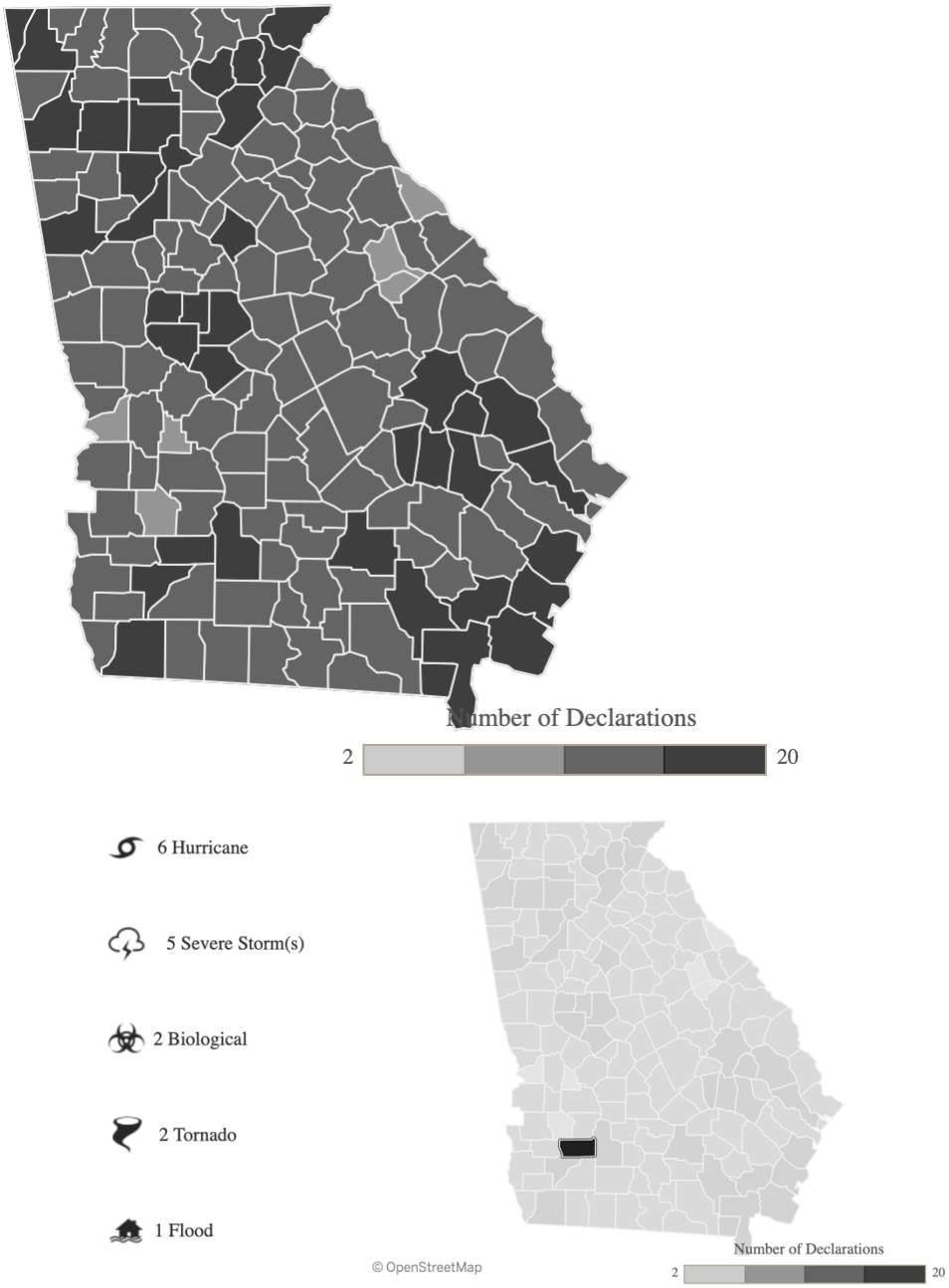
Dougherty County has seen many devastating floods over the years due to its proximity to the Flint River. The Flood of 1994 brought the area to national and international attention.

Today, Dougherty County is known for its quail plantations, duck hunting, fishing, the Flint River, and cypress swamps. There are two institutions of higher learning located in the county: Albany State University and Albany Technical College. The county also is home to several museums and two accredited zoos.

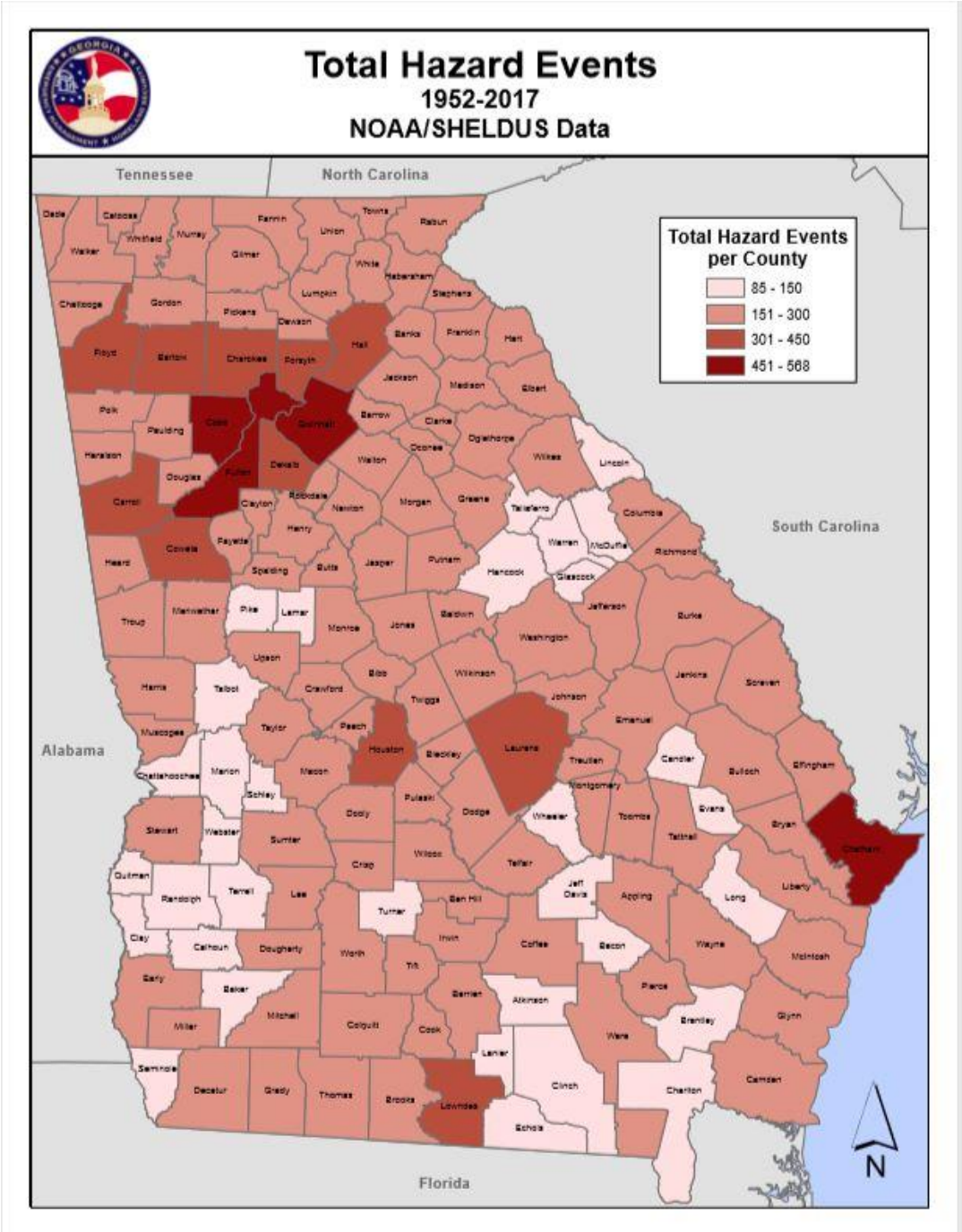
Notable Past Events

- **2020, COVID-19 Pandemic (Federal Declaration x2)**
- **2018, Hurricane Michael (Federal Declaration x2)**
- **2017, Severe Storms/Tornado (EF3) (Federal Declaration)**
- **2017, Severe Storms/Tornado (EF1) (Federal Declaration)**
- **2017, Hurricane Irma (Federal Declaration x2)**
- 2017, Thunderstorm Wind Event
- 2015, Thunderstorm Wind Event
- **2009, Severe Storms/Flooding/Tornado (Federal Declaration)**
- 2009, Flood Event
- **2007, Severe Storms/Tornado (EF2) (Federal Declaration)**
- 2006, Thunderstorm Wind Event
- **2004, Tropical Storm Frances (Federal Declaration)**
- 2004, Tornado (F0)
- 2002, Thunderstorm Wind Event
- 2000, Tornado (F2)
- 2000, Flash Flood Event
- **1998, Severe Storms/Tornado (Federal Declaration)**
- 1998, Flood Event
- 1997, Tornado (F0)
- **1995, Severe Storms/Tornado (F2) (Federal Declaration)**
- 1995, Thunderstorm Wind Event
- **1994, Tornado/Flooding/Tropical Storm Alberto (Federal Declaration)**
- 1994, Tornado (F0)
- 1992, Tornado (F1)
- 1992, Tornado (F0)
- 1989, Tornado (F1)
- 1973, Tornado (F1)
- **1966, Flood Event (Federal Declaration)**

Federal Disaster Declarations



Source: Federal Emergency Management Agency (FEMA)



Source: 2019 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Demographics

County

	2000 Census	2010 Census	2019 Census Estimates
Population	96,065	94,565	87,956
White	37.8%	29.6%	26.3%
African American	60.1%	67.1%	71.0%
Hispanic/Latino	1.3%	2.2%	3.1%
Asian	0.6%	0.8%	0.9%
American Indian	0.2%	0.2%	0.3%
Two or More Races	0.7%	1.2%	1.3%
Median Age	32.2	33.2	35.1
Median Household Income	$30,850	$31,200	$37,633
Persons in Poverty	21%	35.1%	29.5%
Homeowners	53.5	47.1%	45.4%

Municipalities

	2000 Census	2010 Census	2019 Census Estimates
Albany	76,939	77,434	72,130

Economy

Dougherty County's economy is primarily agricultural with some light industry. Dougherty County's cost of living is 23.7% below the national average. The unemployment rate in Dougherty County is 10%, which is above the State average of 9.7% and below the National average of 11.1%. Dougherty County has a median household income of $37,633, which is well below the national average of $60,293.

The ten largest private employers in Dougherty County are:

Company	Product/Service
Albany State University	Institute of Higher Education
Hamilton Telecommunications	Communication & Technology
Integra Business Alternative, LLC	Staffing & Human Resources
Metropower, Inc.	Electricity
MillerCoors, LLC	Brewery
Phoebe Physician Group, Inc.	Healthcare
Phoebe Putney Memorial Hospital, Inc.	Healthcare
Teleperformance USA	Customer Service Support
The Proctor & Gamble Paper Products	Manufacturing
Walmart	Department Store/Retail

The above list is in alphabetical order, not in order of company size.
This data is according to the Georgia Department of Labor, 2019.

Government

The form of government specified in the County Charter is known as Commission-Administrator form of government, which provides for an elected body of seven commissioners. Six of the elected commissioners represent geographical districts. The seventh elected commissioner is the Chairman who is elected at-large. The Board of Commissioners appoint a County Administrator who serves as the chief administration officer for the county. Although each County Commissioner is elected as a representative from their respective districts, they represent the interests of the entire county and all its citizens.

The main duties of the Board of Commissioners is to pass local laws, known as ordinances, that regulate a variety of things that promote the health, safety and welfare of the citizens covered by them; to pass a balanced budget each year that funds its own operations as well as to allocate funds to the four Constitutional Officers, other elected officials, the courts and a variety of programs put in place by the State but funded locally; to ensure that necessary services are funded and provided; to set the millage rate for the County government and many other secondary duties.

The Board of Commissioners sets the County millage rate each year to fund a portion of the County budget. They also receive the millage rate that is set by the Board of Education and an assessment by the State which is submitted to the Georgia Department of Revenue each year.

The Board receives, deliberates, and passes local ordinances each year and amends many others to reflect the changing times. Both require that a public hearing be held, and these are normally held during the regular Commission meetings. They also pass several resolutions and proclamations throughout the year. Generally, with some exceptions, the Board can pass any local law and ordinance they feel is needed for the County so long as it does not violate the laws of the State or Federal government or the Constitutional rights of any individual. These are researched thoroughly by legal staff before ever being brought to a hearing.

The Board of Commissioners provide many services that citizens expect through the revenues that are raised annually. These include Fire and Ambulance protection; E-911 dispatch services; Zoning and Planning; Inspections; Code Enforcement; Animal Control; Public Library; Public Works; and agencies that service all of these such as Building Maintenance, Vehicle Maintenance, and Emergency Management Services. The budget also funds state mandated services such as Law Enforcement and Detention; Superior, Probate, Magistrate and Juvenile courts; Tax Assessment and Tax Collection services; Elections management; District Attorney (shared with other counties) and some smaller funding for local agencies under the State of Georgia.

Transportation

Dougherty County's transportation system consists primarily of state highways and county-maintained roads. US Highways 19 and 82 and Georgia Highways 3, 62, 91, 133, 234, 300, and 520 are major transportation routes that carry the majority of passenger and commercial traffic in and out of Dougherty County. Congestion in these transportation corridors create traffic problems, primarily because of population growth. There are no interstate, federal highway, or mass transit systems servicing Dougherty County.

Norfolk Southern owns and operates freight rail lines that crisscross Dougherty County. Additionally, the Georgia & Florida Railway, LLC operates rail lines in the southern portion of Dougherty County and the Hilton & Albany Railroad operates rail lines in the western portion of Dougherty County.

Southwest Georgia Regional Airport, near Albany, has two paved runways – one 6,601 feet and one 5,219 feet - that services commercial, charter, and private aircraft.

Climate

Dougherty County, like much of Georgia, enjoys a temperate climate with four well-defined seasons: warm to hot summers; brisk fall temperatures; relatively brief, cool winters; and a warm spring season. As a result, there exists a long growing season in Georgia, perfect for ornamental and economic-boosting agricultural plants.

AVERARE MONTHLY TEMPERATURES IN GEORGIA (FAHRENHEIT)

Month	Average Georgia Temperature	Average Dougherty County Temperature
January	46	50
February	49	52
March	56	60
April	63	67
May	70	74
June	77	80
July	80	82
August	79	81
September	74	77
October	64	68
November	56	58
December	48	53

Utilities

Dougherty County's utility needs are met by a variety of public and private entities.

Electrical power in Dougherty County is provided by the Mitchell Electric Membership Corporate, City of Albany, and Georgia Power.

Propane and natural gas are the primary sources of heating and cooking fuel for Dougherty County's residents. City of Albany (Albany Utilities) is the primary natural gas provider in Dougherty County. Some areas of Dougherty County remain reliant on the delivery of propane as a fuel source for heat and cooking.

NFIP Compliance

Jurisdiction	Participating?	Participation Date
Dougherty County	Yes	4/17/1978
Albany	Yes	8/15/1977

Municipalities

City of Albany

The City of Albany was founded in 1836 by Nelson Tift. Mr. Tift had a vision of the city prospering as a trade center like Albany, New York. Albany was originally founded to serve as a market for the area cotton farmers. Within two decades, the population increased rapidly. Albany quickly became the marketing center for the region's cotton growers. The proximity to the Flint River allowed merchants to send barges of cotton down to the Gulf of Mexico. In 1857, the city saw the completion of its first rail line. This allowed merchants to ship cotton to Savannah. Eventually, the city would become the rail center of southwest Georgia. The rail system eventually brought in industry and commerce to the area which allowed the city to grow and change with the cultural changes of the nation. The city was devastated in 1994 during the 500-year flood that occurred due to flooding from Tropical Storm Alberto. However, the city was able to rebuild and today is known as the cultural center for Southwest Georgia.

The City of Albany provides several services to its citizens. This includes administrative, public information, building inspections, sanitation, fire protection, GIS, planning and zoning, community development, downtown development, engineering services, historic preservation, law enforcement, transit, water & sewer, and public works.

The City of Albany is governed by a six-person city commission and elected mayor. The mayor is elected at-large whereas each commissioner is elected by ward. All elected officials serve a four-year term. The commission appoints a City Manager who serves as the Chief Administrative Officer.

CHAPTER THREE
–
HAZARD PROFILES

Summary of Updates for Chapter Three

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Dougherty County Hazard Mitigation Plan 2015.

Chapter 3 Section	Updates
Risk Assessment	• Expanded the explanation of the Risk Assessment • Added an explanation of each part of the Hazard Information
Natural Hazard Thunderstorms	• Renamed from Severe Weather • Content Revised • Data Updated
Natural Hazard Winter Storms	• New Section – Not in 2015 Mitigation Plan
Natural Hazard Flooding	• Incorporated 2019 HAZUS Report Information • Content Revised • Data Updated
Natural Hazard Tornado	• Incorporated 2019 HAZUS Report Information • Content Revised • Data Updated
Natural Hazard Drought	• Content Revised • Data Updated
Natural Hazard Wildfire	• New Section – Not in 2015 Plan
Natural Hazard Earthquake	• New Section – Not in 2015 Plan
Natural Hazard Tropical Cyclone	• New Section – Not in 2015 Plan
Natural Hazard Extreme Temperatures	• New Section – Not in 2015 Plan

Technological Hazard Hazardous Materials	• New Section – Not in 2015 Plan
Technological Hazard Dam Failure	• New Section – Not in 2015 Plan
Technological Hazard Transportation	• New Section – Not in 2015 Plan
Technological Hazard Terrorism	• New Section – Not in 2015 Plan
Technological Hazard Infrastructure Failure	• New Section – Not in 2015 Plan
Technological Hazard Emerging Infectious Disease	• New Section – Not in 2015 Plan

Risk Assessment

Requirement §201.6(c)(2)(i and ii)
Requirement §201.6(d)(3)

The Dougherty County Hazard Mitigation Planning Committee conducted a comprehensive Threat and Hazard Identification and Risk Assessment (THIRA) for Dougherty County and all municipalities. This assessment developed the hazard basis for this plan. The assessment includes the following components for each hazard:

1. *Hazard Identification*: The Dougherty County Hazard Mitigation Planning Committee identified nine natural hazards and six technological hazards for this Hazard Mitigation Plan. This is an increase of five natural hazards and six technological hazards from the previous iteration of the plan. Each hazard was identified using statistical data and records from a variety of sources. The list of hazards is based upon frequency, severity of impact, probability, potential losses, and vulnerability.

2. *Hazard Description*: Each hazard was described in detail. Many hazard descriptions came from the Georgia Hazard Mitigation Plan since many of the hazards that could impact the state could also potentially impact Dougherty County.

3. *Profile of Hazards*: Each hazard was profiled as to how it could potentially impact Dougherty County.

4. *Assets Exposed to the Hazard*: The plan considers critical facilities and infrastructure as part of the vulnerability assessment. This assessment determines the vulnerability of the municipalities and attempts to identify the populations most vulnerable to each hazard, although many have potential countywide impacts.

5. *Estimated Potential Losses*: Using critical facility and history data, an estimation of potential losses due to a particular hazard event were determined.

6. *Land Use and Development Trends*: Land use trends were considered when determining the potential future impacts of each hazard. This is of particular importance regarding flooding and dam failure events.

7. *Multi-Jurisdictional Concerns*: Each jurisdiction was considered when determining the potential hazard impact.

At the second meeting of the Dougherty Hazard Mitigation Plan Update Committee, the attendees participated in a risk assessment of hazard for Dougherty County. This risk assessment was based upon two primary factors: 1. How likely is a hazard to occur; 2. How prepared the committee meeting participants felt the community was for each hazard. This risk assessment relied on the committee meeting attendees to identify the hazards and then rank them by those two factors. As a result, the risk assessment could be skewed by the meeting participants, recency bias, and/or how the hazard would directly impact the organizations represented at this meeting. After additional discussion with the Dougherty Hazard Mitigation Plan Update committee at future meetings, the hazards in this chapter were the agreed upon list. Several of the hazards identified by the committee members were consolidated into expanded hazard descriptions.

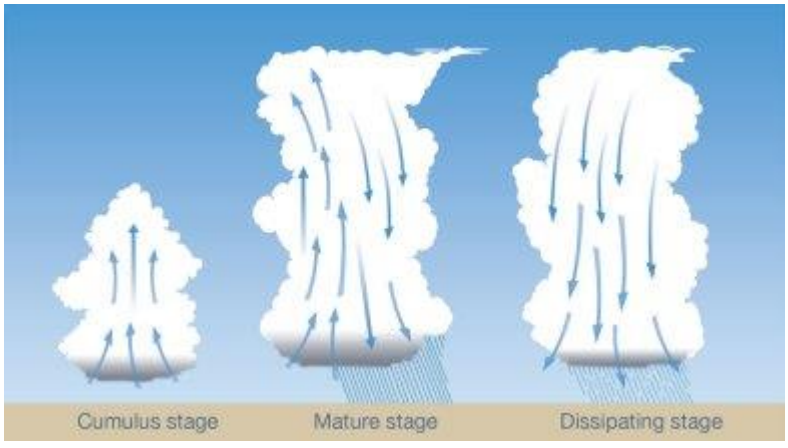
Natural Hazard: **Severe Thunderstorm**

Hazard Description

This section provides general and historical information about thunderstorms, including high wind, lightning, and hail. Other elements of thunderstorms, such as tornadoes and flooding, are addressed in their own sections.

Thunderstorms are formed when moist air near the earth's surface is forced upward through some catalyst (convection or frontal system). As the moist air rises, the air condenses to form clouds. Because condensation is a warming process, the cloud continues to expand upward. When the initial updraft is halted by the upper troposphere, both the anvil shape and a downdraft form. This system of up-drafting and down-drafting air columns is termed a "cell."

As the process of updrafts and downdrafts feeds the cell, the interior particulates of the cloud collide and combine to form rain and hail, which falls when the formations are heavy enough to push through the updraft. The collision of water and ice particles within the cloud creates a large electrical field that must discharge to reduce charge separation. This discharge is the lightning that occurs from cloud to ground or cloud to cloud in the thunderstorm cell. In the final stage of development, the updraft weakens as the downdraft-driven precipitation continues until the cell dies.



Each thunderstorm cell can extend several miles across its base and to reach 40,000 feet in altitude. Thunderstorm cells may compound and move abreast to form a squall line of cells, extending farther than any individual cell's potential.

In terms of temporal characteristics, thunderstorms exhibit no true seasonality in that occurrences happen throughout the year. Convectively, driven systems dominate the summer while frontal driven systems dominate during the other seasons. The rate of onset is rapid in that a single cell endures only 20 minutes.

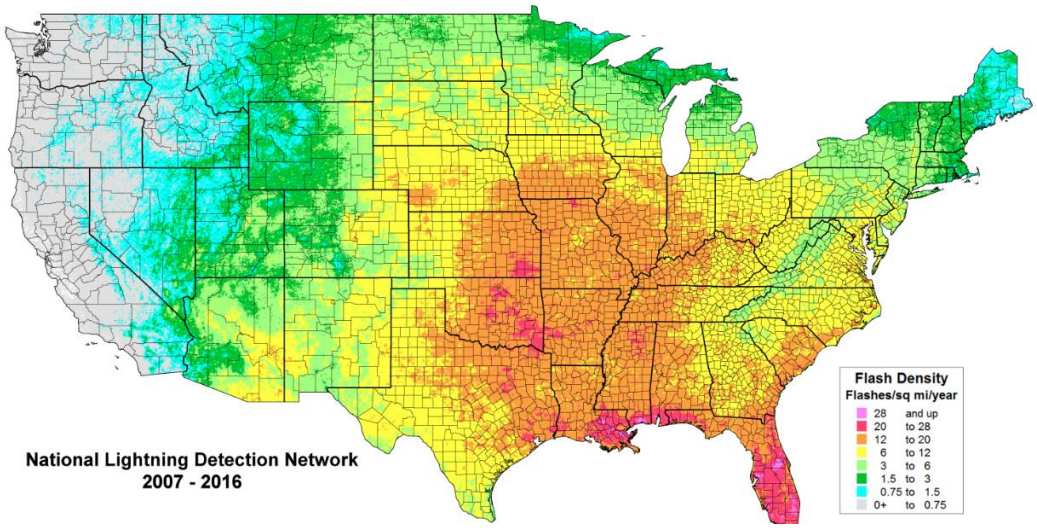
Natural Hazard: **Severe Thunderstorm**

However, various cells in different stages of development may form a thunderstorm that lasts up to a few hours as it moves across the surface.

In terms of magnitude, the National Weather Service defines thunderstorms in terms of severity as a severe thunderstorm that produces winds greater than 57 mph and/or hail of at least 1 inch in diameter and/or a tornado. The National Weather Service chose these measures of severity as parameters more capable of producing considerable damage. Therefore, these are measures of magnitude that may project intensity.

Lightning

Lightning occurs when the difference between the positive and negative charges of the upper layers of the cloud and the earth's surface becomes great enough to overcome the resistance of the insulating air. The current flows along the forced conductive path to the surface (in cloud to ground lightning) and reaches up to 100 million volts of electrical potential. In Georgia, lightning strikes peak in July, with June and August being second highest in occurrence.



Hail

Hail is a form of precipitation that forms during the updraft and downdraft-driven turbulence within the cloud. The hailstones are formed by layers of accumulated ice (with more layers creating larger hailstones) that can range from the size of a pea to the size of a grapefruit. Hailstones span a variety of shapes but usually take a spherical form. Hailstorms mostly endanger cars but have been known to damage aircraft and structures.

Natural Hazard: **Severe Thunderstorm**

Hailstone size	Measurement		Updraft Speed	
	in.	cm.	mph	km/h
bb	< 1/4	< 0.64	< 24	< 39
pea	1/4	0.64	24	39
marble	1/2	1.3	35	56
dime	7/10	1.8	38	61
penny	3/4	1.9	40	64
nickel	7/8	2.2	46	74
quarter	1	2.5	49	79
half dollar	1 1/4	3.2	54	87
walnut	1 1/2	3.8	60	97
golf ball	1 3/4	4.4	64	103
hen egg	2	5.1	69	111
tennis ball	2 1/2	6.4	77	124
baseball	2 3/4	7.0	81	130
tea cup	3	7.6	84	135
grapefruit	4	10.1	98	158
softball	4 1/2	11.4	103	166

Hazard Profile

Severe thunderstorms, including high winds, hail, and lightning, are a serious threat to the residents and infrastructure of Dougherty County. Severe thunderstorms are one of the most frequently occurring natural hazards in Dougherty County. Many of these storms include high winds, lightning, and hail. Hail up to 2.75 inches was recorded in Dougherty County on several occasions, most recently in 1984. Thunderstorm winds of 85 mph have been reported in Dougherty County, most recently in 2017. While there have been dozens of documented thunderstorm events affecting Dougherty County over the last 50 years, it is likely that the official number is a low estimate due to poor record keeping in decades past. For example, only 32 thunderstorms events were recorded between 1970 and 1990, likely a vast underestimation of actual events.

Most of the available information relating to severe thunderstorm events in Dougherty County fails to describe damage estimates in any detail. With each thunderstorm event, there are likely unreported costs related to infrastructure costs, public safety response costs, utility repair costs, and personal home and business repair costs.

Natural Hazard: **Severe Thunderstorm**

Thunderstorms have occurred during all parts of the day and night and in every month in Dougherty County.

The Dougherty County Hazard Mitigation Plan Update Committee utilized data from the National Climatic Data Center, the National Weather Service, numerous weather-related news articles, and the Dougherty County LEOP in researching severe thunderstorms and their potential impacts on the county. All information has been gathered on a countywide basis. All thunderstorm hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.

During the last 50 years, 151 thunderstorm events were recorded in Dougherty County, with 119 of those occurring in the last 30 years. This number includes 38 hail events and only 6 lightning reports. According to these records, Dougherty County has a 1.1% chance daily of a thunderstorm event based upon data from the last 30 years. Over the last 10 years, Dougherty County has averaged 5.6 thunderstorm events per year (56 events). Due to improved record keeping protocols, the Dougherty County Hazard Mitigation Plan Update Committee believes the data from the last ten years provides a more accurate representation of the thunderstorm threat to the county. The Dougherty County Hazard Mitigation Plan Update Committee has also determined that the lightning threat is severely under-reported, as shown in the NCDC data numbers. For additional historical data, please see Appendix D.

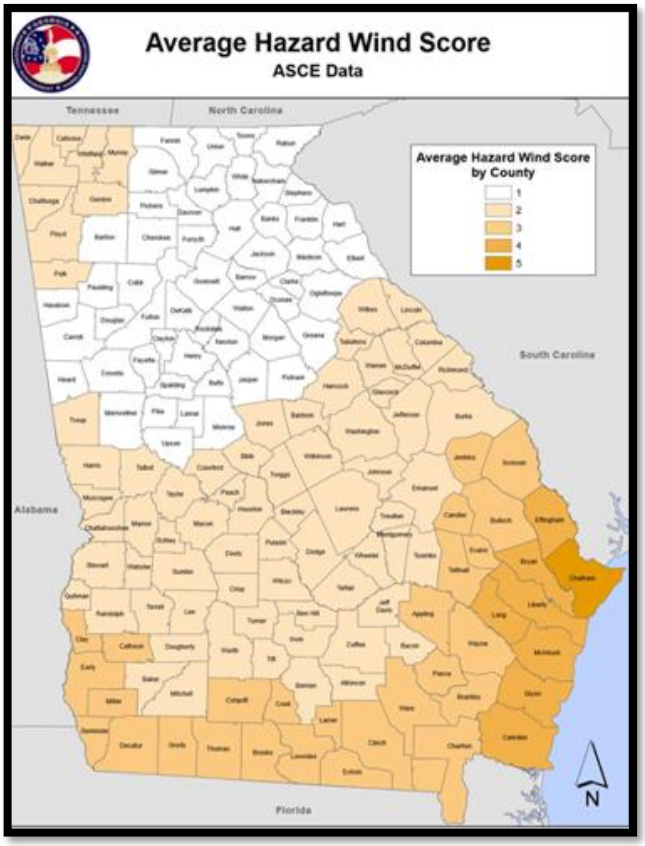
The City of Albany suffered a significant Thunderstorm wind event in January of 2017. This event had reported winds of 80-85 mph that impacted a significant swath of northern Albany. he City of Albany suffered approximately $17 million in damages from this event, which led to a Federal Disaster Declaration.

As indicated by the previous graphics, Dougherty County averages between 12 and 20 flashes of cloud to ground lightning per square mile per year. That equals a 3.3% to 5.5% chance of a cloud-to-ground lightning strike on any given day. This shows a much higher indication of lightning occurrences than has been reported to the National Weather Service and the National Climatic Data Center. It is the determination of the Dougherty County Hazard Mitigation Plan Update Committee that this data shows a more accurate representation of the scope of the threat that lightning poses to the citizens and infrastructure of Dougherty County.

Natural Hazard: **Severe Thunderstorm**

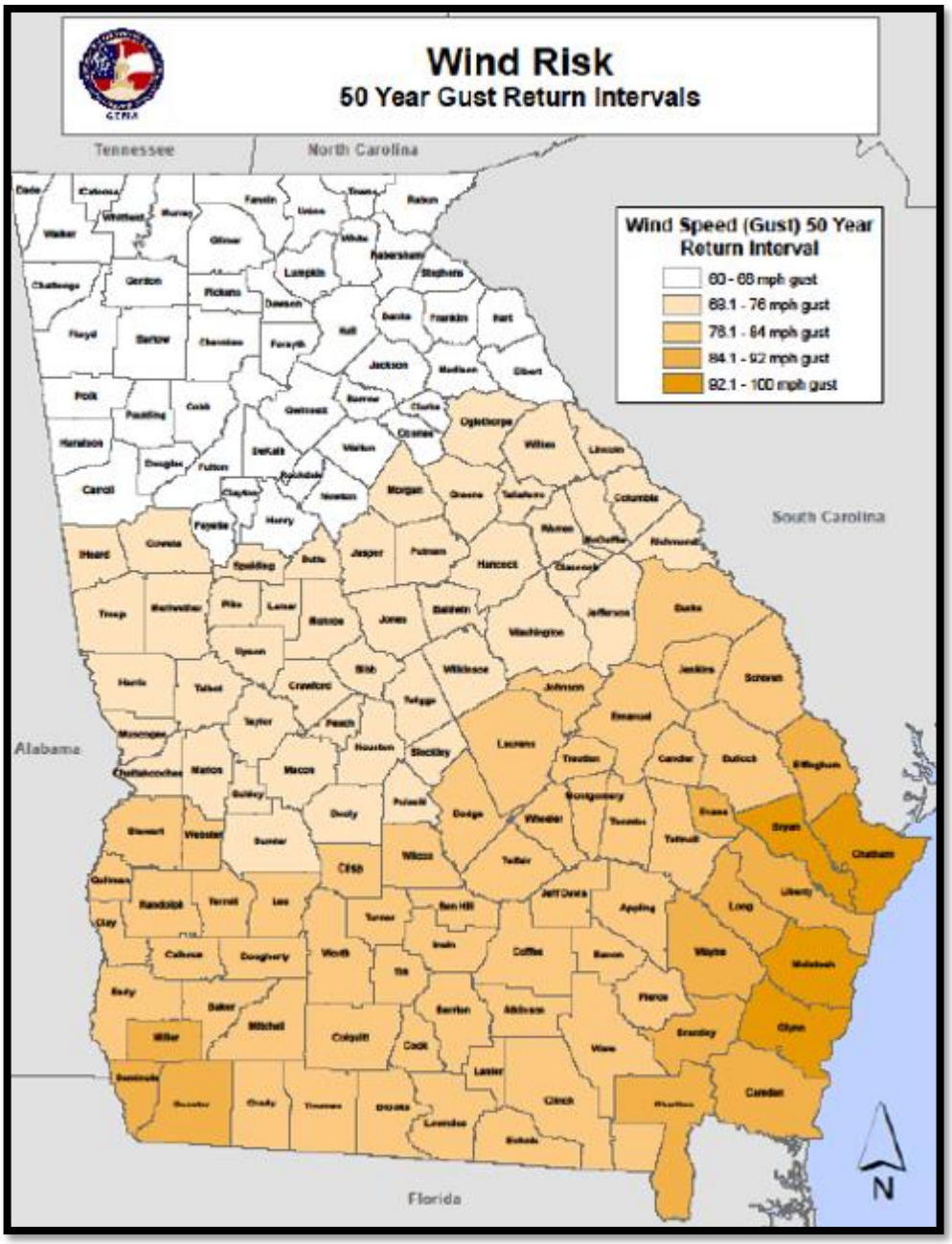
Severe thunderstorm winds, which are defined as winds of at least 58 mph in conjunction with a convective event, have occurred with many thunderstorms that have affected Dougherty County. These winds can exceed 100 mph and cause damage comparable to weak tornadoes. Below are two maps that identify the wind risk and the hazard wind score for the State of Georgia, including Dougherty County. The Hazard Wind Score maps use the following scale:

Hazard Score	Wind Speeds
1	<90 mph gust
2	91 – 100 mph gust
3	101 – 110 mph gust
4	111 – 120 mph gust
5	>120 mph gust



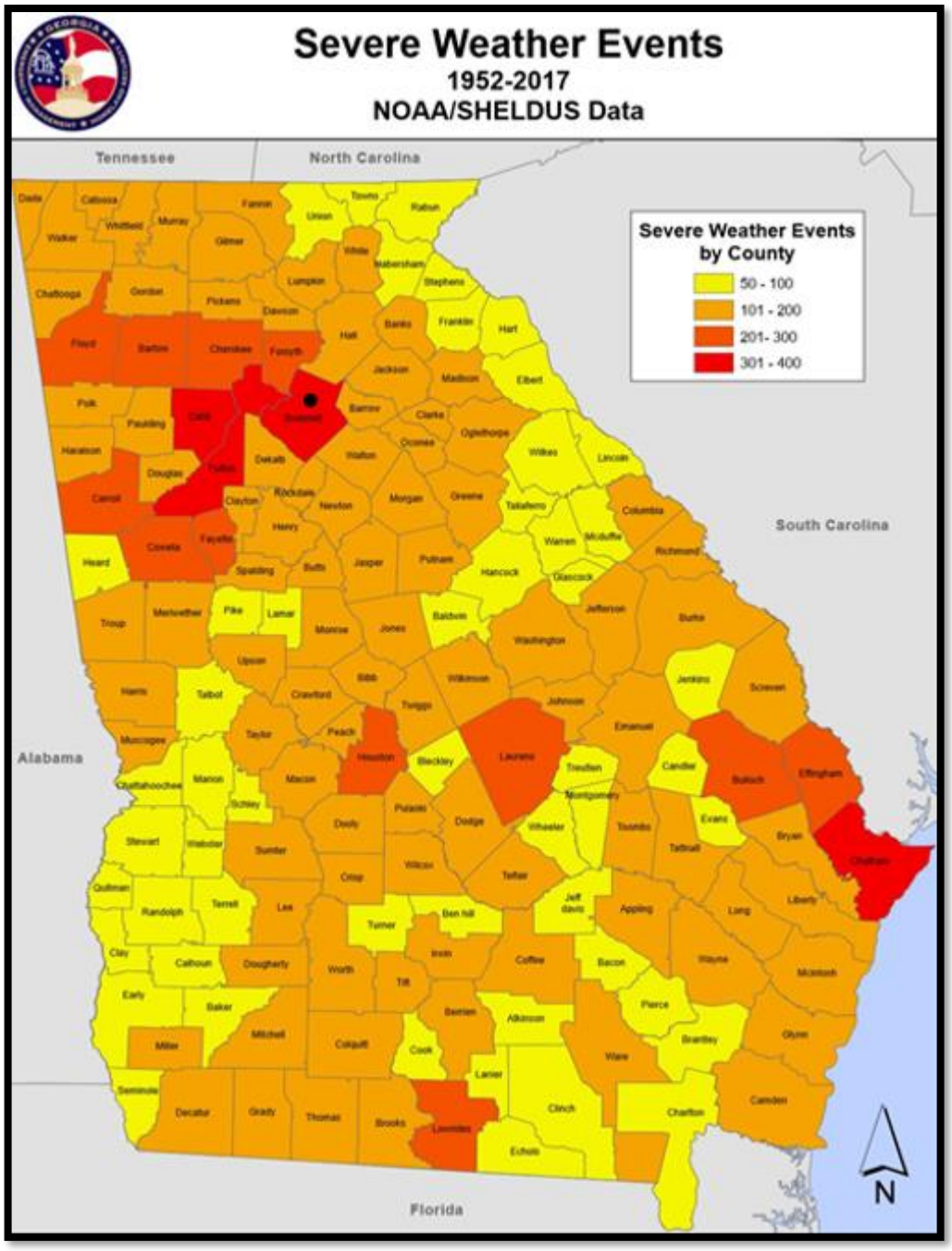
Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Severe Thunderstorm**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Severe Thunderstorm**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Severe Thunderstorm**

Assets Exposed to the Hazard

In evaluating assets that are susceptible to severe thunderstorms, the Dougherty County HMPC determined that all public and private property is at threat by severe thunderstorms, including all critical facilities. This is due to the lack of spatially prejudice of severe thunderstorm events.

Thunderstorms by Jurisdiction

Jurisdiction	# Of Thunderstorms	Annual Risk
Albany	***64***	***100%***
Unincorporated Dougherty County	***61***	***100%***

Source: National Climactic Data Center (NCDC)
Note: Data is for the last 25 years

Estimated Potential Losses

Estimates of damage for the past events of the last 50 years are over $18 million, or $376,520 annually. When only the last 30 years are considered, annual estimated damage increases significantly to $627,533. These numbers are thought to be a gross underestimation of actual past damages.

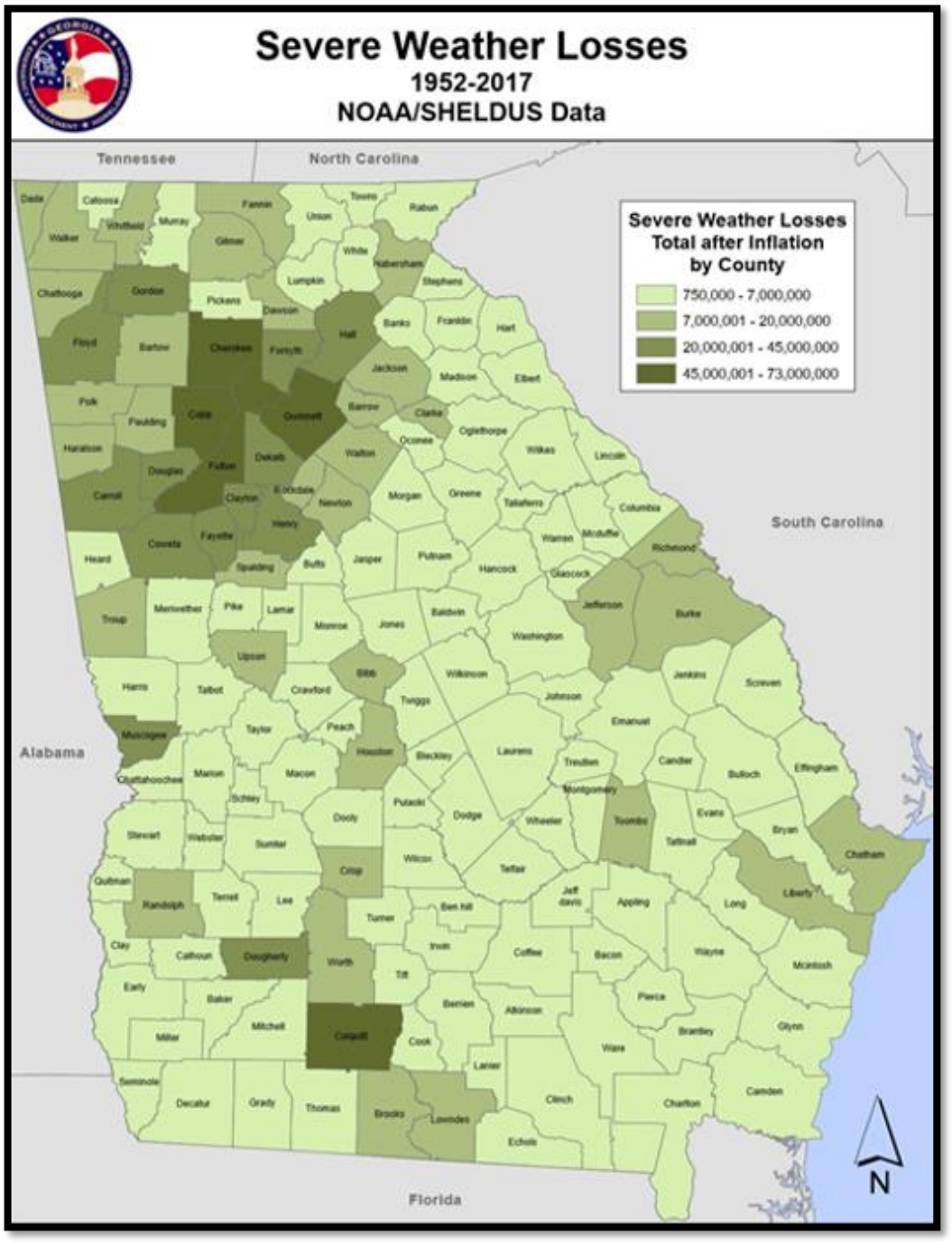
Land Use & Development Trends

Dougherty County currently has no land use trends related to Thunderstorms beyond continued population growth – particularly in and around the City of Albany.

Multi-Jurisdictional Considerations

Thunderstorm events have occurred across all areas of Dougherty County. Crop damage from thunderstorm events would likely have the greatest impact in the rural areas of Dougherty County. However, property damage numbers would be highest in more heavily populated areas due to greater population density. This is especially true for areas in and around the City of Albany. Additionally, Dougherty County's tourism industry could be significantly impacted by thunderstorm events and any widespread damage associated with those events. Thunderstorms have the potential to impact all areas of Dougherty County.

Natural Hazard: **Severe Thunderstorm**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Severe Thunderstorm**

Hazard Summary

Thunderstorm events pose one of the greatest threats of property damage, injuries, and loss of life in Dougherty County. Thunderstorm events are the most frequently occurring weather event that threatens Dougherty County. As a result, the Dougherty County HMPC recommends that the mitigation measures identified in this plan for thunderstorms should be aggressively pursued due to the frequency of this hazard and the ability for this hazard to affect any part of Dougherty County.

Severe Thunderstorm Events in Dougherty County Since 2015

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	17.274M	0.00K
ALBANY	DOUGHERTY CO.	GA	04/25/2015	18:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/17/2015	19:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/17/2015	19:20	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	06/17/2015	19:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	06/17/2015	19:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/08/2015	16:15	Thunderstorm Wind	60 kts. EG	0	0	100.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/08/2015	16:16	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/08/2015	16:25	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/15/2015	16:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	17:58	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:03	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:08	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:10	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:12	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:12	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:15	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:18	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/22/2015	14:55	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/22/2015	14:58	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	07/22/2015	15:06	Lightning		0	0	5.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/22/2015	16:00	Thunderstorm Wind	55 kts. EG	0	0	4.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	08/19/2015	16:45	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
WALKER	DOUGHERTY CO.	GA	02/24/2016	01:20	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	02/24/2016	01:22	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/24/2016	01:22	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/03/2016	22:04	Hail	1.00 in.	0	0	0.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	06/28/2016	22:00	Lightning		0	0	7.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	07/31/2016	14:15	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/31/2016	14:20	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DUCKER	DOUGHERTY CO.	GA	01/02/2017	22:05	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	01/02/2017	22:14	Thunderstorm Wind	74 kts. EG	0	0	17.000M	0.00K
ALBANY	DOUGHERTY CO.	GA	01/02/2017	22:19	Thunderstorm Wind	59 kts. MG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/21/2017	12:35	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ACREE	DOUGHERTY CO.	GA	01/21/2017	12:35	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

DUCKER	DOUGHERTY CO.	GA	01/21/2017	12:35	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	01/21/2017	12:40	Thunderstorm Wind	50 kts. EG	0	0	40.00K	0.00K
SOUTH ALBANY	DOUGHERTY CO.	GA	01/21/2017	13:02	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/22/2017	00:45	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/22/2017	02:17	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	01/22/2017	15:27	Thunderstorm Wind	64 kts. MG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	04/03/2017	12:35	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
RADIUM SPRINGS	DOUGHERTY CO.	GA	04/03/2017	12:48	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	04/03/2017	12:52	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
SOUTH ALBANY	DOUGHERTY CO.	GA	05/23/2017	12:32	Hail	0.75 in.	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	07/13/2017	18:00	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/13/2017	18:06	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
SOUTH ALBANY	DOUGHERTY CO.	GA	02/07/2018	13:55	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/02/2018	12:55	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
DUCKER	DOUGHERTY CO.	GA	07/06/2018	20:05	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

ALBANY	DOUGHERTY CO.	GA	07/21/2018	10:30	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	07/22/2018	16:30	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
PECAN CITY	DOUGHERTY CO.	GA	08/31/2018	17:30	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/02/2018	02:05	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	03/03/2019	14:55	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	03/26/2019	21:00	Hail	0.88 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/11/2019	14:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
WALKER	DOUGHERTY CO.	GA	07/18/2019	17:20	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	09/09/2019	17:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/06/2020	15:40	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/06/2020	15:40	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	04/13/2020	04:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Natural Hazard: **Winter Storm**

Hazard Description

Severe winter storms bring the threat of ice and snow. There are many types of frozen precipitation that could create a severe winter weather event. Freezing rain consists of super cooled falling liquid precipitation freezing on contact with the surface when temperatures are below freezing. This results in an ice glazing on exposed surfaces including buildings, roads, and power lines. Sleet is easily discernable from freezing rain in that the precipitation freezes before hitting the surface. Often this sleet bounces when hitting a surface and does not adhere to the surface. However, sleet can compound into sufficient depths to pose some threat to motorists and pedestrians.

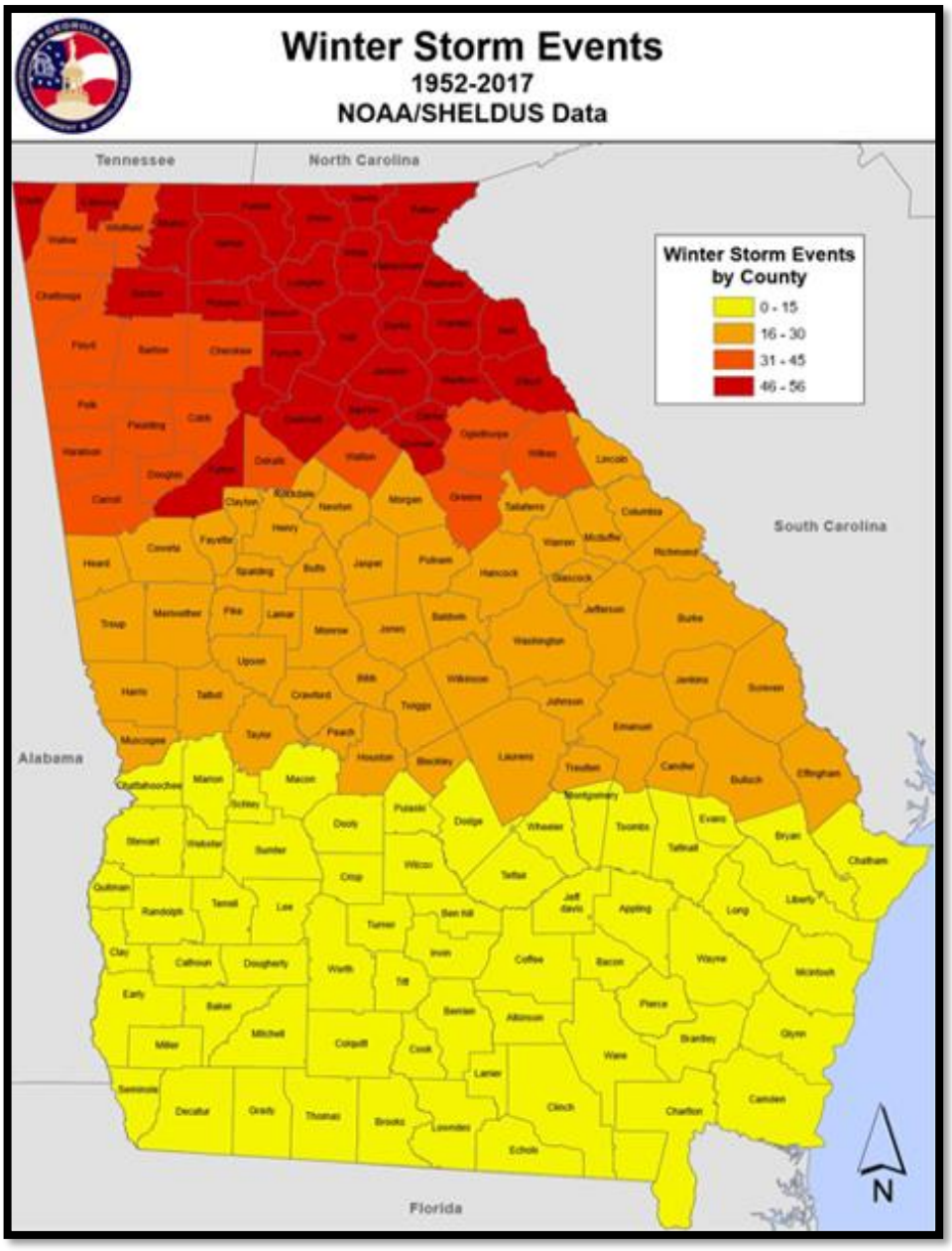
A heavy accumulation of ice, which is often accompanied by high winds, can devastate infrastructure and vegetation. Destructiveness in the southern states is often amplified due to the lack of preparedness and response measures. Also, the infrastructure was not designed to withstand certain severe weather conditions such as weight build-up from snow and ice. Often, sidewalks and streets become extremely dangerous to pedestrians and motorists. Primary industries, such as farming and fishing, suffer losses through winter seasons that produce extreme temperatures and precipitation.

Severe winter weather exhibits seasonal qualities in that most occur within the months of January to March, with the highest probability of occurrence in February. The rate of onset and duration varies from storm to storm, depending on the weather system driving the storm. Severe winter weather rarely frequents the State of Georgia. However, the impacts of the storms substantiate severe winter weather's inclusion in the risk assessment.

Hazard Profile

While winter storms are not as frequent of an occurrence in Dougherty County as they are in areas in the Northern US, they still have the potential to wreak havoc on the community when they do occur. Winter storms in Dougherty County typically cause drastic damage to infrastructure, such as roads, power lines, and bridges. They also can cause damage to private property, businesses, and trees throughout the county. The large number of trees in Dougherty County can also become a hazard when the tree limbs become weighed down with snow and ice and begin to break and fall to the ground, potentially damaging private property, public property, or injuring people and animals.

Natural Hazard: **Winter Storm**

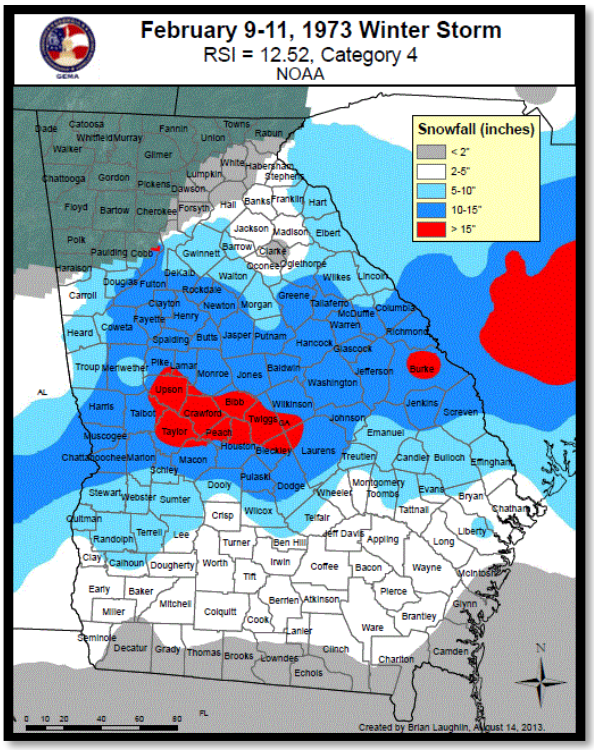


Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Winter Storm**

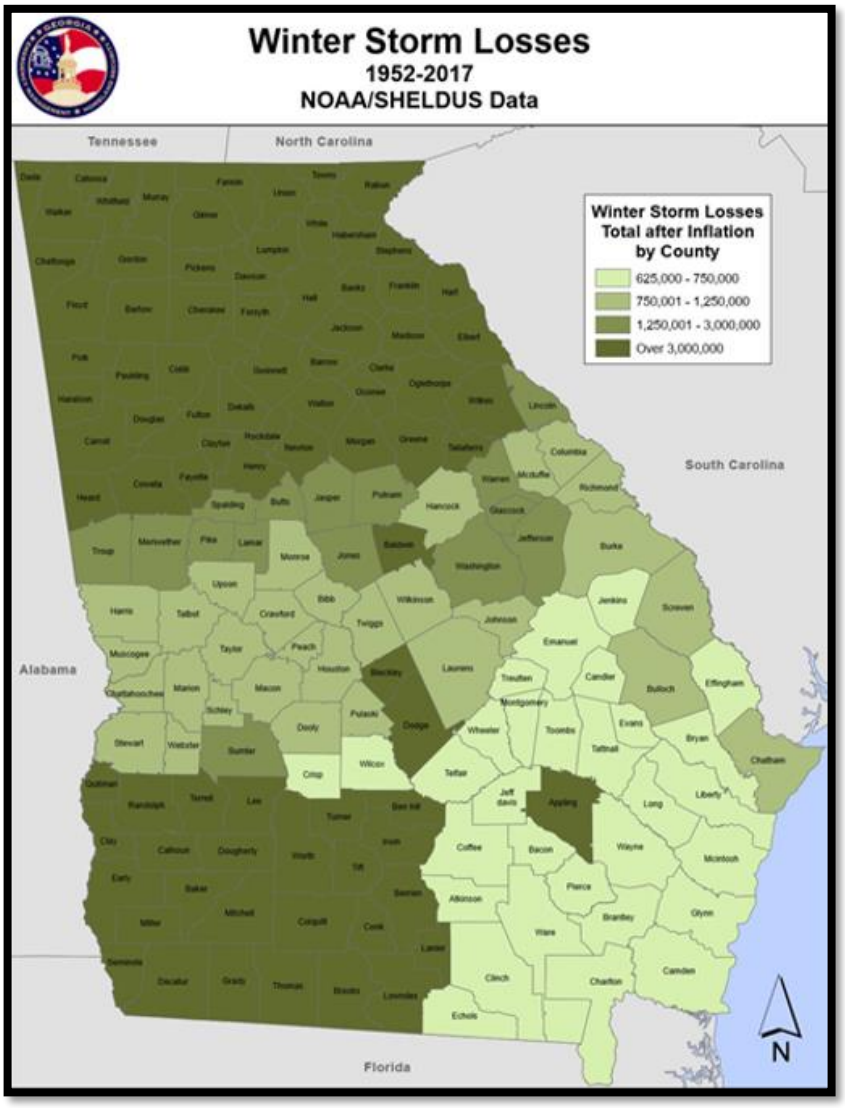
During the past 25 years, documentation exists for 3 winter storm events in Dougherty County. No comprehensive data can be located prior to this timeframe. On average, Dougherty County averages a winter storm every 8.3 years. This equates to an 12% chance of a winter storm occurring in any given year in Dougherty County. Due to improved record keeping techniques, the HMPC believes that looking at the record for the last 25-year period provides a more accurate representation of the threat of winter storms for Dougherty County. All winter storm data has been gathered on a countywide basis. For additional historical data, please see Appendix D. All winter storm hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.

Individual events of Winter Weather can be drastically different depending on many factors, including the duration of the event, the type of precipitation involved, and the depth of the precipitation. Winter Storm events can be a light dusting of snow, ¼ inch of ice, or over a foot of snow. Other factors, such as wind, can influence the strength of these events. In the 1973 Winter Storm events, snow accumulations in excess of 5 inches were reported in areas of Dougherty County with almost all areas receiving over 2 inches of snow.



Source: 2014 State of Georgia Hazard Mitigation Strategy (most up-to-date version)

Natural Hazard: **Winter Storm**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Assets Exposed to the Hazard

Since winter storms are indiscriminate regarding location, the Dougherty County HMPC determined that all public and private property, including all critical infrastructure, are susceptible to impacts from winter storms.

Natural Hazard: **Winter Storm**

Estimated Potential Losses

Total estimated losses for winter storm events of the last 50 years indicate a total of over $51,000 in losses. Extrapolated over 50 years, this averages out to $1,020 per year. However, all the documented winter storms with loss information have occurred over the last 10 years. As such, the average loss per year for the last 20 years is $5,100 per year. It is estimated that these numbers are a gross underestimation of the impact of past winter storms and caution is expressed when using these figures to make loss determinations for winter storms in Dougherty County.

Land Use & Development Trends

Dougherty County currently has no land use trends related to Winter Storms beyond continued population growth – particularly around the City of Albany. The large, forested areas within Dougherty County increase the likelihood of major travel impacts as a result of winter storm events.

Multi-Jurisdictional Considerations

All portions of Dougherty County could potentially be impacted by a winter storm, including freezing rain, sleet, and snow. Therefore, all mitigation actions identified regarding winter storms should be pursued on a countywide basis and including all municipalities.

Hazard Summary

Winter storms, which can include freezing rain, sleet, or snow, typically afford communities some advance warning, which is different from many other severe weather phenomena. The National Weather Service issues winter storm watches, advisories, and warnings as much as a day before the storm's impacts begin. Unfortunately, communities in the Southern United States are oftentimes not equipped to handle winter storms due to their relative infrequent nature. Dougherty County HMPC recognizes the potential threats winter storms could have on the community and have identified specific mitigation actions as a result.

Winter Storm Events since 2015 in Dougherty County

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/17/2018	04:00	EST-5	Winter Weather		0	0	0.00K	0.00K

Natural Hazard: **Flooding**

Requirement §201.6(c)(2)(ii)
Requirement §201.6(c)(3)(ii)

Hazard Description

Flooding is a temporary overflow of water on normally dry lands adjacent to the source of water, such as a river, stream, or lake. The causes of flooding include mass sources of precipitation, such as tropical cyclones, frontal systems, and isolated thunderstorms combined with other environmental variables, such as changes to the physical environment, topography, ground saturation, soil types, basin size, drainage patterns, and vegetative cover. Adverse impacts may include structural damages, temporary backwater effects in sewers and drainage systems, death of livestock, agricultural crop loss, loss of egress and access to critical facilities due to roads being washed-out or over-topped and unsanitary conditions by deposition of materials during recession of the floodwaters.

Floods are loosely classified as either coastal or riverine. Coastal flooding occurs when normally dry, low-lying land is flooded by sea water. Coastal flooding is usually associated with tropical cyclones in Georgia. Riverine flooding occurs from inland water bodies such as streams and rivers. Riverine flooding is often classified based on rate of onset. The first is slow to build, peak, and recede, often allowing sufficient time for evacuations. The other type of riverine flood is referred to as a "flash" flood, which rapidly peaks and recedes, thus giving insufficient time for evacuations. Flash floods are typically considered the most dangerous.

On a broad scale, flooding can occur around any body of water or low-lying surface given enough precipitation or snowmelt. The spatial extent of the flooding event depends on the amount of water overflow but can usually be mapped because of existing floodplains (areas already prone to flooding).

Flooding in Georgia is highly dependent on precipitation amounts and is highly variable. Certain seasons are more prone to flooding to a greater likelihood of excessive precipitation. Typically, the wet seasons are during the winter, early spring, and midsummer. Late spring and fall are usually drier seasons.

Hazard Profile

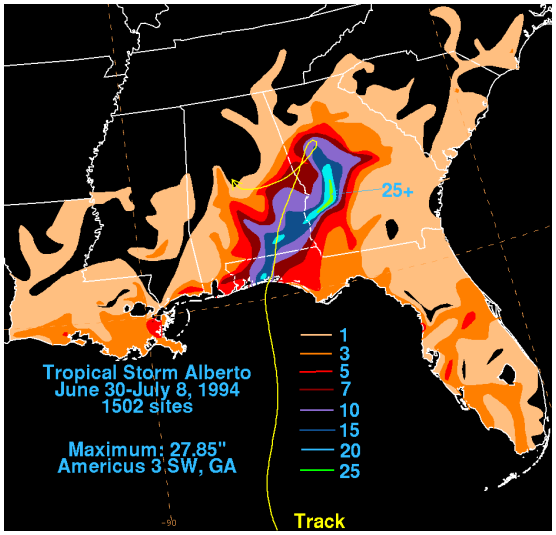
The Dougherty County HMPC researched flooding information for the last fifty years. The main sources of information used by the Dougherty County HMPC came from the National Climatic Data Center, the Dougherty County Emergency Operations Plan, and news media sources. It was determined that flooding has caused significant damage on many occasions over the last 20 years. One significant flooding event that affected Dougherty County occurred in 1998. This event was the result of up to 12 inches of rain in Dougherty County and surrounding

Natural Hazard: **Flooding**

areas. This event damaged approximately 500 homes in Albany and led to 11,000 residents being evacuated. Floodwaters topped the Flint River right bank levee, which flooded a downstream housing development. During this event, the Flint River reached 36.9 feet. While data was collected for the entire 50-year timeframe, little information was available regarding flood events over that period, possibly due to poor record keeping. All flood data was gathered on a countywide basis.

Flood events within Dougherty County are typically associated with areas of special flood hazard as identified on Flood Rate Insurance Maps (FIRMs) published by FEMA. Of the 330 square miles that encompass Dougherty County, approximately 27% of that area is in the floodway or floodplain according to the 2009 Flood Insurance Study. Relatively little information is available regarding flooding damage estimates. However, with each flooding event, it is likely that significant costs arose related to road repair, infrastructure repair, and public safety response operations. All flooding hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.

Another significant flooding event that impacted Albany was Tropical Storm Alberto in 1994. Tropical Storm Alberto came ashore on the Florida panhandle and moved into Southern Georgia and Southern Alabama before stalling for several days while dumping heavy rainfall over the area. This event dropped up to 25 inches of rain in and around Dougherty County. Over 20,000 Dougherty County residents were forced to evacuate as a result of this flood event. Five deaths in Dougherty County were related to this event. The flooding from this event literally split the City of Albany in half with four major bridges that crossed the Flint River becoming impassable. This event broke a 69-year record for the flood gage on the Flint River at Albany, which crested on July 11, 1994, at 43.0 feet.



Natural Hazard: **Flooding**

The Flint River gage at Albany provides adequate data to show how a flood near that area would impact the jurisdiction. At this location, flood stage is reached at 26 feet. At 29 feet, areas of Third Avenue, Highland Avenue, and Front Street begin to flood. At 31 feet, Moderate Flood Stage is reached and some cottages at Lake Chehaw will begin to flood. At 37 feet, Ragsdale Road will begin to flood, as will areas of Albany State University and houses along Hazard Drive. At 39 feet, water will reach the flood of the sewage plant and nearby houses. At 42 feet, Major Flood Stage is reached as water reached the top of the Georgia Northern Railroad. The historic crest for this site occurred in July of 1994 as a result of impacts from Tropical Storm Alberto. Water reached 43.0 feet.

There are 20 documented flood events over the last 50 years. Based on the 50-year record, it can be inferred that such an event is likely to occur every 2.5 years in Dougherty County. This relates to a 40% chance of a flood event occurring in a given year. However, all flooding events have occurred over the last 22 years. This would increase the documented likelihood of a flooding event to 91%.

Dougherty County's unincorporated areas, particularly those along Chickasawhatchee Creek and Cooleewahee Creek in western Dougherty County and the Flint River in southern Dougherty County, and the City of Albany are most at risk for riverine flood events. The Flint River and Kinchafoonee Creek pose the greatest threat to the City of Albany.

For additional historical data, please see Appendix D.

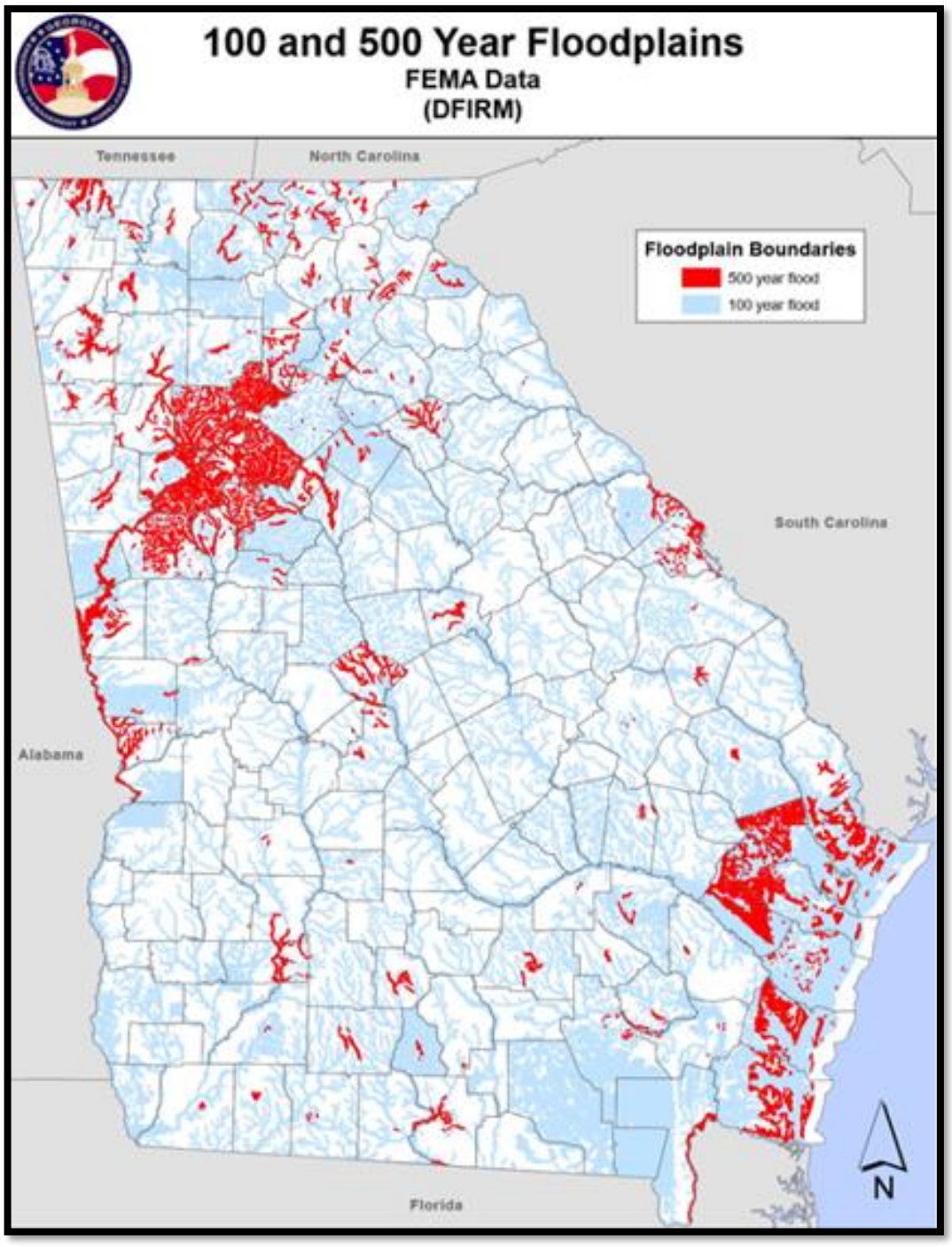
Assets Exposed to the Hazard

To evaluate the assets that would potentially be impacted by flooding, the Dougherty County HMPC attempted to identify known structures within, or close to, the 100-year floodplain. There are 3,389 structures, including 3,114 residences, in the 100-year floodplain in Dougherty County. Most of these structures – over 2,800 – are in the City of Albany.

Estimated Potential Losses

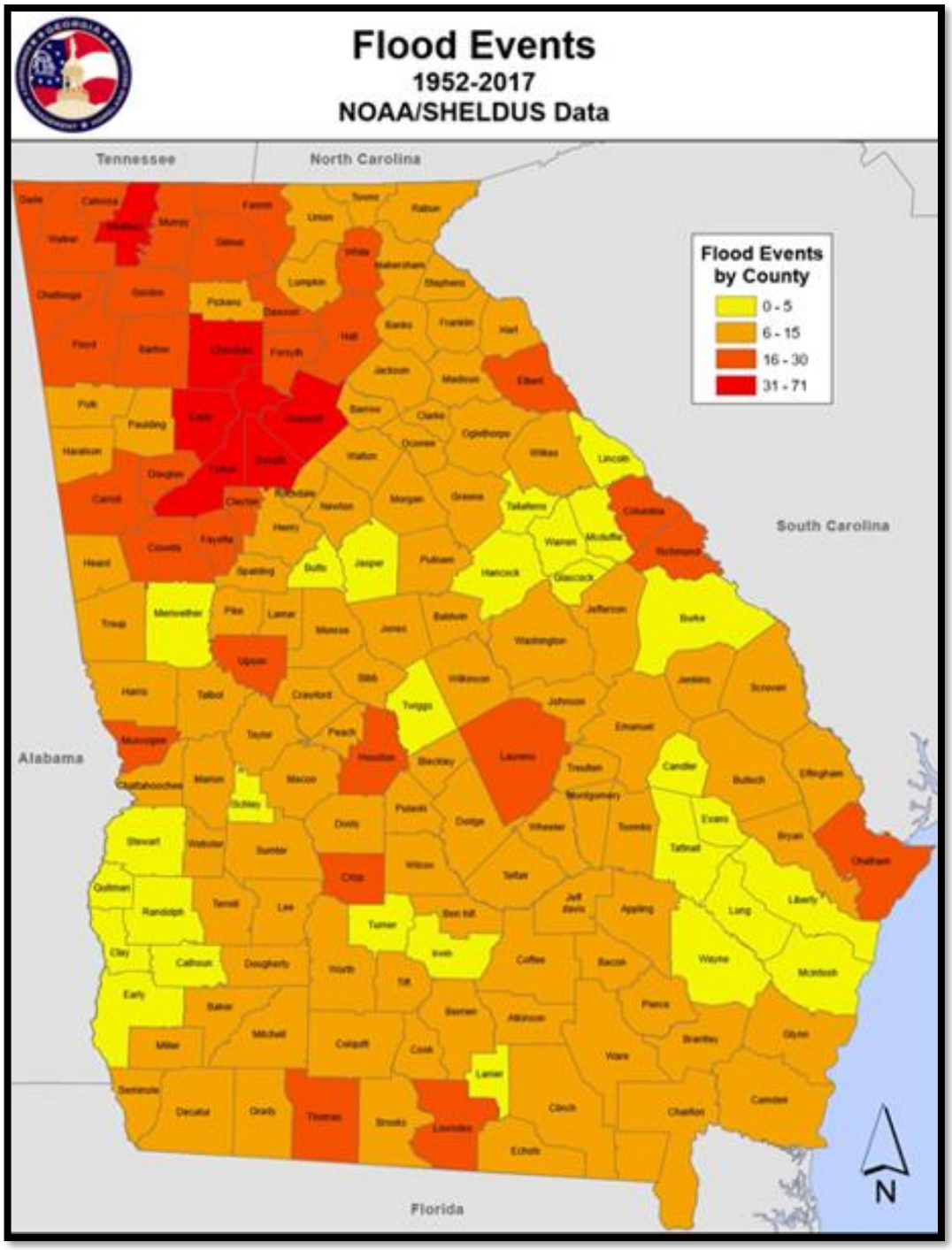
The flooding events in Dougherty County over the last 50 years have led to over $116 million in reported damages. Extrapolated over 50 years, this results in an annual average of $2.3 million per year. However, all reported damages have occurred in the last 22 years. As a result, the average over the last 22 years is $5.3 million annually. These estimations are believed to be a gross underestimation of both prior and potential damages from flood events.

Natural Hazard: **Flooding**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Flooding**

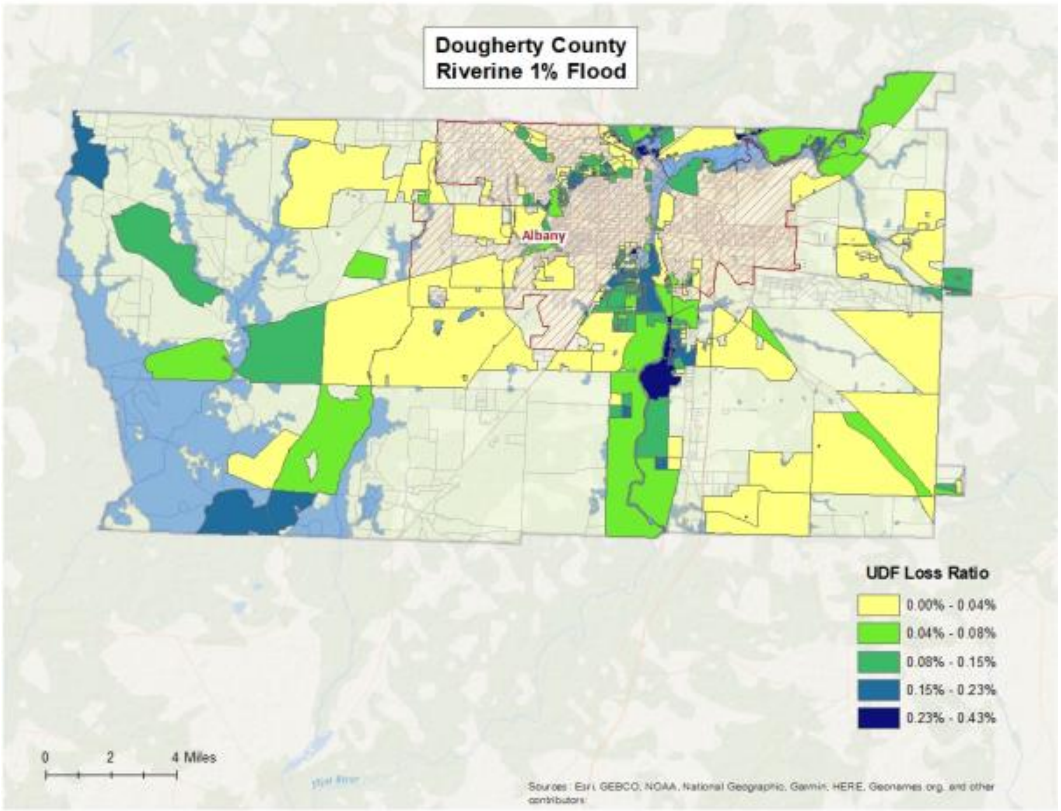


Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Flooding**

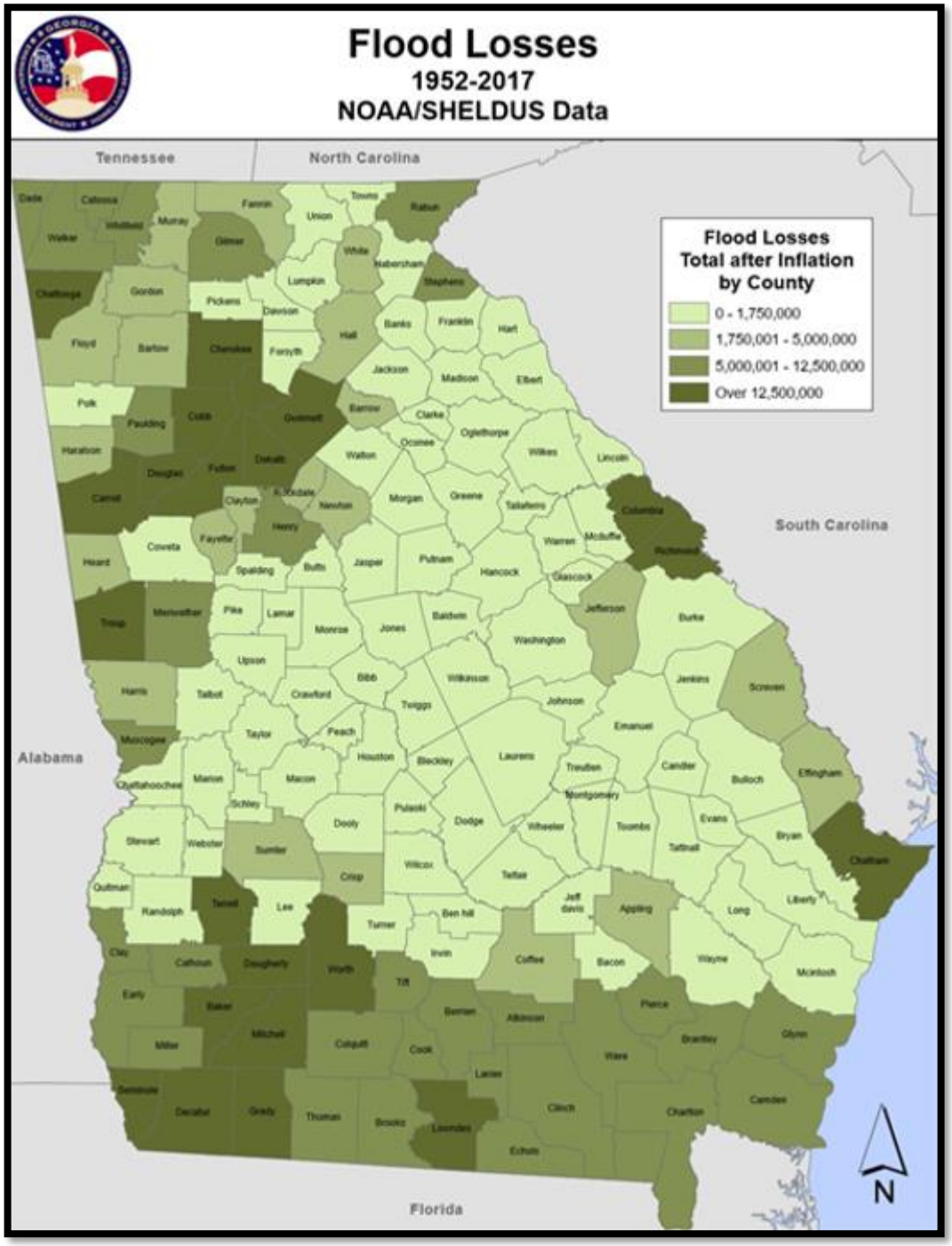
Jurisdiction	Number of Flood incidents since 1998	Probability
Unincorporated Dougherty County	7	31.8%
Albany	16	72.7%

Based upon the 2021 Dougherty County HAZUS report, a flood equivalent to the 1% riverine flood levels could result in losses in excess of $80.5 million. However, it is possible that some areas may not experience total losses while others may be inundated with flood water who are not designated in the 1% riverine flood areas. Additionally, there are no critical facilities located in the 1% riverine flood areas.



Source: 2021 Dougherty County HAZUS Report

Natural Hazard: **Flooding**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Flooding**

Land Use & Development Trends

Dougherty County participates in the National Flood Insurance Program (NFIP) and follows the program's guidelines to ensure future development is carried out in the best interests of the public. The County (CID No. 130074) first entered the NFIP on April 17, 1978. According to the NFIP guidelines, the County has executed a Flood Damage Prevention Ordinance. This ordinance attempts to minimize the loss of human life and health as well as minimize public and private property losses due to flooding. The ordinance requires any potential flood damage be evaluated at the time of initial construction and that certain uses be restricted or prohibited based on this evaluation. The ordinance also requires that potential homebuyers be notified that a property is located in a flood area. In addition, all construction must adhere to the Georgia State Minimum Standard Codes and the International Building Codes. The City of Albany also participate in NFIP through the application of appropriate NFIP-compliant ordinances and regulations.

There are 85 residential repetitive loss properties identified in Dougherty County with 43 of those being in the City of Albany. These properties have a total loss value of $5,612,417.

Multi-Jurisdictional Considerations

During a large-scale flood event, many portions of Dougherty County would potentially be impacted by flooding. However, the area's most prone to flooding have historically been those areas located within the 100-year floodplain – particularly those areas along the Flint River, Kinchafoonee Creek, Chickasawhatchee Creek, Cooleewahee Creek and their tributaries and distributaries. All of Dougherty County, particularly the City of Albany, could potentially be impacted.

Hazard Summary

Flooding has the potential to inflict significant damage within Dougherty County, particularly along the Flint River, Kinchafoonee Creek, Chickasawhatchee Creek, Cooleewahee Creek and their tributaries and distributaries. Mitigation of flood damage requires the community to be aware of flood-prone areas, including roads, bridges, and critical facilities. The Dougherty County HMPC identified flooding as a significant hazard requiring mitigation measures and identified specific goals, objectives, and action items they deemed necessary to lessen the impact of flooding for their communities. These maps were updated since the previous plan.

There are 85 repetitive loss properties identified in Dougherty County.

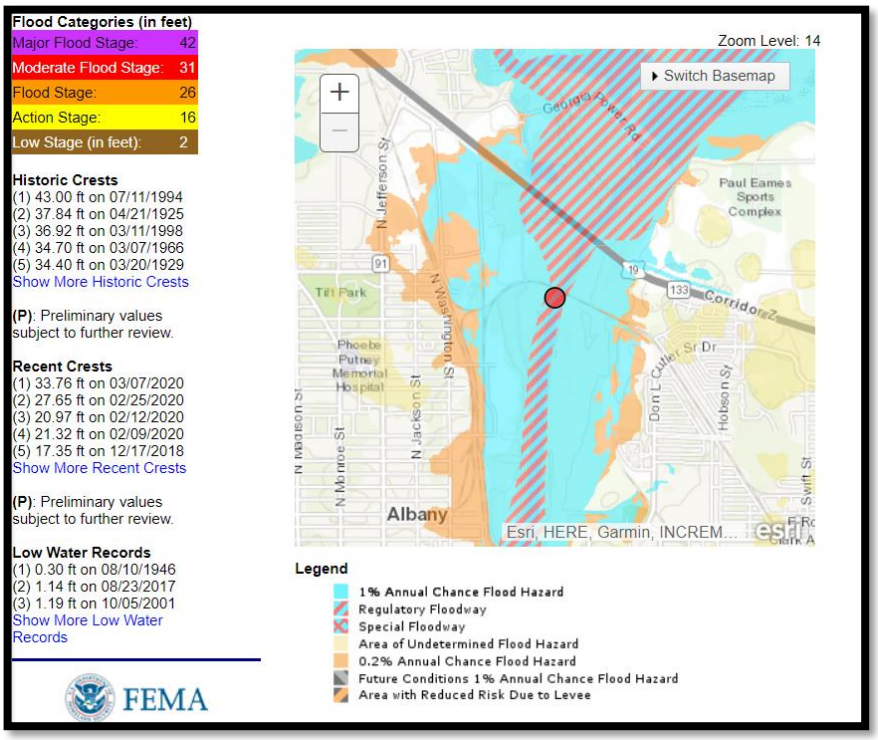
Natural Hazard: **Flooding**

Flood Events since 2015 in Dougherty County

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	50.00K	0.00K
WALKER	DOUGHERTY CO.	GA	08/28/2015	18:45	Flash Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/28/2015	13:00	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/01/2016	00:00	Flood		0	0	50.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood		0	0	0.00K	0.00K
PECAN CITY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/22/2017	00:45	Flash Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/13/2018	22:30	Flood		0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	11/07/2018	20:28	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/02/2018	05:30	Flash Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/18/2019	17:20	Flood		0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/19/2019	16:48	Flash Flood		0	0	0.00K	0.00K

Natural Hazard: **Flooding**

Flint River at Albany



Note:

All "light blue" shaded areas indicate the extent of the 100-year (or 1% annual) flood risk.
All Flood Maps are from the Georgia DFIRM website.

Dougherty County

Natural Hazard: **Flooding**

Albany

Natural Hazard: **Tornado**

Hazard Description

A tornado is a violently rotating column of air (seen only when containing condensation, dust, or debris) that is in contact with the surface of the ground. Exceptionally large tornadoes may not exhibit the classic "funnel" shape, but may appear as a large, turbulent cloud near the ground or a large rain shaft. Destructive because of strong winds and windborne debris, tornadoes can topple buildings, roll mobile homes, uproot vegetation, and launch objects hundreds of yards.

Most significant tornadoes (excluding some weak tornadoes and waterspouts) stem from the right rear quadrant of large thunderstorm systems where the circulation develops between 15,000 and 30,000 feet. As circulation develops, a funnel cloud, a rotating air column aloft, or tornado descends to the surface. These tornadoes are typically stronger and longer-lived. The weaker, shorter-lived tornadoes can develop along the leading edge of a singular thunderstorm. Although tornadoes can occur in most locations, most of the tornado activity in the United States in the Midwest and Southeast. Tornadoes can occur anywhere within the State of Georgia.

In terms of the continuum of area of impact for hazard events, tornadoes are fairly isolated. Typically ranging from a few hundred to one or two miles across, tornadoes affect far less area than larger meteorological events such as tropical cyclones, winter storms and severe weather events. An exact season does not exist for tornadoes. However, most occur between early spring to mid-summer (February-June). The rate of onset of tornado events is rapid. Typically, the appearance of the first signs of the tornado is the descending funnel cloud. This sign may be only minutes from the peak of the event, giving those in danger minimal sheltering time. However, meteorological warning systems attempt to afford those in danger more time to shelter. The frequency of specific tornado intensities is undetermined because no pattern seems to exist in occurrence. Finally, the duration of tornado events ranges from the few minutes of impact on a certain location to the actual tornado lasting up to a few hours.

Tornadoes are measured after the occurrence using the subjective intensity measures. The Enhanced Fujita Scale describes the damage and then gives estimates of magnitude of peak 3-second gusts in miles per hour.

Natural Hazard: **Tornado**

EF Number	3 Second Gust (mph)	Damage
0	65–85	**Light damage.** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
1	86–110	**Moderate damage.** Roofs severely stripped; mobile homes overturned or severely damaged; loss of exterior doors; windows and other glass broken.
2	111–135	**Considerable damage.** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
3	136–165	**Severe damage.** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
4	166–200	**Devastating damage**. Well-constructed houses and whole frame houses completely leveled; cars thrown, and small missiles generated.
5	More than 200	**Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena occur.

Hazard Profile

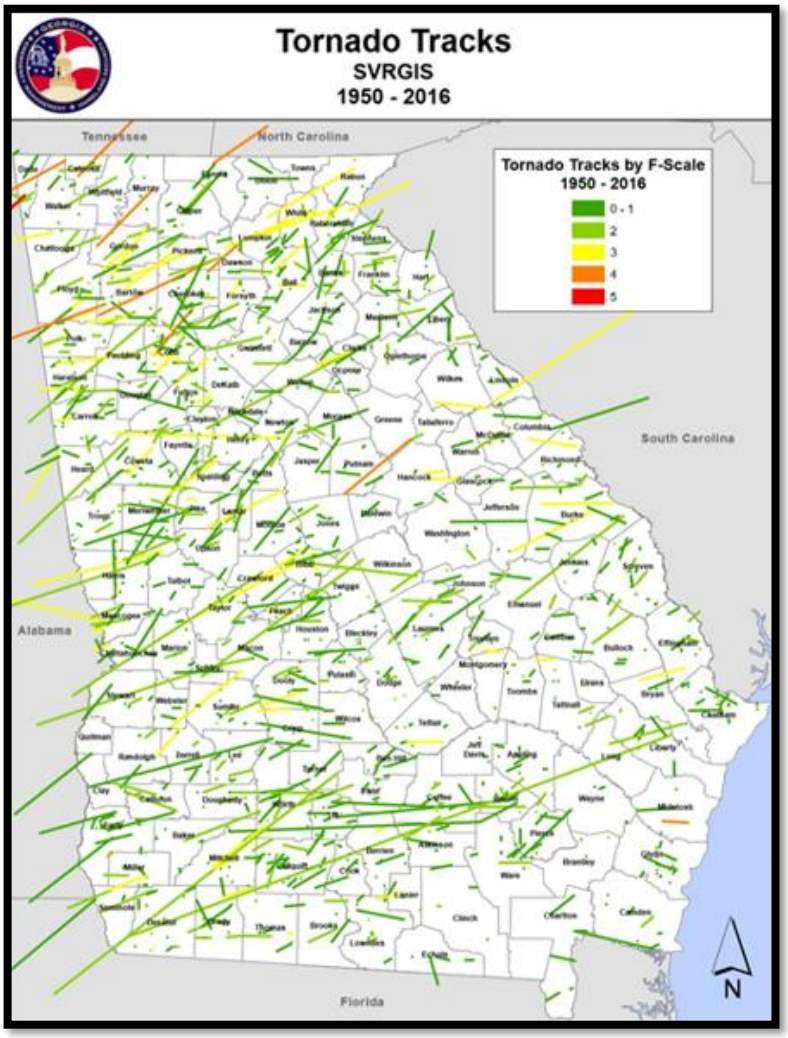
All areas within Dougherty County are vulnerable to the threat of a tornado. Due to the indiscriminate and unpredictable nature of tornadoes, there is no reliable method to determine where or when a tornado will strike. There have been 12 documented tornadoes in the last 50 years in Dougherty County. It is likely that other tornadoes have occurred within this timeframe, but available records are limited in nature.

Based on the 50-year information available for Dougherty County, a tornado occurs every 4.2 years. On an annual basis, Dougherty County has a 24% chance of being impacted from a tornado event.

Natural Hazard: **Tornado**

Individual tornado events can cause extreme damage to an area. This holds true for Dougherty County, as well. The strongest and most costly documented tornado to impact Dougherty County was EF3 in 2017. This storm traveled a total of 23.3 miles through southern and eastern Dougherty County and 70 miles in total through 5 counties. This tornado reached a width of 1.2 miles in Dougherty County and caused damages in excess of $300 million. There were 32 injuries and 5 fatalities in Dougherty County as a result of this storm.

For additional historical data, please see Appendix D. All tornado hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Tornado**

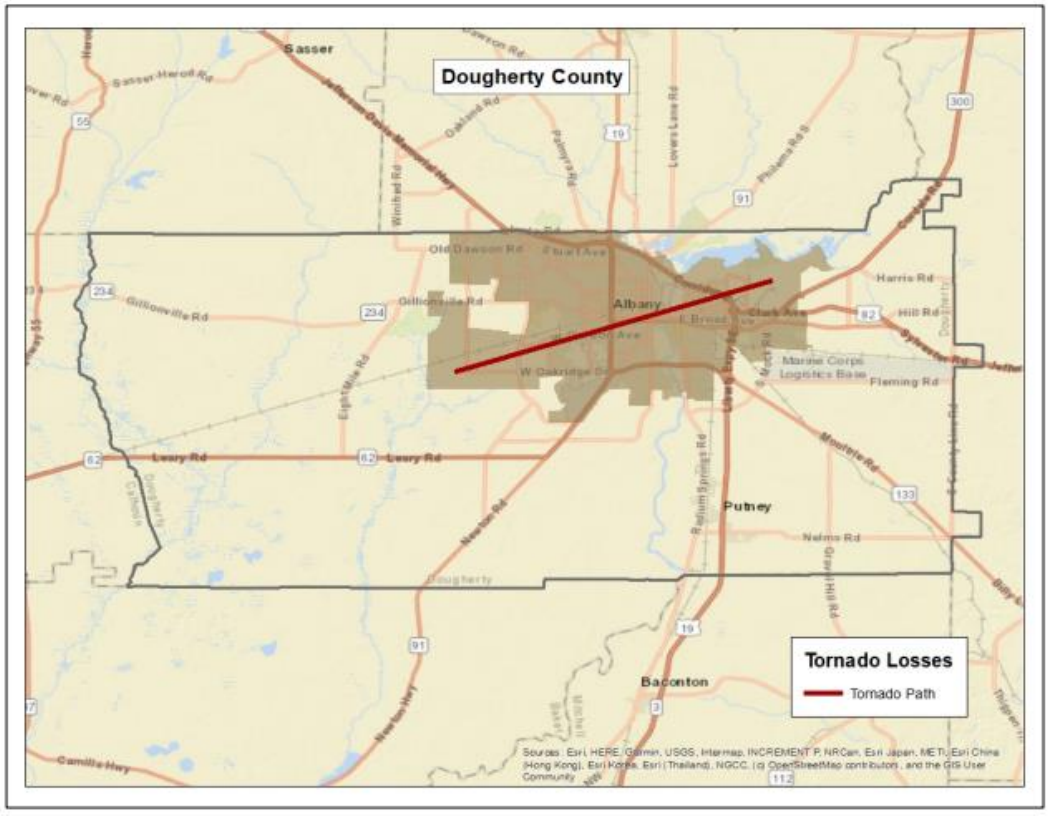
Assets Exposed to the Hazard

In evaluating assets that are susceptible to tornadoes, the Dougherty County HMPC determined that all public and private property is threatened by tornadoes, including all critical facilities. This is due to the lack of spatial prejudice of tornadoes.

Estimated Potential Losses

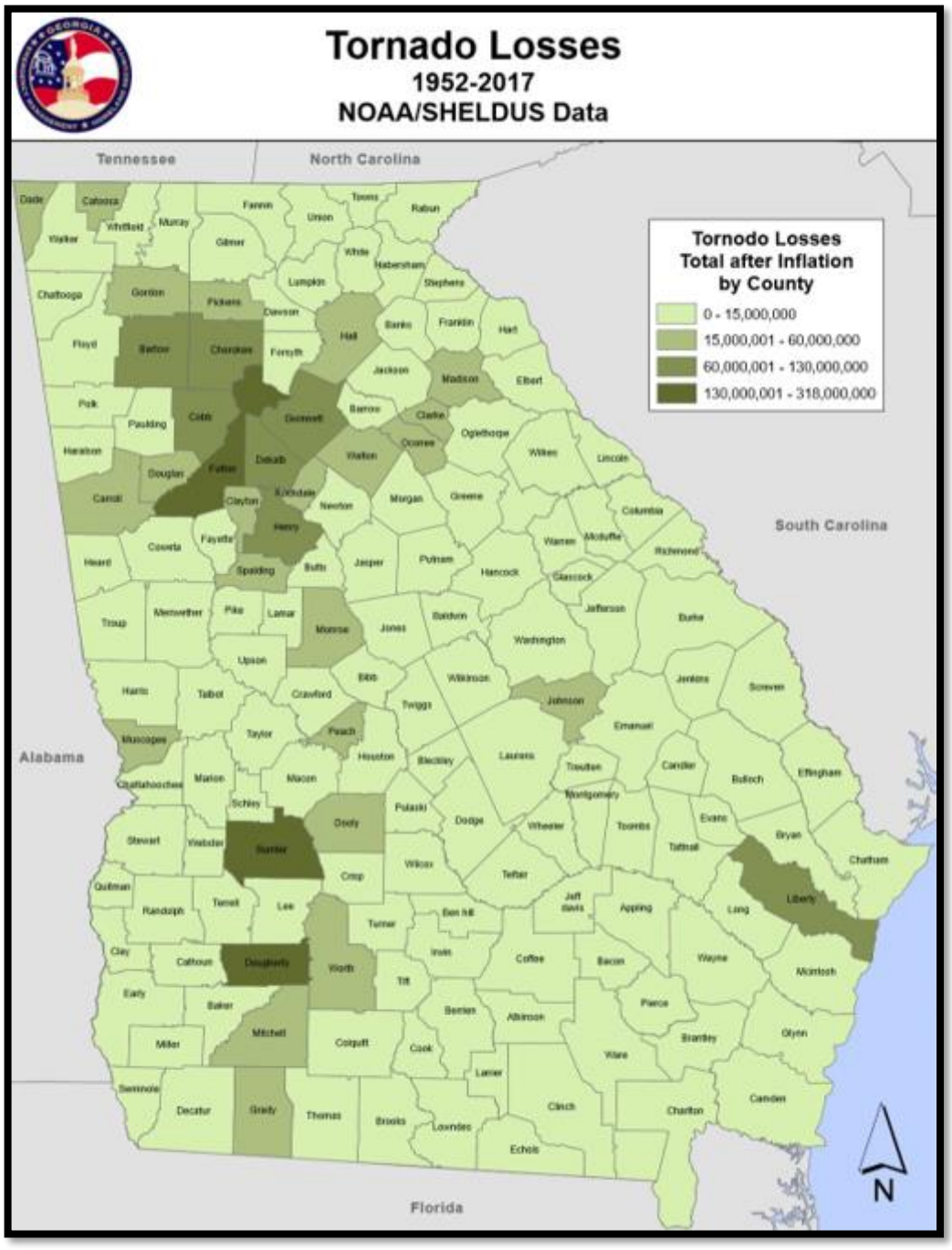
Estimates of damage for the past events of the last 50 years are over $311 million, or $6.23 million annually.

Within the 2021 Dougherty County HAZUS report, a theoretical tornado path for an EF3 was identified that would inflict maximum damage. HAZUS estimated that this theoretical tornado would cause damage to approximately 1,909 buildings and result in losses in excess of $89 million with the City of Albany suffering the greatest economic impacts.



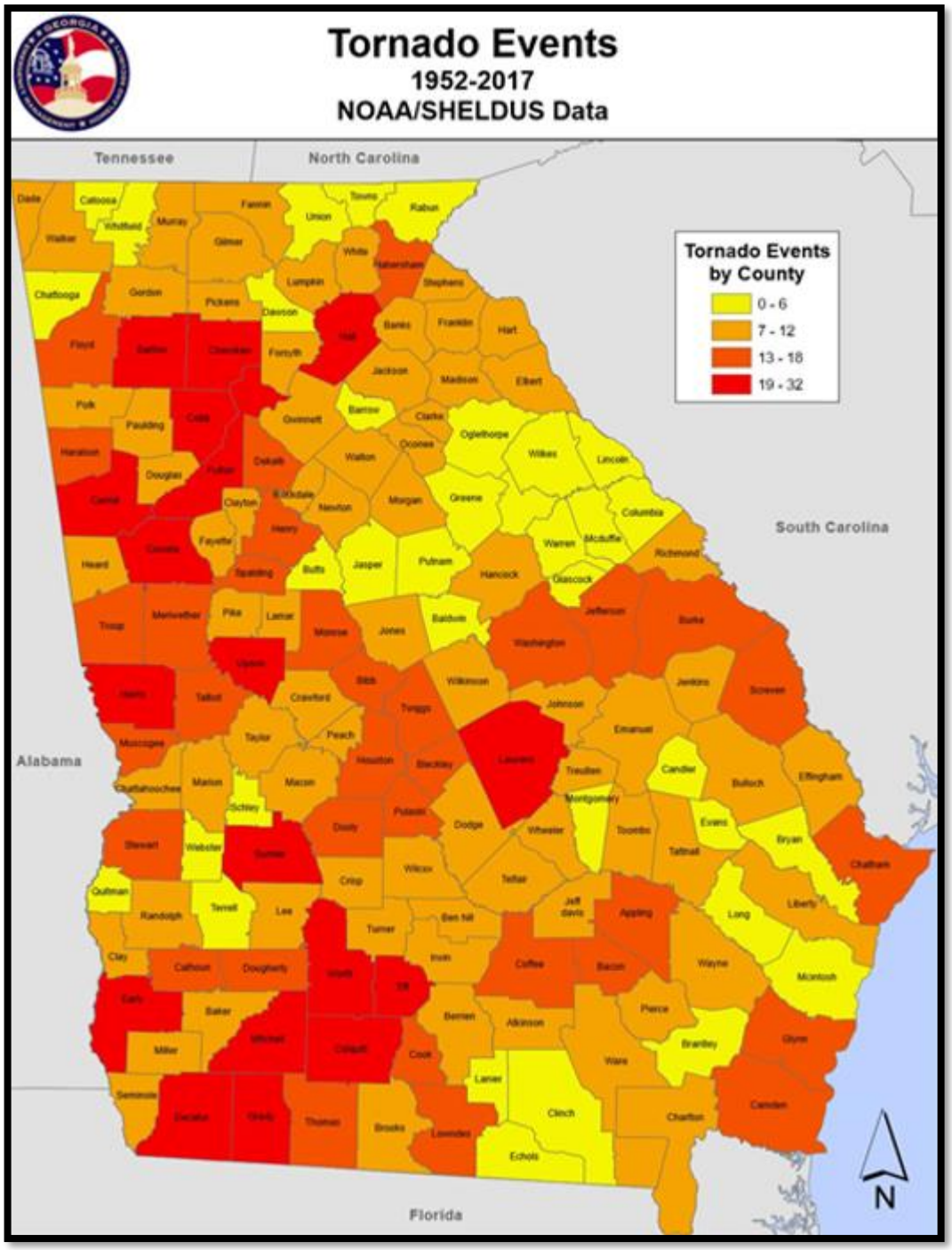
Source: 2021 Dougherty County HAZUS Report

Natural Hazard: **Tornado**



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Tornado**

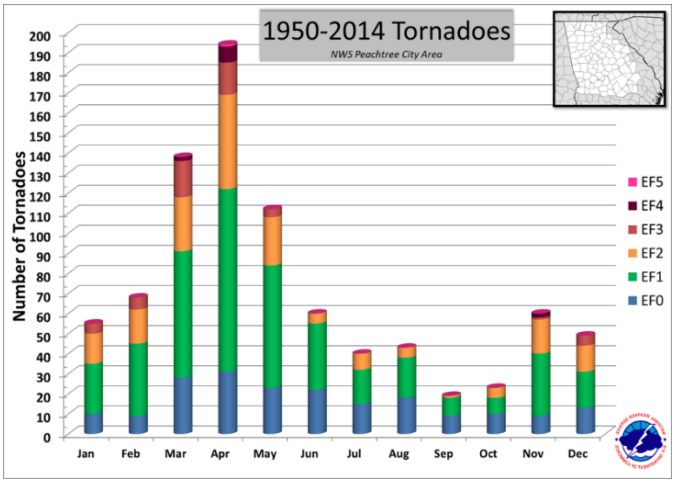


Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Tornado**

Land Use & Development Trends

Dougherty County currently has no land use trends related to Tornadoes beyond continued population growth – particularly around the City of Albany. Additionally, tourist areas throughout Dougherty County would see significant impact from a direct tornado strike or damage in infrastructure from a tornado strike elsewhere in Dougherty County.



Multi-Jurisdictional Considerations

All portions of Dougherty County could potentially be impacted by a tornado due to the indiscriminate nature of tornadic events. Therefore, all mitigation actions identified regarding tornadoes should be pursued on a countywide basis and included all municipalities.

Hazard Summary

Dougherty County remains at risk to potential damage from tornadoes, especially considering the average of one tornado every 4.2 years over the last 50 years. Should a tornado strike in densely populated areas of the county, significant damage or loss of life could occur. Due to the destructive power of tornadoes, it is essential that the mitigation measures identified in this plan regarding tornado activity.

Tornadoes in Dougherty County since 2015

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
TURNER CITY	DOUGHERTY CO.	GA	01/02/2017	22:32	Tornado	EF1	0	0	0.00K	0.00K
PRETORIA	DOUGHERTY CO.	GA	01/22/2017	15:15	Tornado	EF3	5	32	300.000M	0.00K

Natural Hazard: **Drought**

Hazard Description

Drought is a normal, recurrent feature of climate consisting of a deficiency of precipitation over an extended period (usually a season or more). This deficiency results in a water shortage for some social or environmental sector. Drought should be judged relative to some long-term average condition of balance between precipitation and evapotranspiration in a particular area that is considered "normal." Drought should not be viewed as only a natural hazard because the demand people place on water supply affects perceptions of drought conditions. From limited water supplies in urban areas to insufficient water for farmland, the impacts of drought are vast.

Droughts occur in virtually every climatic zone and on every continent. Because the impacts of drought conditions are largely dependent on the human activity in the area, the spatial extent of droughts can span a few counties to an entire country.

Temporal characteristics of droughts are drastically different from other hazards due to the possibility of extremely lengthy durations as well as a sluggish rate of onset. Drought conditions may endure for years or even decades. This factor implicates drought as having a high potential to cause devastation on a given area. The duration characteristic of droughts is so important that droughts are classified in terms of length of impact. Droughts lasting 1 to 3 months are considered short term, while droughts lasting 4 to 6 months are considered intermediate and droughts lasting longer than 6 months are long term. With the slow rate of onset, most populations have some inkling that drought conditions are increasingly present. However, barring drastic response measures, most only must adapt to the changing environment.

Seasonality has no general impact on droughts in terms of calendar seasons. However, "wet" and "dry" seasons obviously determine the severity of drought conditions. In other words, areas are less susceptible to drought conditions if the area is experiencing a wet season. The frequency of droughts is undetermined, since the hazard spans such a long period of time. However, climatologists track periods of high and low moisture content similarly to the tracking of cooling and warming periods.

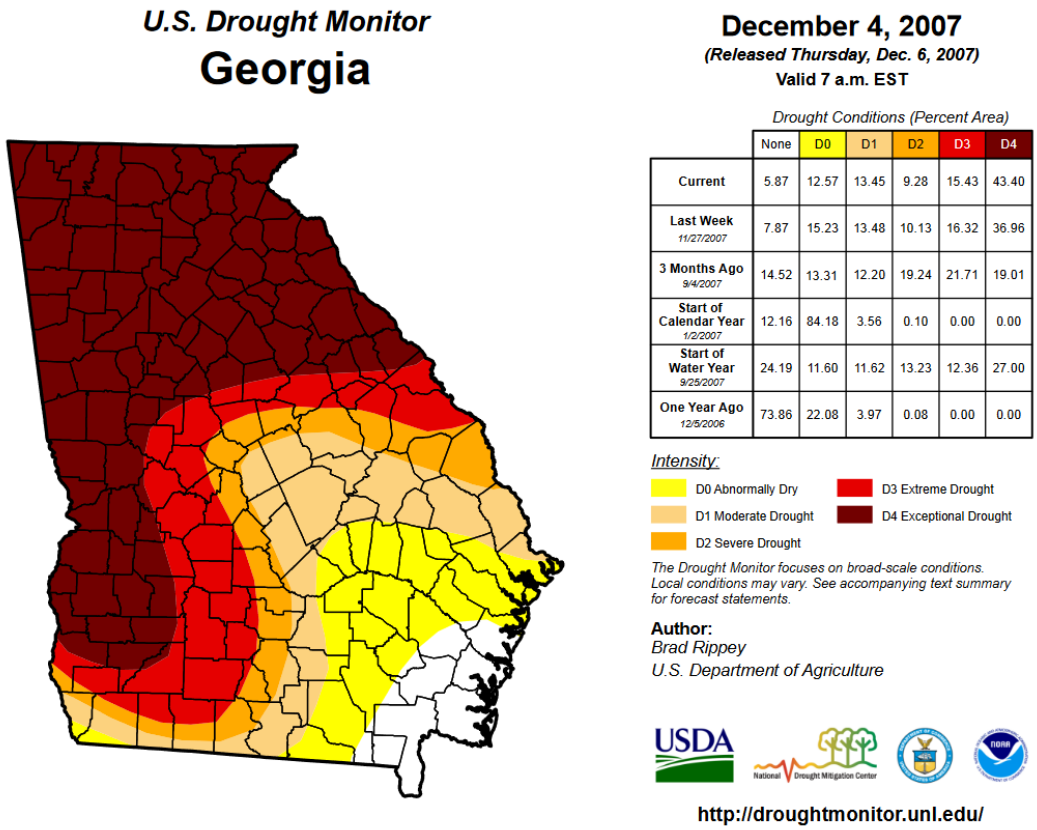
Hazard Profile

The Dougherty County HMPC reviewed data for the last 50 years regarding drought conditions. Historically, agricultural losses have accounted for the vast number of losses related to drought conditions.

Natural Hazard: **Drought**

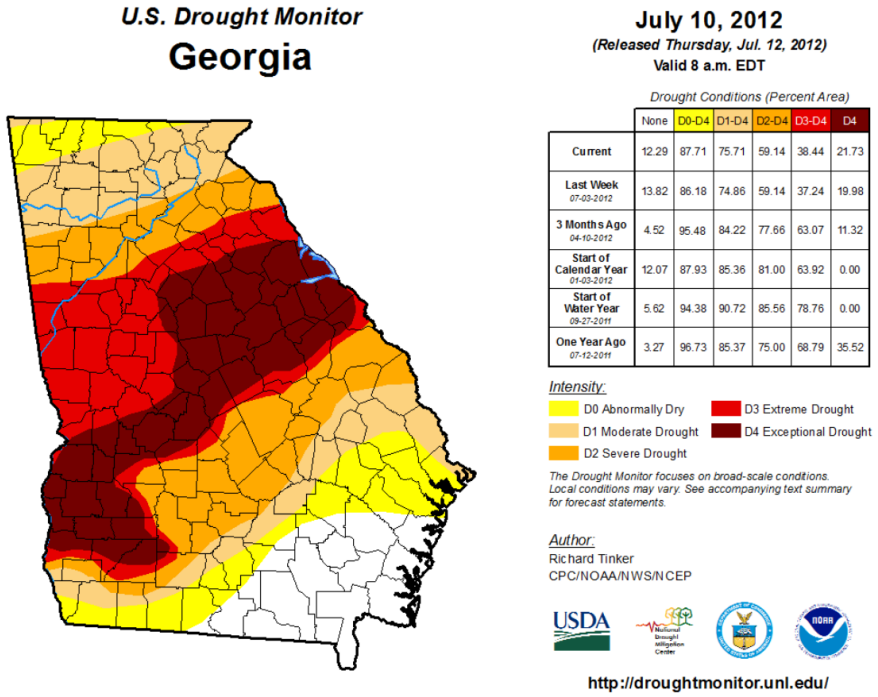
Due to poor record keeping and the unpredictable nature of drought conditions, reliability of historical data for the last 50 years is low. Dougherty County has been impacted by 5 drought events in the last 20 years, according to data from the National Climatic Data Center. This amounts to a 25% chance of a drought for a given year over the last 20 years. One of the identified droughts was significant in length, lasting from November 2010 to February 2013. The economic impact of these droughts, including crop damage, is not available for most of these droughts. This is the only drought with documented economic loss estimations. All drought hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.

There have been two recent examples of "exceptional" drought events affecting Dougherty County. These events occurred in 2007 and 2016. Both events reached the D4 (Exceptional Drought) designation, according to data from the United States Drought Monitor. Below are maps of these two events.



Source: USDA Drought Monitor – University of Nebraska-Lincoln

Natural Hazard: **Drought**



Source: USDA Drought Monitor – University of Nebraska-Lincoln

Events of this extent can cause water shortages for residential and corporate needs, as well as affecting the ability for firefighting operations to be properly effective. Drought conditions of this extent can have devastating effects on the local agricultural industries, which has occurred in previous D4 level droughts.

Assets Exposed to the Hazard

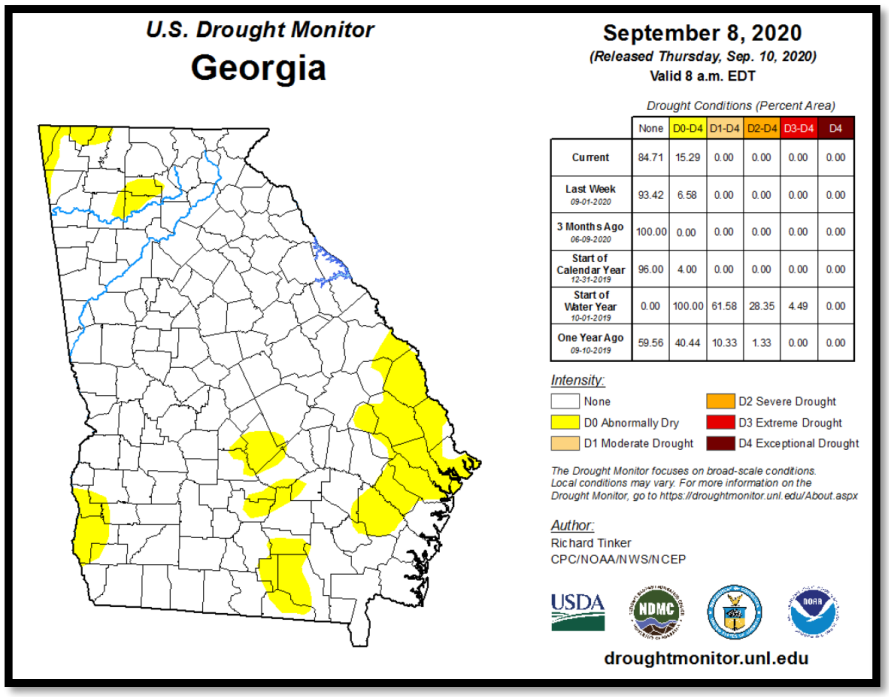
While drought conditions do not typically pose a direct threat to structures, secondary hazards from drought such as increased wildfire threat, does pose a significant threat to all public and private property in Dougherty County, including all critical facilities. Water resources could also become scarce during a drought, a condition that would potentially affect all Dougherty County residences and critical facilities.

Estimated Potential Losses

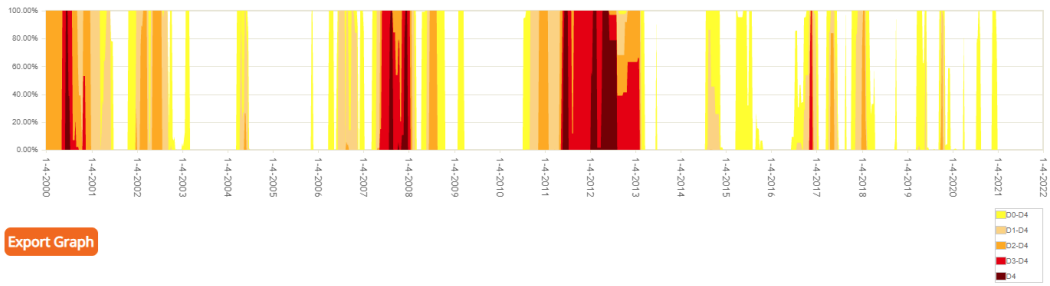
No damage to structures or critical facilities is expected as a direct result of drought conditions. However, crop damage and subsequent losses can be expected to occur as a result of drought conditions. The degree of losses would depend on the duration of the drought, severity of the drought, temperatures during the drought, season in which the drought occurs, and the specific needs of the involved crops. Water system shortages and need for supply assistance for those systems could also lead to economic losses associated with the drought.

Natural Hazard: **Drought**

According to the 2017 Agriculture Census data, Dougherty County's market value of products sold was $40,299,000. $36,097,000 of that total represented crop sales, accounting for 89.6% of the total. Livestock sales accounted for 10.4%, or $4,202,000, of the total value.

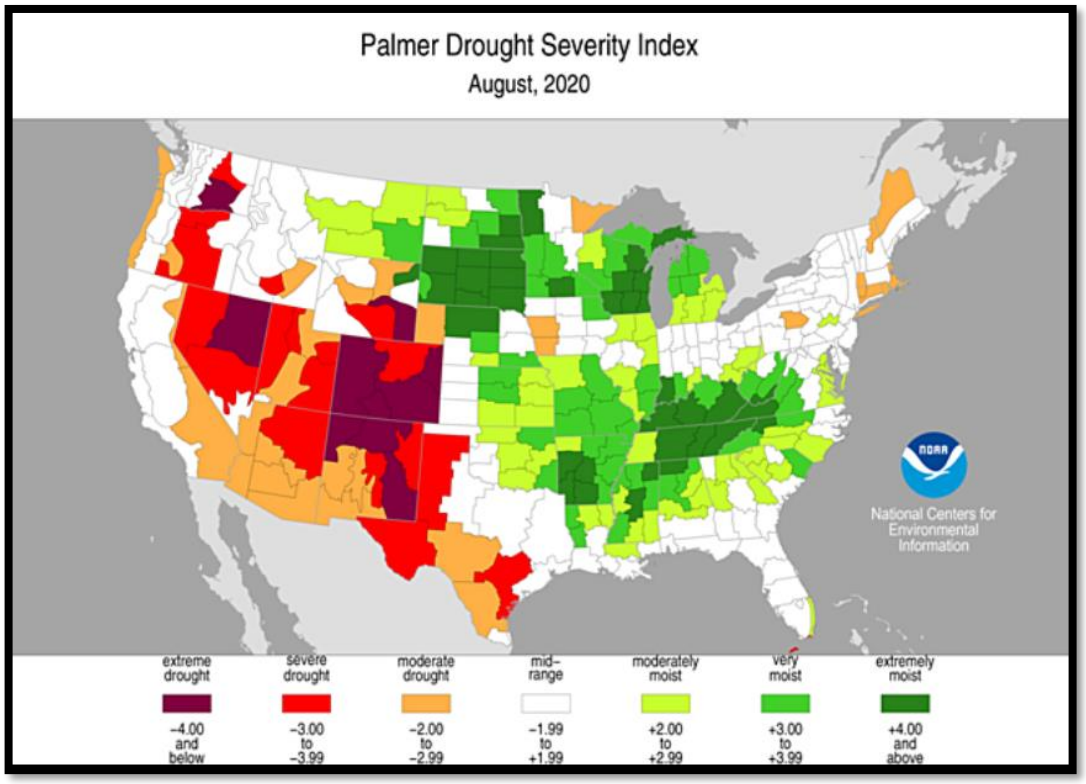


Source: United States Drought Monitor (University of Nebraska-Lincoln)



Source: United States Drought Monitor (University of Nebraska-Lincoln)

Natural Hazard: **Drought**



Source: National Integrated Drought Information System

Land Use & Development Trends

As growth continues, drought can become a larger threat for Dougherty County due to the increased reliance on water infrastructure and wells countywide. This increased pull on these resources in Dougherty County could quicken or deepen the impacts of a drought for residential, commercial, and industrial areas. Additionally, the local crop industry could see particularly significant impacts from a drought. With over $36 million in annual sales, crop damage as a result of a prolonged drought could prove to be particularly crippling to the Dougherty County economy.

Multi-Jurisdictional Considerations

All portions of Dougherty County could potentially be impacted by a drought, but agricultural areas of the county are potentially more at risk. Therefore, all mitigation actions identified regarding drought should be pursued on a countywide basis and include all municipalities.

Natural Hazard: **Drought**

Hazard Summary

Drought conditions can cause significant economic stress on the agriculture and forestry interests of Dougherty County. The potential negative secondary impacts of drought are numerous. They include increased wildfire threat, decreased water supplies for residential and industrial needs, stream-water quality, and water recreation facilities. The Dougherty County HMPC recognizes the potential threats drought conditions could have on the community and have identified specific mitigation actions as a result.

Drought Events since 2015 in Dougherty County

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	11/15/2016	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	12/01/2016	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/09/2018	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	02/01/2018	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	10/08/2019	00:00	Drought		0	0	0.00K	0.00K

Natural Hazard: **Wildfire**

Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires can consume large areas, including infrastructure, property, and resources. When massive fires, or conflagrations, develop near populated areas, evacuations could possibly ensue. Not only do the flames impact the environment, but the massive volumes of smoke spread by certain atmospheric conditions also impact the health of nearby populations.

Wildfires result from the interaction of three crucial elements: fuel, ignition (heat), and oxygen. Natural and manmade forces cause the three crucial elements to coincide in a manner that produces wildfire events. Typically, fuel consists of natural vegetation. However, as the urban and suburban footprint expands, wildfires may utilize other means of fuel, such as buildings. In terms of ignition or source of heat, the primary source is lightning. However, humans are more responsible for wildfires than lightning. Manmade sources vary from the unintentional, such as fireworks, campfires, or machinery, to intentional arson. With these two elements provided, the wildfires may spread as long as oxygen is present.

Weather is the most variable factor affecting wildfire behavior. Strong winds propel wildfires quickly across most landscapes unless firebreaks are present. Shifting winds create erratic wildfires, which can complicate fire management efforts. Dry conditions provide faster-burning fuels, either making the area more vulnerable to wildfire or increasing the mobility of preexisting wildfires.

Wildfires are notorious for spawning secondary hazards, such as flash flooding and landslides, long after the original fire is extinguished. Both flash flooding and landslides result from fire consuming the natural vegetation that provides precipitation interception and infiltration as well as slope stability.

All of Georgia is prone to wildfire due to the presence of wildland fuels associated with wildfires. Land cover associated with wildland fuels includes coniferous, deciduous, and mixed forest; shrubland; grassland and herbaceous; transitional; and woody and emergency herbaceous wetlands. The spatial extent of wildfire events greatly depends on both the factors driving the fire as well as the efforts of fire management and containment operations.

Natural Hazard: **Wildfire**

In terms of seasonality, wildfires can occur during any season of the year. However, drier seasons, which vary within the State of Georgia, are more vulnerable to severe wildfires because of weather patterns and the abundant quick-burning fuels. In terms of rate of onset and duration, wildfires vary depending on the available fuels and weather patterns. Some wildfires can engulf an area in a matter of minutes from the first signs whereas others may be slower burning and moving. The frequency of wildfires is not typically measured because of the high probability of human ignition being statistically unpredictable. Magnitude and intensity are typically only measured by size of the wildfire and locations of burning.

Three classes of fires include understory, crown, and ground fires. Naturally-induced wildfires burn at relatively low intensities, consuming grasses, woody shrubs, and dead trees. These understory fires often play an important role in plant reproduction and wildlife habitat renewal and self-extinguish due to low fuel loads or precipitation. Crown fires, which consist of fires consuming entire living trees, are low probability but high consequence events due to the creation of embers that can be spread by the wind. Crown fires typically match perceptions of wildfires. In areas with high concentrations of organic materials in the soil, ground fires may burn, sometimes persisting undetected for long periods until the surface is ignited.

Hazard Profile

Wildfires pose a serious threat to Dougherty County. This is a result of the high amount of forestland and vegetation available to fuel potential wildfires. Also, there is an increasing amount of wildland-urban interface (WUI) in Dougherty County, which is defined as areas where structures and other human development meets undeveloped wildland properties. 77.7% of Dougherty County's population lives within the WUI. All wildfire hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.

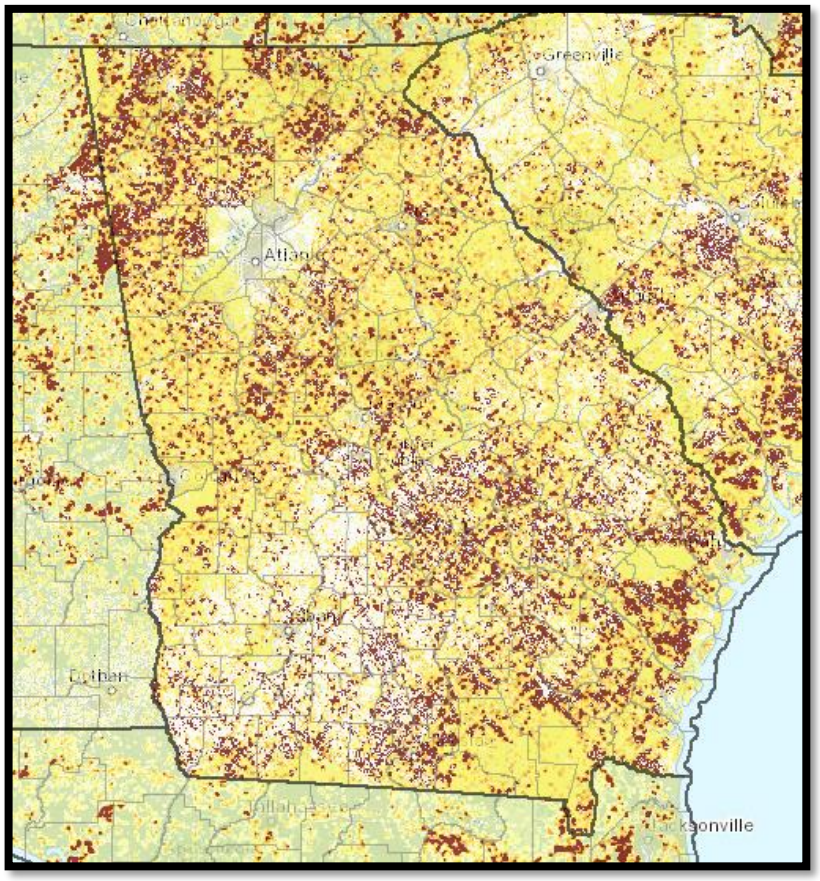
Jurisdiction	% Of Population in WUI
Dougherty County	77.7%
Albany	73.3%

Wildfire statistics were not available for the 50-year timeframe at the time of this profile. However, according to the 2017 Georgia Forestry Commission Dougherty County Community Wildfire Protection Plan, Dougherty County had 212 wildfires from 2007-2017 – an average of 19.3 fire per year. This equates to a 5.3% chance of a wildfire on any given day in Dougherty County. These 212 wildfires burned a total of 1,241.92 acres – or 112.9 acres per year. For this timeframe, debris burning

Natural Hazard: **Wildfire**

was the most common cause of fire and was the source of 50% of wildfires from 2007 to 2017.

Georgia Wildfire Ignition Density



Source: Southern Group of State Foresters Wildfire Risk Assessment Portal

Assets *Exposed to the Hazard*

All public and private property located within the Wildland-Urban Interface, including critical infrastructures, are susceptible to impacts from wildfires. Due to the large area of wildland area in Dougherty County and the large amount of WIU, all public and private property, including critical infrastructures, could be directly or indirectly impacted by the threat of wildfire.

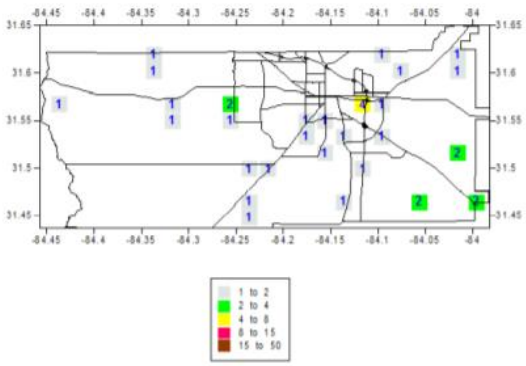
Natural Hazard: **Wildfire**

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, for wildfire losses in Dougherty County. According to the 2017 Ag Census by the USDA, Dougherty County has $36,097,000 in annual crop sales. These areas would potentially be impacted by a wildfire event.

Fire Occurrence Map for Dougherty County (2007-2016)

Fire Occurrence Map for
Dougherty County for Fiscal Year 2012-2016



Land Use & Development Trends

With the continued increase in population, Wildland-Urban Interface (WUI) is increasing in Dougherty County. The WUI creates areas where fire can easily move from wildland areas into developed areas and threaten structures and human life. The expansion of the WUI in Dougherty County complicated wildland fire management operations and planning initiatives. This development trend is expected to continue in the future.

Multi-Jurisdictional Considerations

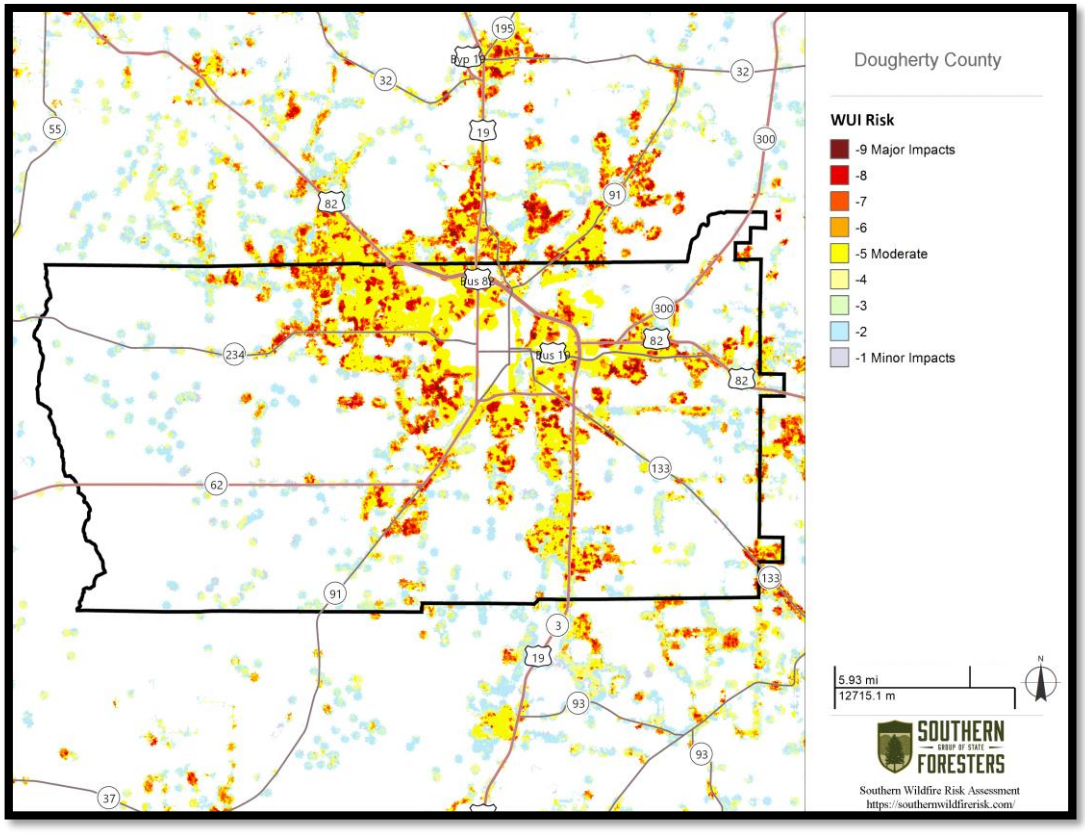
All portions of Dougherty County, including all municipalities, could potentially be impacted by a wildfire due to the large amount of Wildland-Urban Interface, but the less developed areas of the county are more vulnerable. Therefore, all mitigation actions identified regarding wildfires should be pursued on a countywide basis and include all municipalities.

Natural Hazard: **Wildfire**

Hazard Summary

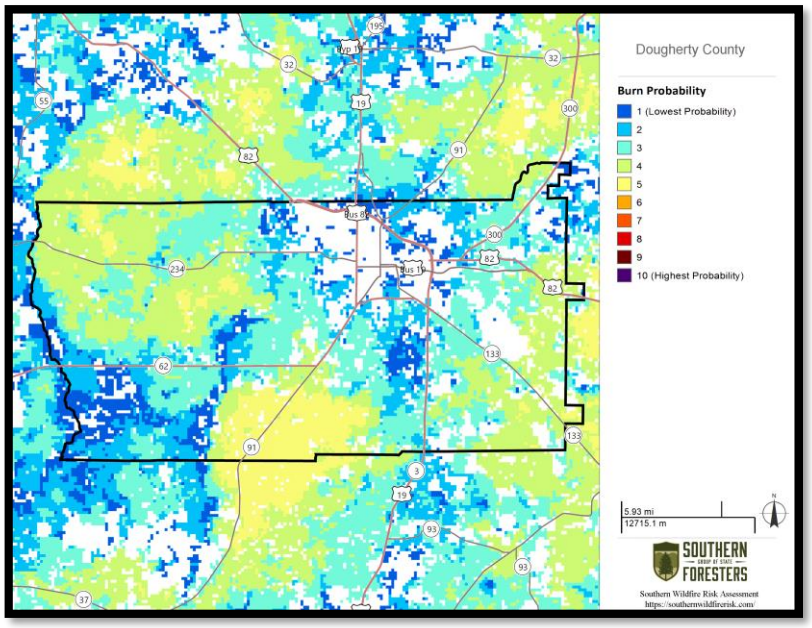
Wildfire is a significant threat to Dougherty County due to the increased amount of Wildland-Urban Interface. The increasing amount of area where structures and other human development meets undeveloped, wildland property is where 77.7% of Dougherty County's population lives. The mitigation measures identified in this plan should be aggressively pursued based on the high frequency of this hazard and the ability for wildfires to inflict devastation anywhere in Dougherty County.

Dougherty County WUI Risk

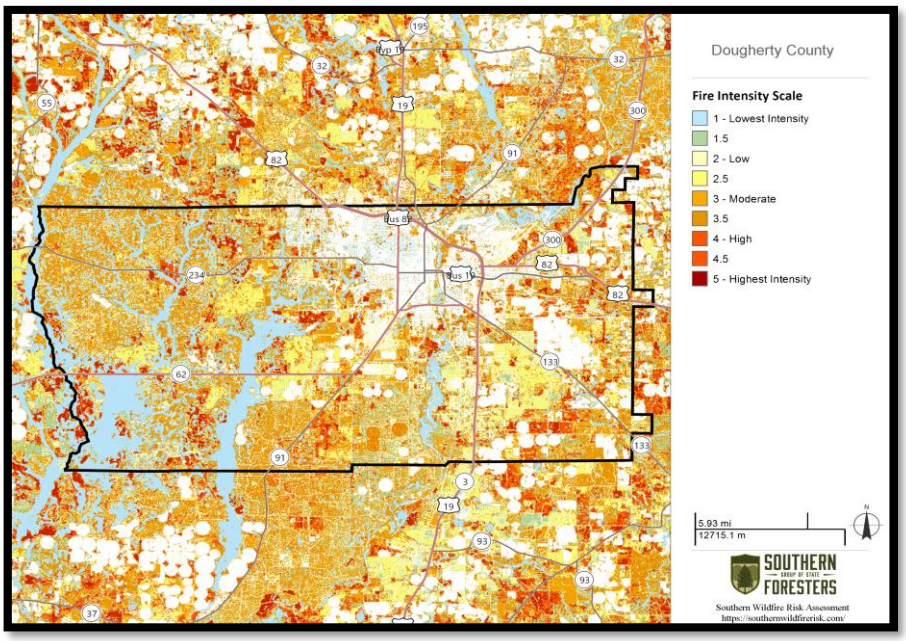


Natural Hazard: **Wildfire**

Dougherty County Burn Probability

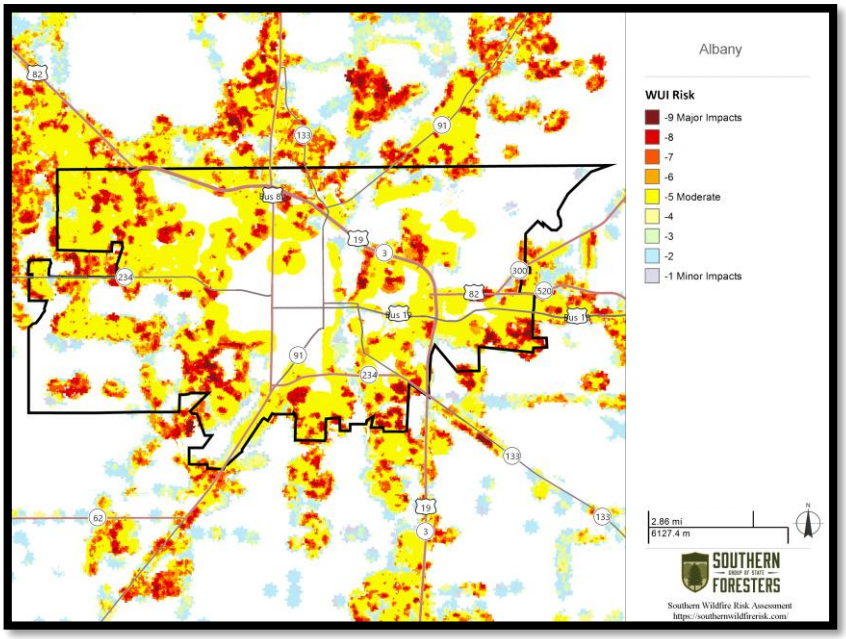


Dougherty County Fire Intensity Scale

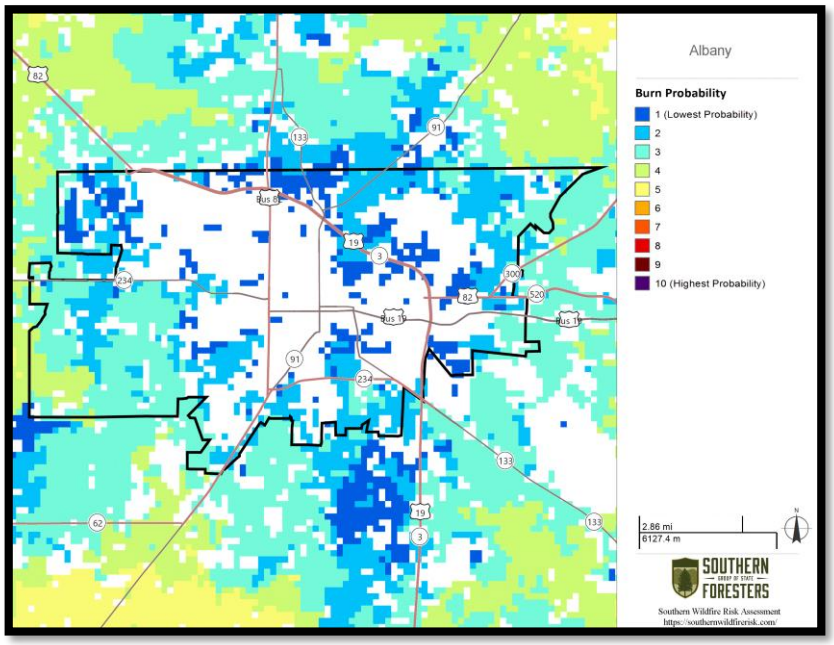


Natural Hazard: **Wildfire**

Albany WUI Risk

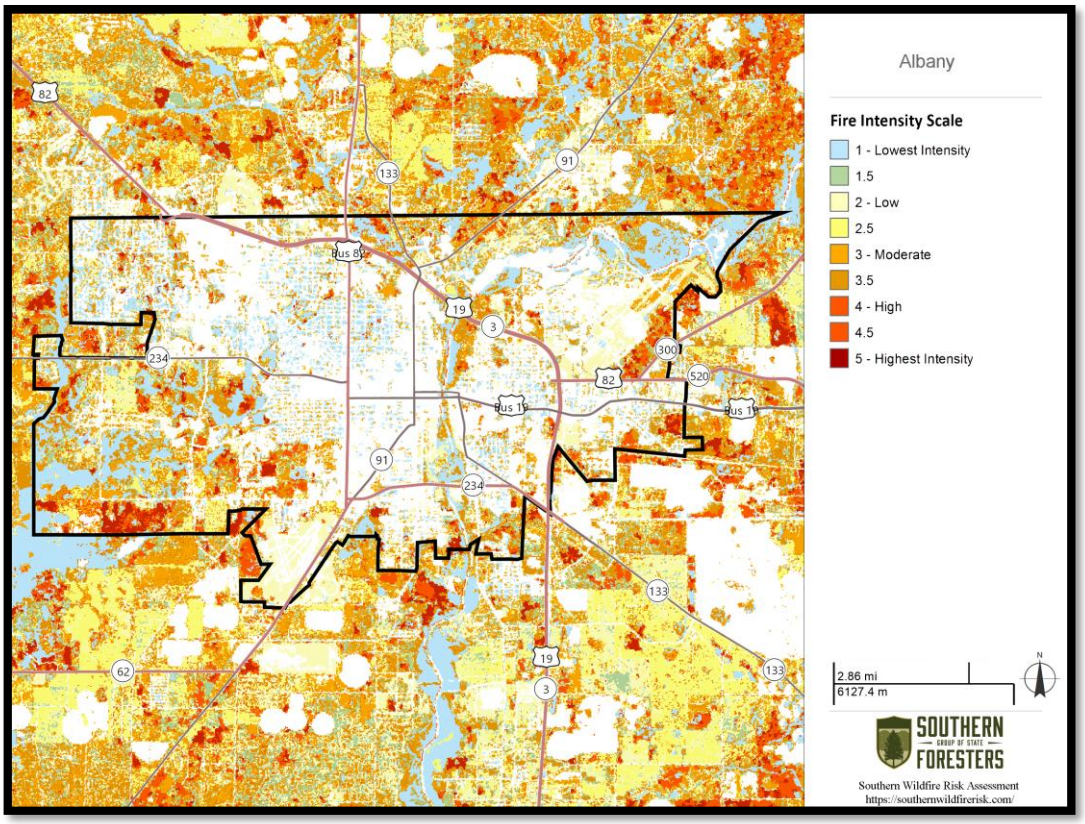


Albany Burn Probability



Natural Hazard: **Wildfire**

Albany Fire Intensity Scale



Note: ***All maps in this section are from the Southern Group of State Foresters Wildfire Risk Assessment Portal***

Natural Hazard: **Earthquake**

Hazard Description

Earthquakes are generally defined as the sudden motion or trembling of the Earth's surface caused by an abrupt release of slowly accumulated strain. This release typically manifests on the surface as ground shaking, surface faulting, tectonic uplifting and subsidence, or ground failures, and tsunamis. In the United States, earthquake activity east of the Rocky Mountains is relatively low compared to the Western states because it is away from active plate boundaries and the plate interior strain rates are known to be very low.

The physical property of earthquakes which cause most of the damage within the United States is ground shaking. The vibrations from the seismic waves that propagate outward from the epicenter may cause failure in structures not adequately designed to withstand earthquakes. Because the seismic waves have different frequencies of vibration, the waves disseminate differently through sub-surface materials. For example, high frequency compression and shear waves arrive first, whereas lower frequency Rayleigh and love waves arrive later. Not only are the speeds varied between seismic waves, but also the types of movement. The surface vibration may be horizontal, vertical, or a combination of the two, which causes a wider array or structures to collapse.

Another manifestation of earthquakes is surface faulting. This phenomenon is defined as the offset or tearing of the earth's surface by a differential movement across a fault. Structures built across active faults tend to sustain damage regularly. There are no active faults within or near Georgia. Distinct inactive faults are known within the state north or the Columbus to Macon to Augusta fall line and running generally northeast-southwest.

The third earthquake phenomenon that causes damage is tectonic uplift and subsidence. Tectonic uplift can cause shallowing of the harbors and waterways while tectonic subsidence can cause permanent or intermittent inundation. Due to the association of tectonic uplift and subsidence with active faults, Georgia is not at risk to these phenomena.

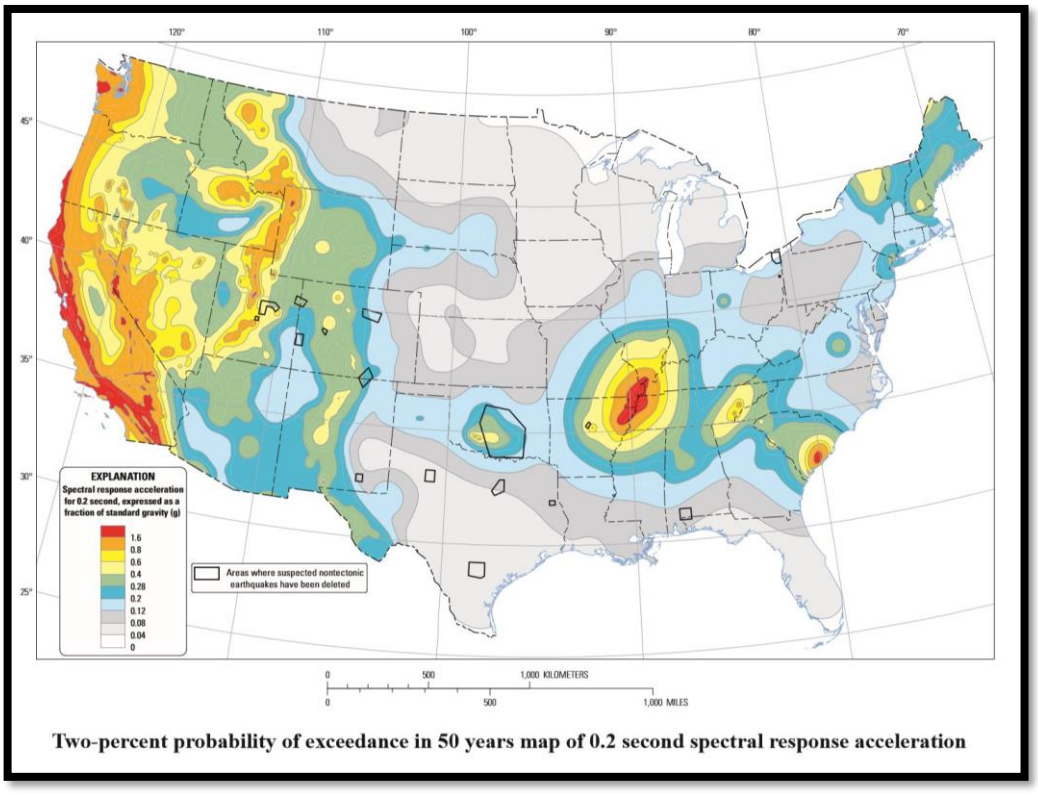
The fourth earthquake damage-causing phenomena are earthquake-induced ground failures, including liquefaction and landslides. During an earthquake, the areas that are rich in sand and silt have groundwater within 30 feet of the surface temporarily behave as viscous fluids during strong ground shaking. Structures built on these materials can settle, topple, or collapse as the ground "liquefies" beneath it. Landslides can also form when earthquake shaking or seismic activity dislodges rock and debris on steep slopes, triggering rock falls, avalanches, and slides.

Natural Hazard: **Earthquake**

Also, unstable, or nearly unstable slopes, consisting of clay soils, may lose shear strength when disturbed by ground shaking and fail, resulting in a landslide. Georgia is at very low risk of seismic induced liquefaction or landslides.

The last of the earthquake-induced phenomena are tsunamis, which are large, gravity-driven waves triggered by the sudden displacement of a large volume of water. The waves produced travel in all directions from the origin at speeds of up to 600 miles per hour. In deep water, tsunamis normally have small wave heights. However, as the waves reach shallower water near land, the wave speed diminishes, and the amplitude drastically increases. Upon impact with a shoreline, the waves can inundate land rapidly, engulfing everything in its path. Successive wave crests follow, typically arriving minutes to hours later, frequently with later arrivals being more dominant. Frequently, the first tsunami waves are downward, causing dramatic exposure of the beach. Because of this, people are often killed trying to collect newly exposed seashells when the positive waves then arrive.

Although large tsunamis are rare in the eastern coast of the US, the possibility of such events occurring anywhere along the Atlantic and Gulf coast exists.



Two-percent probability of exceedance in 50 years map of 0.2 second spectral response acceleration

Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Earthquake**

Hazard Profile

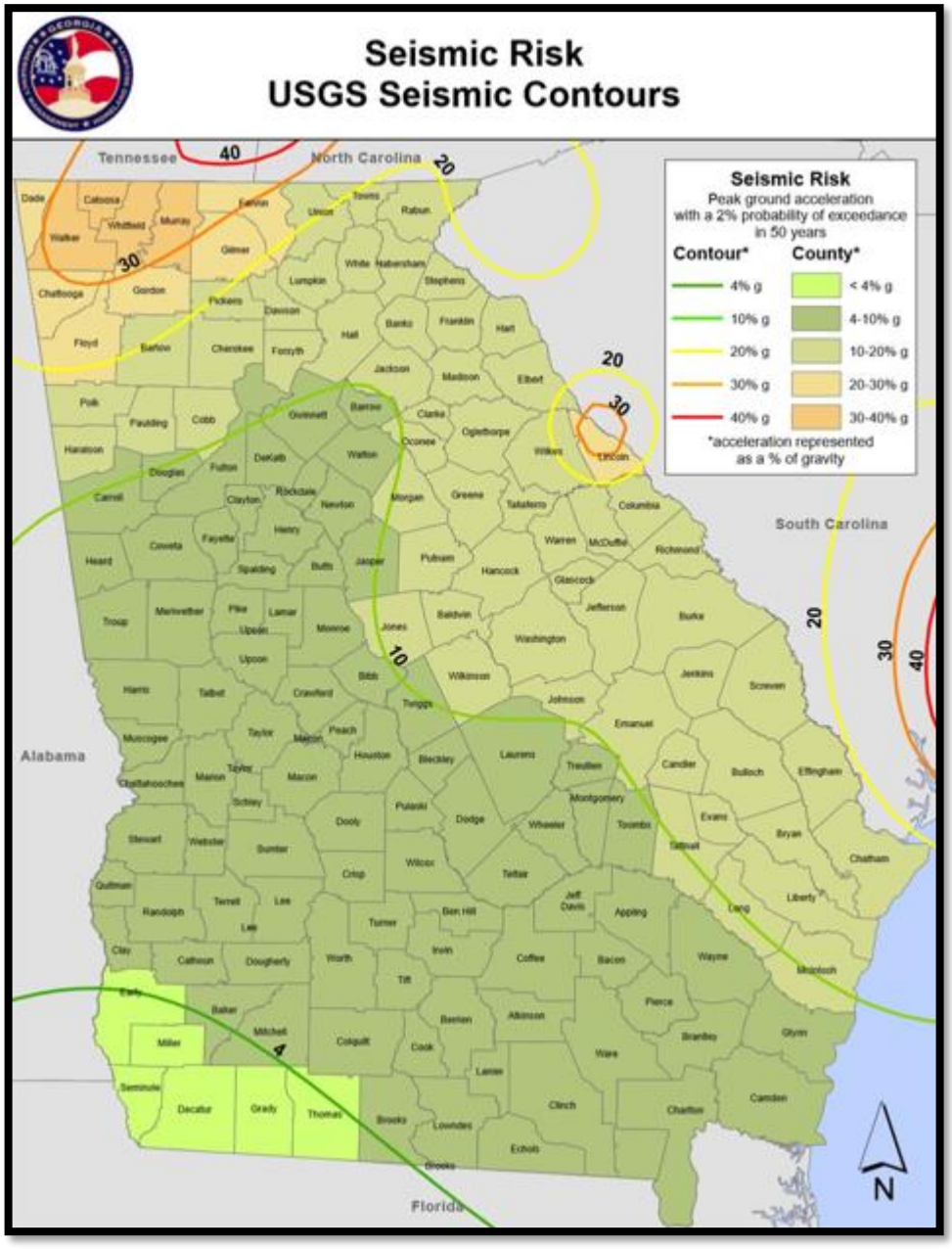
Dougherty County is not one of the 37 Georgia counties with the highest earthquake risk, according to GEMA and Georgia Tech School of Earth and Atmospheric Sciences. In reviewing data of the last 50 years, no earthquakes have originated from within Dougherty County. However, earthquakes with a magnitude of 2.0 or greater have occurred as close as Columbus, GA (1983). 5 earthquakes have originated within 1000 miles of Albany, GA in the last 50 years. The strongest earthquake to occur within this radius was a 2.6 that occurred near Eatonton, GA in 2015. This equates to a 10% chance of an earthquake occurring from within 100 miles of Dougherty County in any given year. Historically, the 1886 Charleston, SC earthquake, estimated to be between 6.6 and 7.3 on the modern Richter Scale, likely caused impacts to Dougherty County. Although no historical records exist exhibiting any damages, Dougherty County was estimated to be in a level VI area of the Modified Mercalli Intensity scale for this event. This would indicate strong shaking felt by everyone inside and outside at the time of the event and characterized by broken windows, movement of heavy furniture, and slight to moderate damage for poorly built buildings. Even with this low number of occurrences, it was determined that if earthquakes occur within or close to the jurisdiction of Dougherty County, significant damage could occur. Therefore, the Dougherty County HMPC has determined the threat of earthquakes to be higher than the statistics would indicate. All earthquake hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.

Instrumental Intensity	Acceleration (%g)	Velocity (cm/s)	Perceived Shaking	Potential Damage
I	< 0.17	< 0.1	Not Felt	None
II-III	0.17 - 1.4	0.1 - 1.1	Weak	None
IV	1.4 - 3.9	1.1 - 3.4	Light	None
V	3.9 - 9.2	3.4 - 8.1	Moderate	Very light
VI	9.2 - 18	8.1 - 16	Strong	Light
VII	18 - 34	16 - 31	Very Strong	Moderate
VIII	34 - 65	31 - 60	Severe	Moderate to Heavy
IX	65 - 124	60 - 116	Violent	Heavy
X+	> 124	> 116	Extreme	Very Heavy

Natural Hazard: **Earthquake**

Assets Exposed to the Hazard

The Dougherty County HMPC determined that all critical facilities and all public and private property within Dougherty County are susceptible to the impacts of an earthquake due to the lower building codes with regards to earthquakes when compared to other parts of the country. This includes all municipalities.



Source: 2019-2024 State of Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Earthquake**

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, for earthquake losses in Dougherty County.

Land Use and Development Trends

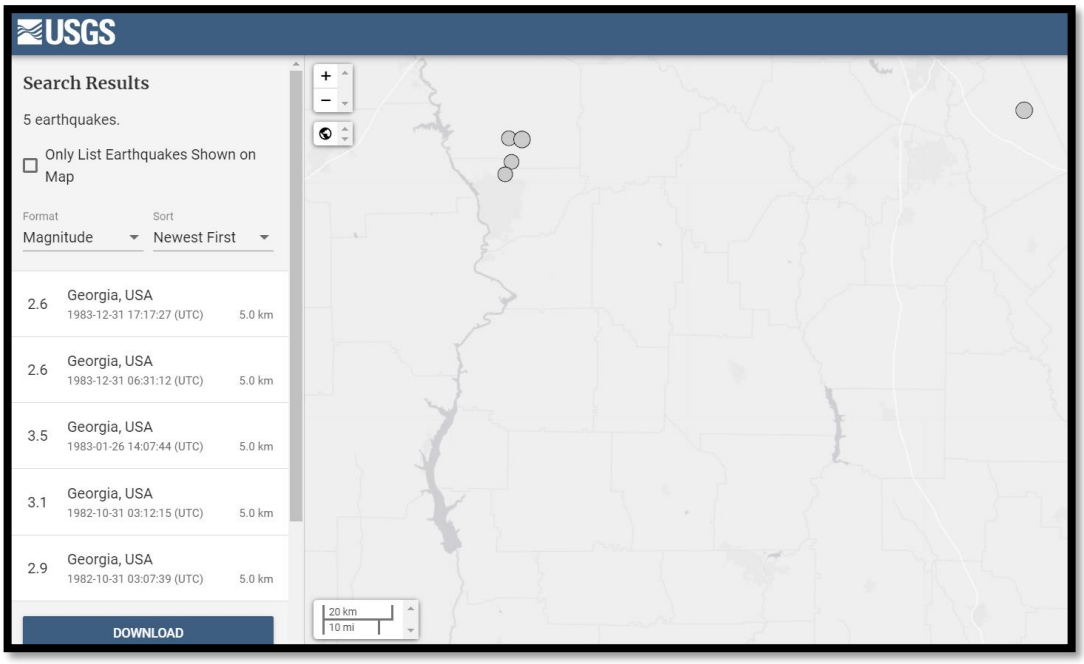
Dougherty County currently has no land use trends related to earthquakes.

Multi-Jurisdictional Considerations

All of Dougherty County, including all municipalities, potentially could be threatened by earthquakes. As such, all earthquake mitigation actions should be pursued on a countywide basis and include all municipalities.

Hazard Summary

Even with the relative infrequency of major earthquake impacts in Dougherty County, the potential losses and impacts associated with the event would severely damage the infrastructure and economic viability of the County and all municipalities. The mitigation measures identified in this plan should be pursued based on the high impact potential of this hazard and the ability for earthquakes to inflict widespread devastation anywhere in Dougherty County.



Source: United States Geological Survey (USGS) Earthquake Hazards Program

Natural Hazard: **Tropical Cyclone**

Hazard Description

The National Weather Service describes tropical cyclones systems in the Atlantic Basin, including the Gulf of Mexico and Caribbean Sea, into four types based on strength.

Tropical Disturbance: A discrete tropical weather system of apparently organized thunderstorms – generally 100 to 300 nautical miles in diameter – originating in the tropics or subtropics, and maintaining its identity for 24 hours or more.

Tropical Depression: An organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 mph (33 knots) or less.

Tropical Storm: An organized system of strong thunderstorms with a defined circulation and maximum sustained winds of 39 mph to 73 mph (34-63 knots).

Hurricane: An intense tropical weather system with a well-defined circulation, producing maximum sustained winds of 74 mph (64 knots) or greater. Hurricane intensity is classified into five categories using the Saffir-Simpson Hurricane scale. Winds in a hurricane range from 74-95 mph for a Category 1 hurricane to greater than 156 mph for a Category 5 hurricane.

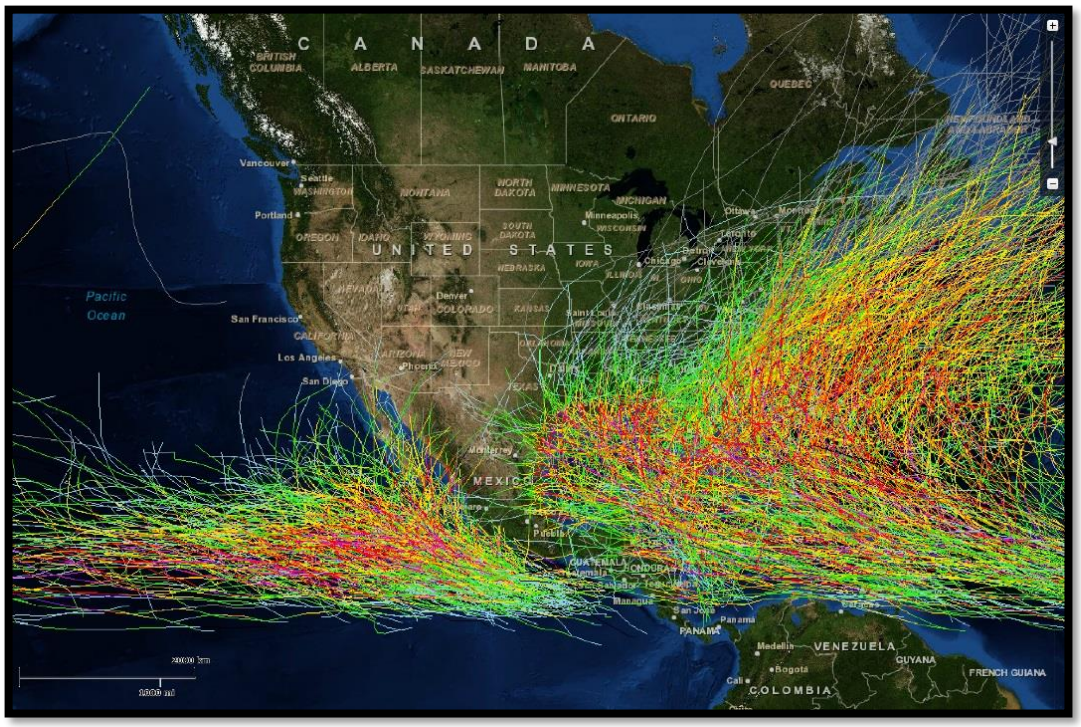
Saffir-Simpson Scale for Hurricane Classification				
Strength	Wind Speed (Kts)	Wind Speed (MPH)	Pressure (Millibars)	Pressure
Category 1	64- 82 kts	74- 95 mph	>980 mb	28.94 "Hg
Category 2	83- 95 kts	96-110 mph	965-979 mb	28.50-28.91 "Hg
Category 3	96-113 kts	111-130 mph	945-964 mb	27.91-28.47 "Hg
Category 4	114-135 kts	131-155 mph	920-944 mb	27.17-27.88 "Hg
Category 5	>135 kts	>155 mph	919 mb	27.16 "Hg
Tropical Cyclone Classification				
Tropical Depression	20-34kts			
Tropical Storm	35-63kts			
Hurricane	64+kts or 74+mph			

Natural Hazard: **Tropical Cyclone**

Tropical cyclones can cause catastrophic damage to coastlines and areas several hundred miles inland. Tropical cyclones can produce sustained high winds and spawn tornadoes and microbursts. Additionally, tropical cyclones can create storm surges along the coast and cause extensive damage from heavy rainfall. Floods and flying debris from the excessive winds are often the deadly and destructive results of these weather events.

Slow moving tropical cyclones traveling into mountainous regions tend to produce especially heavy rain. Excessive rain can trigger landslides or mudslides. Flash flooding can also occur due to intense rainfall.

Each of these hazards present unique characteristics and challenges; therefore, the following have been separated and analyzed as individual hazards: Tropical cyclones, Thunderstorms, Tornadoes, and Flooding. This section will focus on the direct effects of tropical cyclones.



Natural Hazard: **Tropical Cyclone**

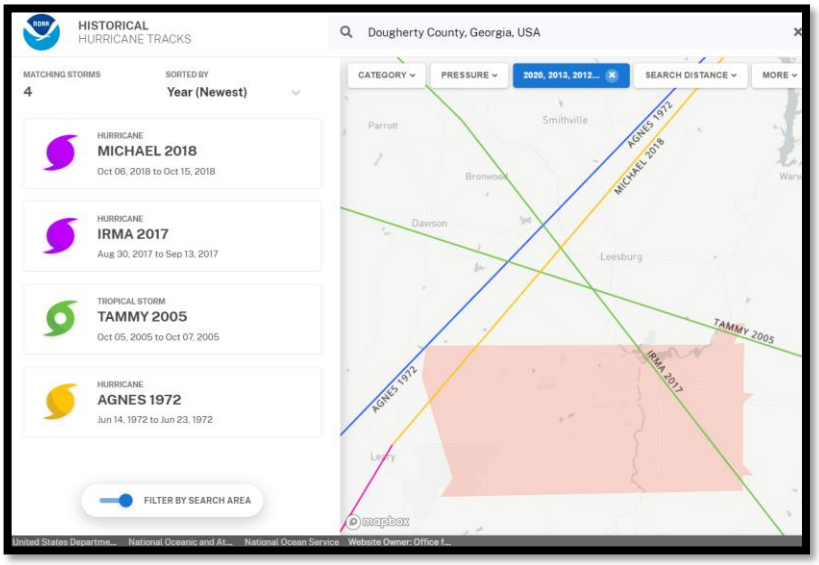
Hazard Profile

Tropical cyclones have directly impacted Dougherty County on a frequent basis over the last 50 years. There have been 8 documented impacts from Topical Cyclones in Dougherty County. This equates to a 16% chance of a tropical cyclone impacting Dougherty County in any given year. However, all 8 documented impacts have occurred in the last 22 years, which equates to a 36.4% chance of a tropical cyclone impacting Dougherty County in any given year. The Dougherty County Hazard Mitigation Update Committee believes this percentage is more representative of the potential impact.

Four tropical cyclones – Hurricane Agnes in 1972, Tropical Storm Tammy in 2005, Hurricane Irma in 2017, and Hurricane Michael in 2018 – have had a track that directly dissected Dougherty County in the last 50 years. All tropical cyclone hazard data included for Dougherty County is limited to countywide data and is not broken down by jurisdiction.

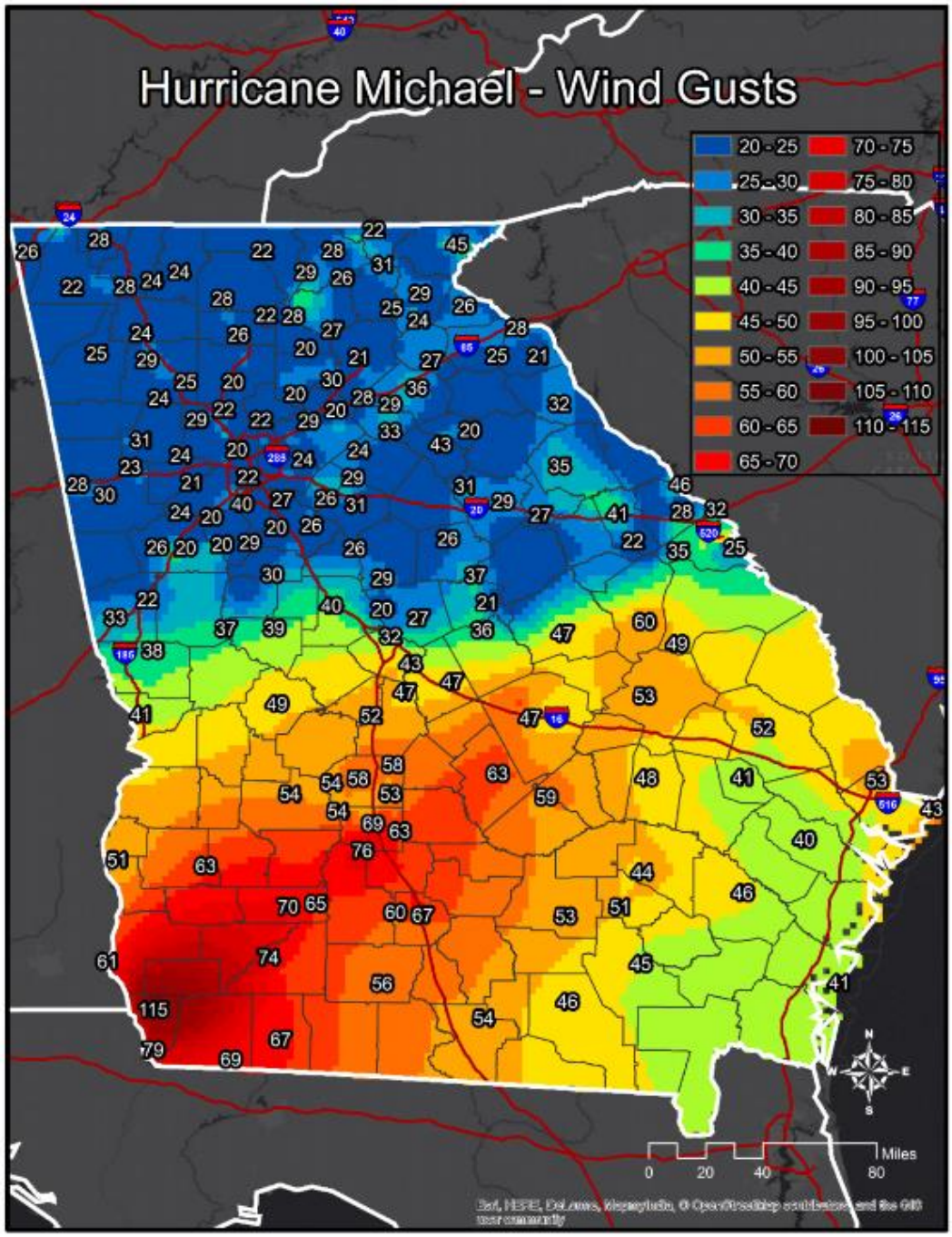
Even with the infrequent occurrences, the impacts that would result from hurricane or tropical storm forces on the citizens, infrastructure, and critical facilities of Dougherty County could be potentially catastrophic in nature.

Dougherty County has seen significant impacts from Tropical Cyclones in the past. Recently, Hurricane Michael (2018) impacted Dougherty County. This storm was still at Hurricane strength as it entered Dougherty County with sustained winds at 80kt and Albany sustained around 5 inches of rainfall.

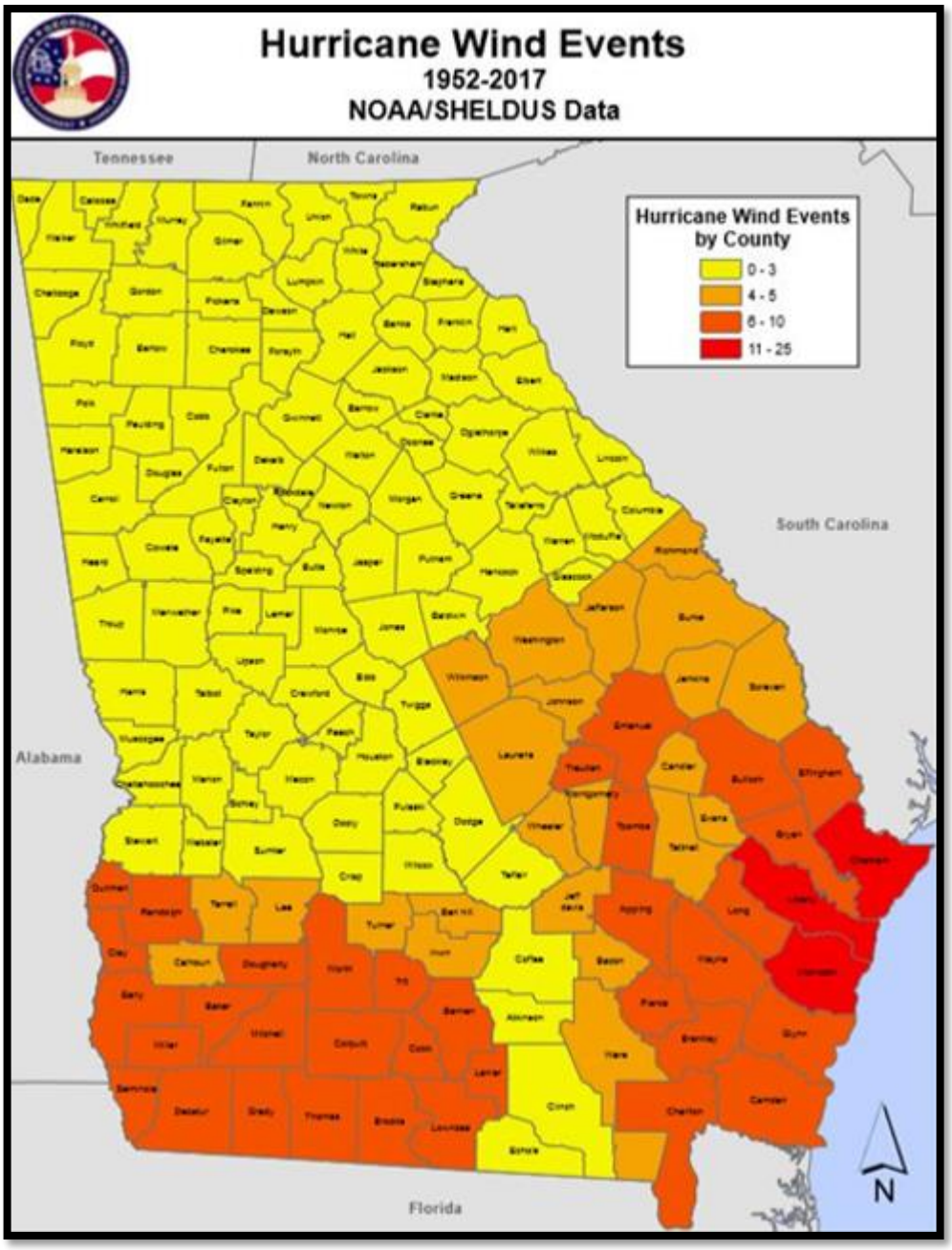


Source: Office of Coastal Management (NOAA)

Natural Hazard: **Tropical Cyclone**



Natural Hazard: **Tropical Cyclone**

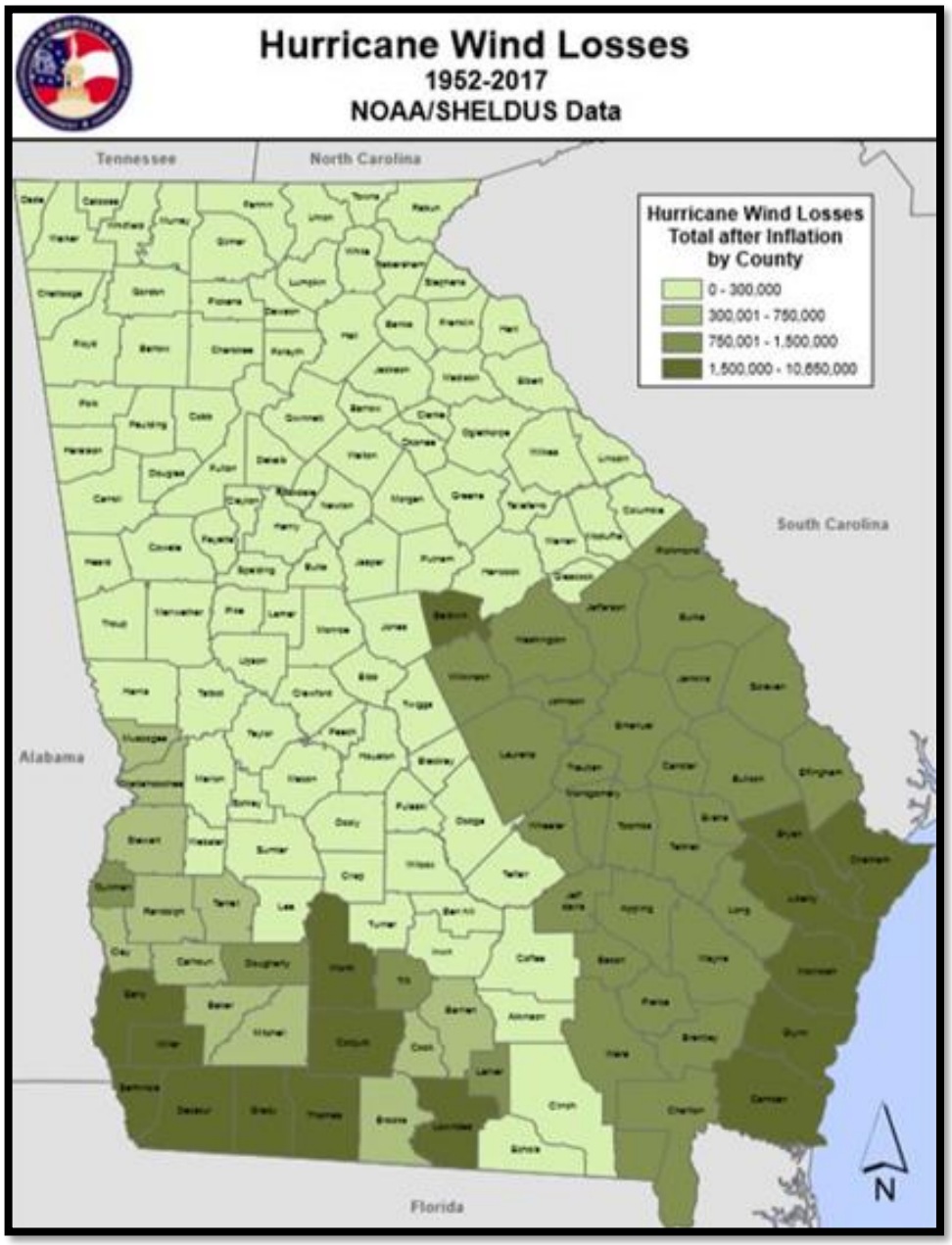


Source: 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Tropical Cyclone**

Assets Exposed to the Hazard

The Dougherty County HMPC determined that all critical facilities and all public and private property within Dougherty County are susceptible to the direct and indirect impacts of a tropical cyclone. This includes all municipalities.



Source: 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Tropical Cyclone**

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, is available for tropical cyclone losses in Dougherty County. Most losses for these events have been labeled under other impacts, such as tornadoes and flooding. However, the 2020 Dougherty County HAZUS Report projected a loss ratio of 0.16% and a total loss of $9.5 million (580 buildings) for a 100-year (1% annual risk) Tropical Cyclone Event. A 100-year (1% annual risk) Tropical Cyclone event in Dougherty County includes winds up to 88 mph, which is a Category 1 Hurricane.

Land Use and Development Trends

Dougherty County currently has no land use trends related to Tropical Cyclones beyond continued population growth. Due to past tropical cyclone events many land use planning ordinances have been put in place to minimize impacts where possible.

Multi-Jurisdictional Considerations

All of Dougherty County, including all municipalities, could potentially be threatened by tropical cyclones. As such, all tropical cyclone mitigation actions should be pursued on a countywide basis and include all municipalities.

Hazard Summary

Even with the relative infrequency of tropical cyclone impacts in Dougherty County in the recent past, the potential losses and impacts associated with the event would severely damage the infrastructure and economic viability of Dougherty County and all municipalities. Dougherty County's proximity to the Gulf of Mexico increases the likelihood of a tropical cyclone impacting the area. The mitigation measures identified in this plan for tropical cyclones should be pursued based on the high impact potential of this hazard and the ability for tropical cyclones to inflict widespread devastation anywhere in Dougherty County. Dougherty County has had six Federally Declared Disaster related to Tropical Cyclones, most recently in 2018 (Hurricane Michael).

Natural Hazard: **Extreme Temperatures**

Hazard Description

Extreme temperatures – both hot and cold – can pose a significant threat to an underprepared population. This is particularly true in areas where a population has a large elderly population, a large population of small children, and a population with lower socioeconomic status.

The term extreme heat can be subjective to a degree. FEMA, in their "Mitigation Ideas" publication defines extreme heat as "the condition where temperatures consistently stay ten degrees or more above a region's average high temperature for an extended period." The key to this definition is, extreme heat is relative to the average temperature, regardless of the time of year. For example, the National Center for Environmental Information (NCEI) records heat events in Georgia with 60- and 70-degree temperatures in December and January, simply because they are significantly higher than the average temperature for that time of year. According to www.ready.gov/heat, FEMA also offers another definition of extreme heat: "In most of the United States, extreme heat is defined as a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees." This definition can also lead to some subjectivity in the term "extreme." For example, people that live in the southern parts of the country are more adapted to temperatures in the 90s and 100s than people that live in the more northern tiers. This is not to say those temperatures are not still dangerous. Notably, in recent years, more heat related deaths have occurred in the southern tier states than the northern tiers. The National Weather Service, however, focuses on "Excessive Heat," defining it as heat indices of 105 degrees or more using a combination of temperature and humidity as a "real feel."

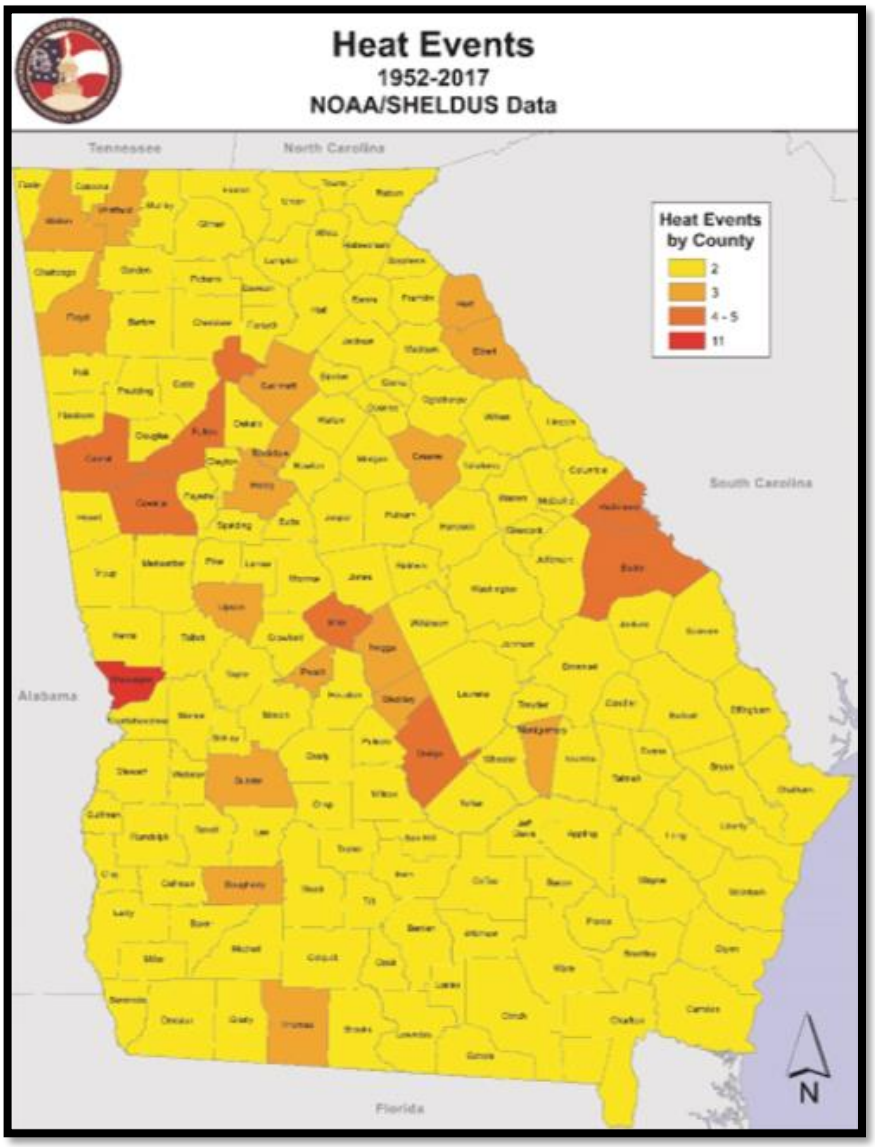
Just as extreme heat can be subjective, so can extreme cold. Just as the National Weather Service utilizes heat index to attempt to quantify extreme heat, wind chill is often utilized to quantify extreme cold. Prolonged and/or unprotected exposure to extreme cold can be detrimental to people and animals. Additionally, it can be detrimental to exposed infrastructure, as well.

Hazard Profile

According to the National Climactic Data Center, Dougherty County have been exposed to extreme cold/wind chill and excessive heat events on 1 occasion since 1996. This means that Dougherty County has had an extreme temperature event every 25 years, or a 4% annual chance of an extreme temperature event.

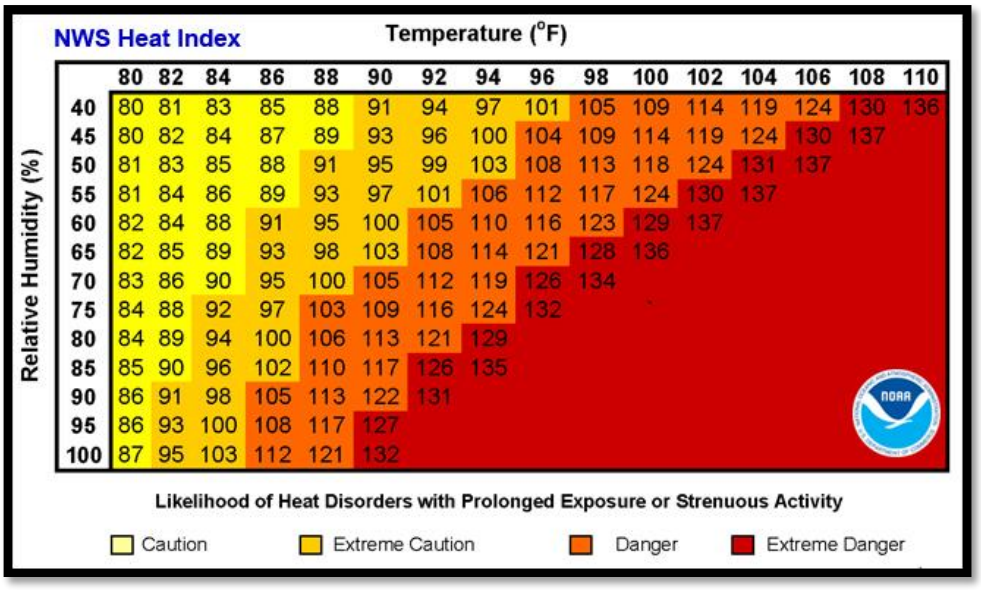
Natural Hazard: **Extreme Temperatures**

In August of 2010, Albany recorded multiple days with heat indices about 110 degrees.
Due to the large elderly (16.5% of total population above the age of 65), young (6.6% of total population below the age of 5), and lower socioeconomic population (poverty rate of 27.6%), Macon-Bibb County's population is particularly susceptible to heat-related illnesses.

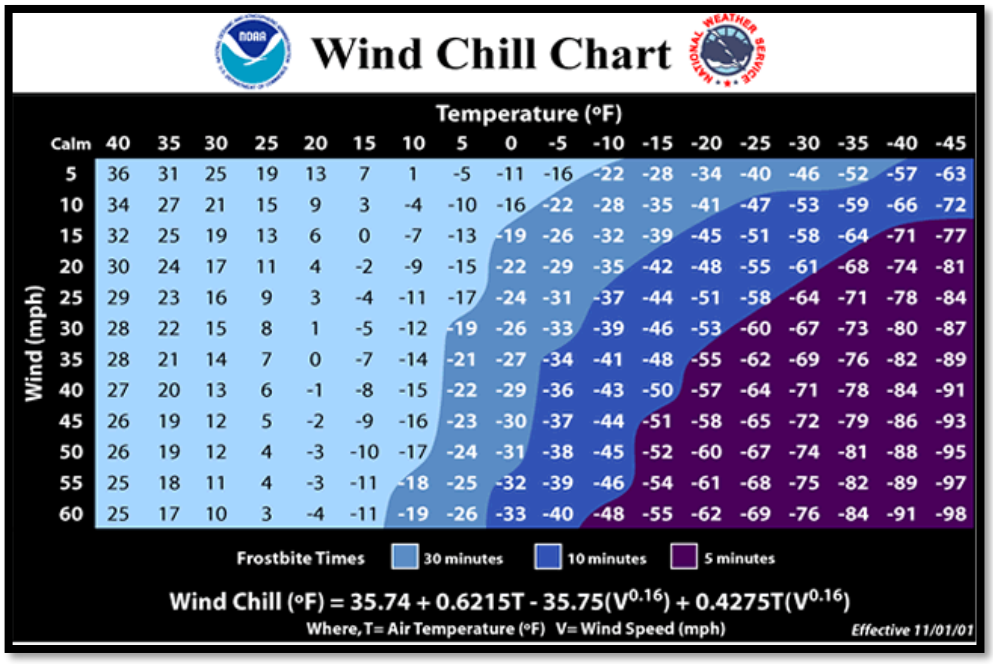


Source: 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan

Natural Hazard: **Extreme Temperatures**



Source: 2019-2024 Georgia Hazard Mitigation Strategy and Enhanced Plan



Source: National Weather Service

Natural Hazard: **Extreme Temperatures**

Assets Exposed to the Hazard

The Dougherty County HMPC determined that all critical facilities and all public and private property within Dougherty County are susceptible to the direct and indirect impacts of an extreme temperature event.

Estimated Potential Losses

Little information is available regarding damages, in terms of dollars, is available for excessive temperature losses in Dougherty County. Most losses for these events have been labeled under other impacts, such as drought and severe winter storms.

Land Use and Development Trends

Dougherty County currently has no land use trends related to extreme temperatures beyond increased population growth.

Multi-Jurisdictional Considerations

All of Dougherty County, could potentially be threatened by extreme temperatures. As such, all extreme temperature mitigation actions should be pursued on a countywide basis.

Hazard Summary

Incidents of extreme temperatures – both hot and cold – pose a significant threat to the citizens of Dougherty County. Dougherty County's geographical location increases the likelihood of extreme temperature events with extreme heat events generally considered to be more likely. However, the lack of direct preparation for extreme cold events could lead to greater direct impacts.

Technological Hazard: **Hazardous Material Incident**

Hazard Description

Hazardous materials, or hazmat, refers to any materials that may pose a real hazard to human health and/or the environment because of its quantity, concentration, and/or physical or chemical characteristics. Hazardous materials include explosives, flammables, combustibles, oxidizers, toxic materials, radioactive substances, and corrosives. Specific federal and state regulations exist regarding the transport and storage of hazardous materials.

A hazardous materials spill or release occurs when a hazardous material gets into the environment in an uncontrolled fashion. Response to a hazmat spill or release depends greatly on the type of material involved and the subsequent physical and chemical characteristics. Major sources of hazardous materials spills include transportation accidents on roadways and railways, pipeline breaches, and spills into rivers and creeks. Jurisdictions with facilities that produce, process, or store hazardous materials are at risk, as are facilities that treat or dispose of hazardous materials.

Hazard Profile

Data from the United States Coast Guard National Response Center was reviewed regarding hazardous materials spill history in Dougherty County. Data is available from 1990 to 2019 and all available data was reviewed. There were 142 NRC reported hazardous materials spills or releases in Dougherty County over a 29-year period. It is anticipated that many more hazardous materials incidents have occurred over the last 29 years but have not been reported. According to the NRC data, Dougherty County averages 4.9 hazardous materials incidents of a reportable amount every year. The greatest threat for a hazardous materials spill comes from the transportation of materials through Dougherty County. This is particularly true for the US Highway 19 and 82 corridors that run through the center of the county.

Hazardous materials releases can also be the result of railway or fixed facility incidents. Fixed facilities continue to be an increasing concern due to Dougherty County's growing industrial footprint.

Of particular concern to the Dougherty County Hazard Mitigation Committee is the exposure of water sources to potential hazardous materials incidents. A spill affecting water sources could have significant impacts on Dougherty County.

Technological Hazard: **Hazardous Material Incident**

Assets Exposed to Hazard

The environment is particularly vulnerable to the threat posed by hazardous materials. Waterways are at a high risk for contamination from hazardous materials. Water contamination is of particular concern to the Dougherty County HMPC. Public and private property located near fixed hazardous materials facilities are also a greater risk than the general population of Dougherty County.

Estimated Potential Losses

Estimation of potential losses is difficult regarding hazardous materials due to the vast array of potential types of hazardous materials that could be involved in the incident and unknown costs regarding environmental damages. No recorded information was found regarding the losses associated with hazardous materials incidents in Dougherty County. However, a hazardous materials release, whether in transport or at a fixed facility, would incur significant costs regarding emergency response, potential road closures, evacuations, watershed protection measures, expended man-hours, and cleanup materials, equipment, and personnel.

Land Use and Development Trends

Dougherty County currently has no land use trends related to Hazardous Materials beyond continued population growth – particularly in and around the City of Albany.

Multi-*Jurisdictional Considerations*

All of Dougherty County, including all municipalities, are vulnerable to both fixed facility and transportation-related hazardous materials releases. However, areas along the US Highway 19 and 82 corridors, including the City of Albany, are at the greatest risk.

Hazard Summary

Hazardous materials incidents pose a significant threat to the citizens, infrastructure, and critical facilities of Dougherty County. Unknown quantities of hazardous materials are transported daily through Dougherty County and all municipalities. These materials are transported via highways, with US Highway 19 and 82 corridors being of greatest concern. Water contamination because of a hazardous materials spill is of significant concern to the Dougherty County HMPC. As a result of the threat posed by hazardous materials, the Dougherty County HMPC has identified mitigation actions related to this threat.

Technological Hazard: **Dam Failure**

Hazard Description

Georgia law defines a dam as any artificial barrier, which impounds or diverts water, is 25 feet or more in height from the natural bed of a stream or has an impounding capacity at maximum water storage evaluation of 100 acre-feet or more. Dams are generally constructed to provide a ready supply of water for drinking, irrigation, recreation, and other purposes. Dams can be constructed from earth, rock, masonry, concrete, or any combination of these materials.

Dam failure is a term used to describe a significant breach of a dam and the subsequent loss of contained water. Dam failure can cause significant damages downstream to structures, roads, utilities, and crops. Dam failure can also put human and animal lives at risk. National statistics indicate that one-third of all dam failures in the United States are caused by overtopping due to inadequate spillway design, debris blocking spillways, or settlement of the dam crest. Another third of all US dam failures are the result of foundation defects, including settlement and slope instability.

Hazard Profile

There are no category I and 2 category II dams located within Dougherty County. Category I dams are those that would pose a possible threat to human life if a failure were to occur. All category I dams must be inspected annually according to Georgia's Safe Dams Act.

The threat of a dam failure in Dougherty County could potentially lead to downstream flooding. This downstream flooding would have many of the same hazards as a flood event, but with the onset of such an event being much quicker than in a typical flood event.

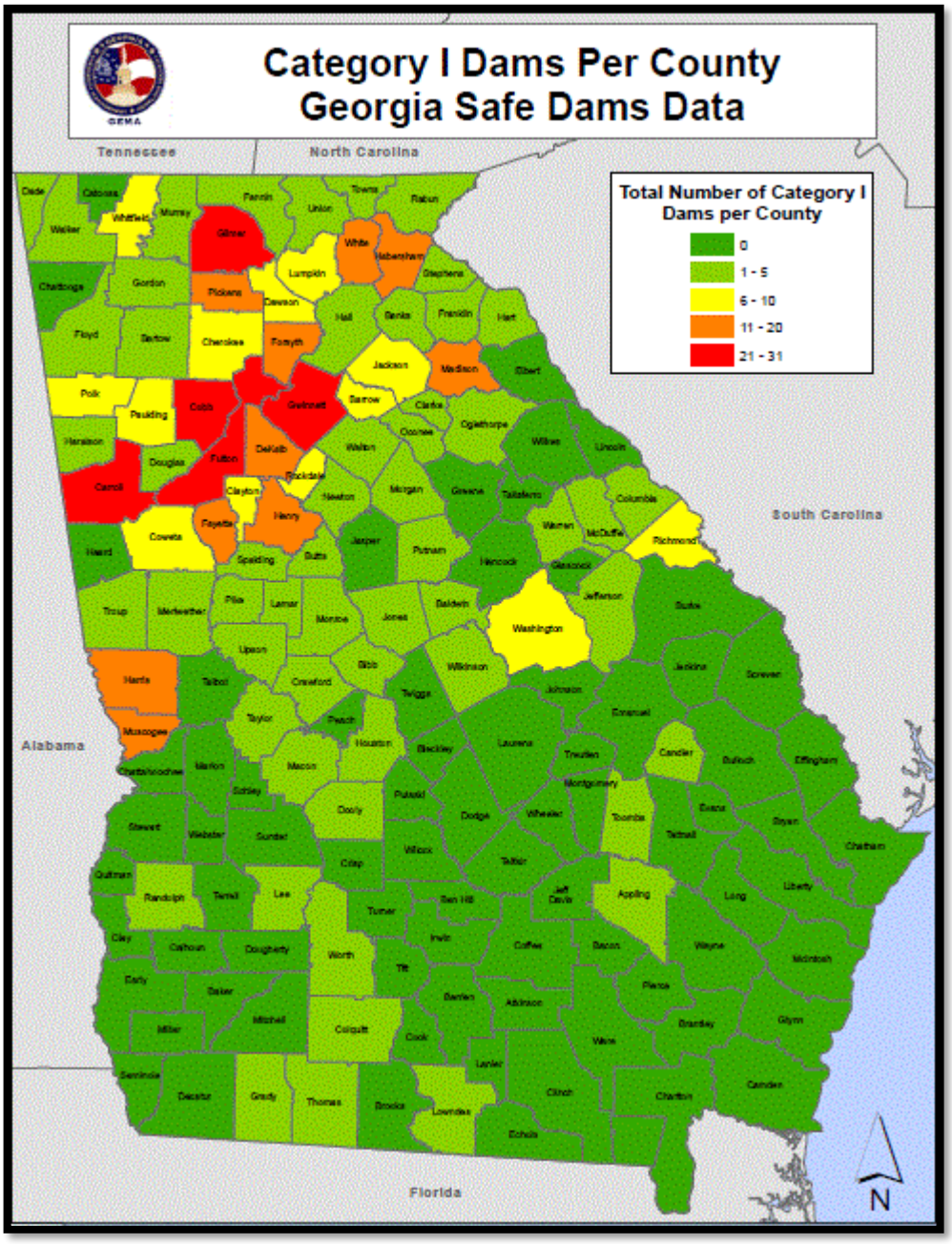
Assets Exposed to Hazard

To evaluate the assets that would potentially be impacted by a dam failure, the Dougherty County HMPC attempted to identify known structures within, or close to, the 100-year floodplain. All municipalities could be exposed to the hazards of other dams or face secondary hazards from the category II dams.

Estimated Potential Losses

Loss estimations are not applicable since it is not known which dam will fail and how significant of failure will occur.

Technological Hazard: **Dam Failure**



Source: 2014 State of Georgia Hazard Mitigation Strategy (most up-to-date version)

Technological Hazard: **Dam Failure**

Land Use and Development Trends

Dougherty County participates in the National Flood Insurance Program (NFIP) and follows the program's guidelines to ensure future development is carried out in the best interests of the public. The County (CID No. 130074) first entered the NFIP on April 17, 1978. According to the NFIP guidelines, the County has executed a Flood Damage Prevention Ordinance. This ordinance attempts to minimize the loss of human life and health as well as minimize public and private property losses due to flooding. The ordinance requires any potential flood damage be evaluated at the time of initial construction and that certain uses be restricted or prohibited based on this evaluation. The ordinance also requires that potential homebuyers be notified that a property is located in a flood area. In addition, all construction must adhere to the Georgia State Minimum Standard Codes and the International Building Codes. The City of Albany also participate in NFIP through the application of appropriate NFIP-compliant ordinances and regulations.

Multi-Jurisdictional Considerations

During a dam failure event, many portions of Dougherty County would potentially be impacted by flooding. However, the area's most prone to flooding have historically been those areas located within the 100-year floodplain and downstream from dams.

Hazard Summary

Dam failure poses a threat to Dougherty County and its citizens, infrastructure, and critical facilities. A dam failure could prove catastrophic for areas downstream of the dam, particularly if the failure were to occur at any of the Category II dams located in Dougherty County. As a result, mitigation efforts for dam failure should be focused in this potentially affected area.

Technological Hazard: **Transportation Incident**

Hazard Description

There are many secondary hazards that could be associated with transportation incidents. Injuries or deaths can occur as a result of the impact of a transportation accident, by a hazardous materials release because of a transportation incident, or by other related transportations hazards. Transportation can occur via roadways, highways, interstates, railways, air, or navigable waterways. Each transportation type poses their own unique hazard issues and consequences.

Roadway hazards are most likely to be caused by a motor vehicle accident involving one or more cars, trucks, vans, or transport vehicles. These incidents can have injuries as a result of the impact of the MVA or a hazardous materials release into the local environment, including waterways. Railway incidents pose many of the same dangers as motor vehicle accidents. However, the threat of a hazardous materials release is greatly increased when railway transportation incidents are considered.

Air accidents can include commercial airplanes, private airplanes, hot air balloons, helicopters, or other forms of air travel. Each of these incidents can cause a significant threat to human life as well as posing a hazardous material threat due to the cargo being transported or the fuel being used. Navigable waterway incidents can create formidable incidents for response organizations. Because of the waterway, technical expertise is needed to carry out rescue operations, especially in swift-moving waterways. Also, any incident in a waterway is likely to have environmental impacts.

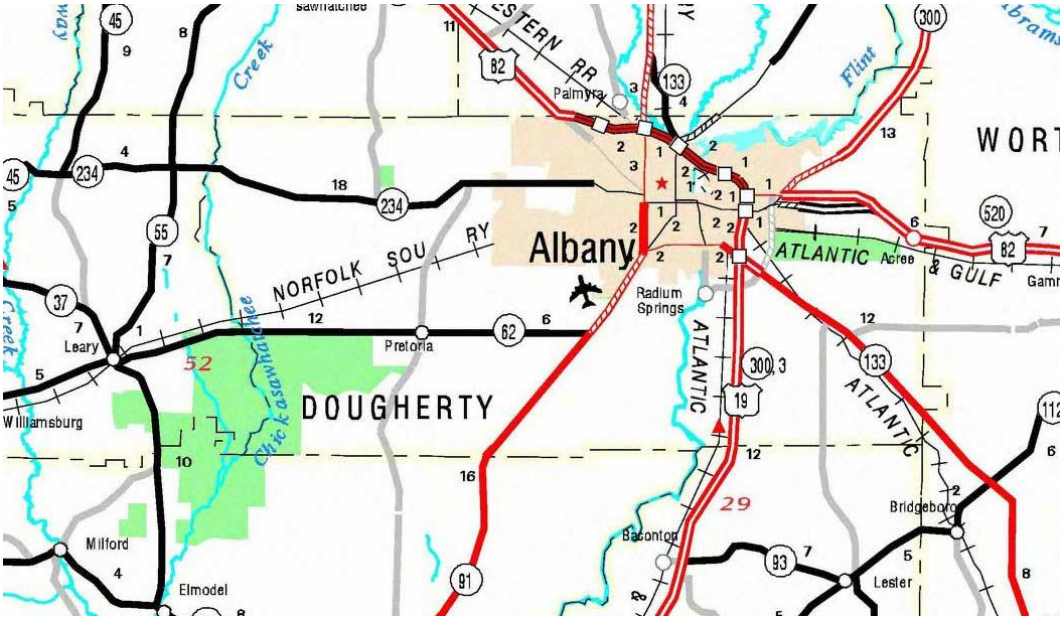
Hazard Profile

Transportation incidents are of a significant concern in Dougherty County. Passing through Dougherty County are US Highways 19 and 82 and Georgia Highways 3, 62, 91, 133, 234, 300, and 520. Southwest Georgia Regional Airport located four miles southeast of downtown Albany, services Dougherty County and the greater Southwest Georgia area with two asphalt runways – one 6,600-foot runway and one 5,219-foot runway. There are no navigable waterways in Dougherty County.

Assets Exposed to Hazard

All assets and critical facilities located along or near any transportation route could potentially be impacted by a transportation incident. Areas within Dougherty County that are not located along or near a transportation route could still face residual impacts.

Technological Hazard: **Transportation Incident**



Estimated Potential Losses

Estimated potential losses cannot be anticipated with this event due to the vast number of differing scenarios regarding transportation incidents.

Land Use and Development Trends

Dougherty County currently has no land use trends related to Transportation Incidents beyond an increase in overall population which, in turn, increases the likelihood and potential impact of a transportation incident. The primary areas of growth have been in and around the City of Albany.

Multi-Jurisdictional Considerations

Dougherty County as well as all municipalities could potentially be impacted by a transportation incident. However, areas along US Highway 19 and US highway 82 are the greatest at risk, including the City of Albany.

Hazard Summary

The Dougherty County HMPC has determined that transportation incidents pose a high risk to their jurisdictions due to the unpredictable nature and likelihood of the incident. As a result, the Dougherty County HMPC has developed mitigation strategies and actions with transportation incidents in mind.

Technological Hazard: **Terrorism**

Hazard Description

The Federal Bureau of Investigation (FBI) defines terrorism as violent acts or acts dangerous to human life that violate federal or state law, appear to be intended to intimidate or coerce a civilian population, affect the conduct of a government by mass destruction, assassination, or kidnapping, and is calculated to influence or affect the conduct of a government by intimidation or retaliate against government conduct. Terrorism is usually referenced as being premeditated and politically motivated.

Terrorist acts are, by their very nature, designed and carried out with the intention of inflicting mass casualties and extensive property damage. When an act of terrorism is carried out in a jurisdiction, it will likely be necessary to implement multiple aspects of the emergency management system and summon additional resources from local, state, and federal partners.

Terrorism is generally divided into two types: domestic terrorism and international terrorism. Domestic terrorism is defined as terroristic acts focused on facilities and populations without foreign direction. International terrorism involves activities that are foreign-based and/or sponsored by organizations outside of the United States.

Terrorists often use threats to create fear among the public, to convince citizens that government is powerless to prevent terrorism and to get immediate publicity for their causes. Weapons of Mass Destruction (WMDs), including incendiary, explosive, chemical, biological, radiological, and nuclear agents, have the capability to cause death or serious bodily injury to a significant number of people, thus posing the threat of a catastrophic incident. Terrorism can also include arson, agro-terrorism, armed attack, intentional hazardous materials release, water or food contamination, and attacks on infrastructure and electronic information systems.

Hazard Profile

Terrorism targets have historically been facilities that make a large economic or social impact on the targeted government or jurisdiction. In Dougherty County, all critical facilities could be seen as potential targets. Terrorism includes a multitude of potential approaches, including agro-terrorism, which is terrorism targeted toward agriculture. Due to the high economic impact (over $40 million in annual agriculture-related sales) of agriculture in Dougherty County, agro-terrorism could be of particular concern. Additionally, the Marine Corps Logistics Base (MCLB Albany) in Albany is seen as a potential target for terrorist organizations.

Technological Hazard: **Terrorism**

While active shooter situations are not always classified as terrorism, for this plan, the Dougherty County HMPC has chosen to classify them as such. Active shooter situations can occur in any location, including businesses, schools, government buildings, and public spaces. Schools are seen as particularly vulnerable to these types of situations due to the high publicity of recent active shooter events. While active shooter events and other acts of terrorism occur worldwide, they have low probability for Dougherty County but would have devastating impacts if they were to occur. To help mitigate some of these impacts, Dougherty County has exercised an active shooter response in the past to better prepare for any such event.

Civil unrest is another act that is of concern to the Dougherty County Hazard Mitigation Planning Committee. While not generally associated with terrorism, this hazard is encompassed here due to the high economic and social impact civil unrest could have on Dougherty County.

Assets Exposed to the Hazard

Due to the unpredictable nature of terrorism, all public and private structures are threatened by the terrorism hazard. This includes all critical facilities.

Estimated Potential Losses

Losses due to terrorism are difficult to estimate due to the unpredictable nature of terrorism. The type of terrorist act carried out, location of the act, and the impact of the act would all affect the potential losses. Please see the critical facilities information for estimated potential losses for each critical facility.

Land Use and Development Trends

Dougherty County currently has no land use trends related to Terrorism.

Multi-Jurisdictional Considerations

All of Dougherty County, including all municipalities, are vulnerable to potential acts of terrorism. However, critical facilities and their surrounding areas are considered to be at the greatest risk.

Hazard Summary

Terrorism, while a low-probability hazard, would have devastating effects on Dougherty County and all municipalities. These impacts would be immediate and long-lasting and could be potentially economically crippling.

Technological Hazard: **Critical Infrastructure Failure**

Hazard Description

Infrastructures, such as utilities and communication infrastructures, are particularly vulnerable to both natural and manmade hazards. While a communications or utility failure would most likely be a secondary hazard of one of the other hazards identified in this plan, an infrastructure failure could be a solo incident itself.

A lack of communication with outside sources or a long-duration lack of utility service could lead to public panic, poor emergency response capabilities, and other domino hazards. These events pose a significant threat to many jurisdictions.

Hazard Profile

In case of any failure of a utility or communication infrastructure, general difficulties would be exacerbated for both emergency responders and for the public. The reliance on wireless communications, particularly for the public safety sector, increases the vulnerability of Dougherty County's emergency response agencies to a utility failure.

Assets Exposed to Hazard

All assets and critical facilities within Dougherty County could potentially be impacted by an infrastructure failure or could be the source for the infrastructure failure.

Estimated Potential Losses

Estimated potential losses cannot be anticipated with this event due to the vast number of differing scenarios regarding infrastructure failures.

Land Use and Development Trends

Dougherty County currently has no land use trends related to infrastructure failures beyond continued population growth.

Multi-Jurisdictional Considerations

Dougherty County as well as all municipalities could potentially be impacted by an infrastructure failure. However, the City of Albany is particularly vulnerable due to population density and higher reliability on technology.

Hazard Summary

The Dougherty County HMPC has determined that infrastructure failures pose a high risk to their jurisdictions due to the unpredictable nature of the incident. As a result, the Dougherty County HMPC has developed mitigation strategies and actions.

Technological Hazard: **Emerging Infectious Disease**

Hazard Description

Microorganisms, such as bacteria, viruses, parasites, fungi, or prions, surround us within the environment. They can even be found within our own bodies. Most microorganisms are completely harmless, and many are actually beneficial. However, some of these organisms are pathogenic, meaning they cause or can cause disease. Infectious diseases are caused by these pathogenic organisms and are communicable – meaning they can be spread from person to person either directly or indirectly. Direct transmission of the disease occurs through actual physical contact with an infected person or their bodily fluids. Indirect transmission of a disease occurs when an infected person contaminates a surface by sneezing, coughing, etc., and a non-infected person comes into contact with that infected surface. Another means of indirect transmission includes vectors, such as mosquitos, flies, mites, ticks, fleas, rodents, or dogs, which may carry the pathogenic microorganism and transmit it to people via a bite. Infectious diseases can also impact animal populations, particularly livestock and other farm animals. Even though these diseases may not directly affect humans, the economic impact of these diseases can be just as harmful, if not more so, to the community.

Infectious diseases can occur as primary events or they may occur as a cascading result of another disaster, such as a tornado, flood, or winter weather. Infectious diseases can vary greatly in severity and magnitude. According to the World Health Organization, infectious diseases account for three of the ten leading causes of death worldwide – HIV/AIDS, lower respiratory infections, and diarrheal disease. These three events, combined with tuberculosis and malaria, account for 20% of deaths globally.

In Western countries, the impact of infectious diseases has diminished greatly over the last 75 years due to improved sanitation, personal hygiene, vaccinations, and the use of antibiotics. In the United States, only two infectious diseases – seasonal influenza and pneumonia – rank in the top ten leading causes of death. Annually, there are 1,500 deaths in the United States from seasonal influenza and another 52,000 from pneumonia. Children and older adults are the greatest at risk for both.

Emerging infectious diseases are those that are appearing in a population for the first time. Re-Emerging infectious diseases are those that may have previously existed in a population, but levels had dropped to the point where it was no longer considered a public health problem until levels once again began increasing.

Technological Hazard: **Emerging Infectious Disease**

During the last 25 years, Emerging and re-emerging infectious diseases have been on the rise. The below table outlines some of the contributing factors to this rise:

Contributing Factors to Increasing Occurrence of Emerging Diseases
Agent-Related Factors
• Evolution of pathogenic infectious agents • Development of resistance to drugs • Resistance of disease carriers to pesticides
Host-Related Factors
• Human demographic changes (humans inhabiting new areas) • Human behavior (sexual practices and drug use) • Human susceptibility to infection
Environment-Related Factors
• Economic development and land use patterns • International travel and commerce • Deterioration of surveillance systems

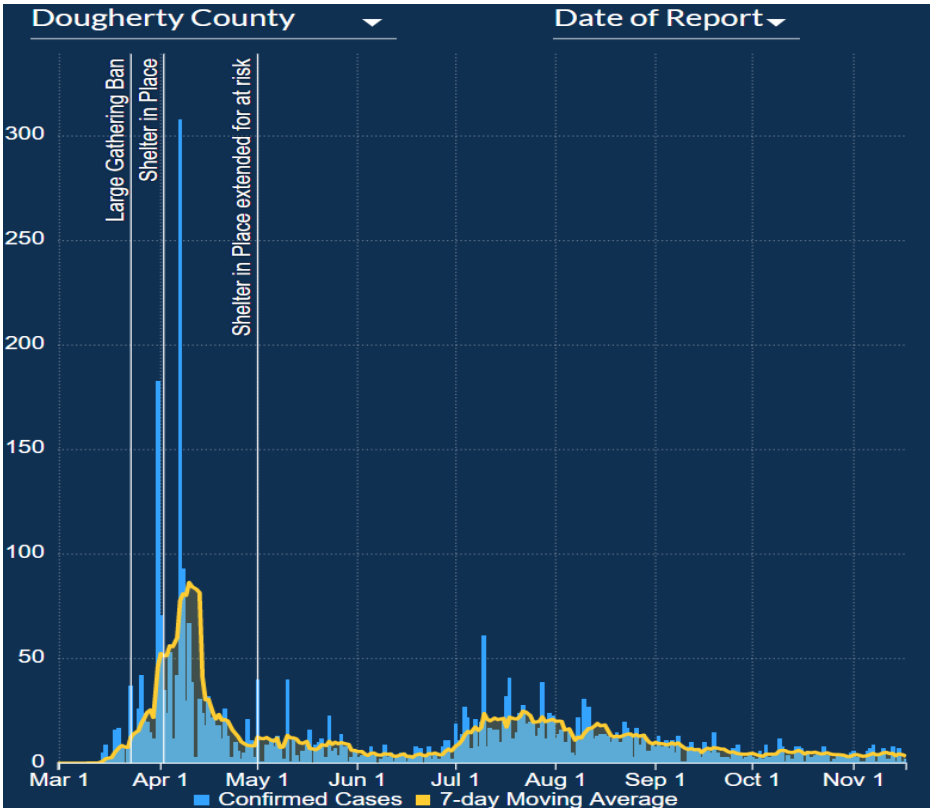
Due to a lack of ready-made vaccines for these diseases and a lack of immunity in the population, emerging and re-emerging infectious diseases are much more likely to escalate to pandemic levels rapidly.

CDC-Identified Emerging and Re-Emerging Infectious Diseases	
Drug-resistant Infections	Mad Cow/Variant Creutzfeldt-Jakob Diseases
Campylobacteriosis	Chagas Disease
Cholera	Cryptococcosis
Cryptosporidiosis (Crypto)	Cyclosporiasis
Cysticercosis	Dengue Fever
Diphtheria	Ebola Hemorrhagic Fever
Group B Streptococcal Infection	Hantavirus Pulmonary Syndrome
Hepatitis C	Hendra Virus Infection
Histoplasmosis	HIV/AIDS
Influenza	Lassa Fever
Legionnaires'' Disease and Pontiac Fever	Leptospirosis
Listeriosis	Lyme Disease
Malaria	Marburg Hemorrhagic Fever
Measles	Meningitis
Monkeypox	MRSA
Nipah Virus Infection	Norovirus Infection
Pertussis	Plague
Polio	Rabies
Rift Valley Fever	Rotavirus Infection
Salmonellosis	SARS
Shigellosis	Smallpox
Sleeping Sickness (Trypanosomiasis)	Tuberculosis
Tularemia	Valley Fever (Coccidioidomycosis)
VISA/VRSA	Staphylococcus Aureus
West Nile Virus Infection	Yellow Fever

Technological Hazard: **Emerging Infectious Disease**

Hazard Profile

Emerging Infectious diseases are of significant concern to the Dougherty County HMPC, particularly those that would have an impact on the human population or animal population of Dougherty County. Dougherty County would likely see significant economic impacts from an outbreak involving animal populations, such as an Avian Flu, due to the large economic base agriculture provides (over $25 million in annual sales). The lack of current vaccines and preparatory activities for these diseases has created a situation where the potential impact to Dougherty County of a pandemic or epidemic could be catastrophic. The most recent pandemic scare in the Central Georgia area was the 2009-2010 H1N1 Swine Flu. There were 1,286 cases of H1N1 in Georgia in 2009-2010 and 33 deaths. Most registered cases occurred with people between the ages of 5 and 29. This equates to a mortality rate of just over 2.5% - which is slightly lower than the 3% rate of the 1918-1919 Spanish Flu Pandemic. In 2020, the COVID-19 Pandemic, caused by the SARS-CoV2 Virus, impacted communities worldwide, including Dougherty County. As of September 15, 2020, there were over 55 million cases reported worldwide with over 1.3 million deaths. In Dougherty County, 3,374 cases had been reported with 197 deaths. Dougherty County was the center of an early spike in Southwest Georgia as the main economic hub for the area.



Technological Hazard: **Emerging Infectious Disease**

Over the last 25 years, emerging infectious disease outbreaks have occurred in other parts of the country. These include:

- 1993 Cryptosporidium Outbreak (Milwaukee, Wisconsin – 403,000 people ill and 100 deaths)
- 2010 Whooping Cough Outbreak (California – 9,500 people ill and 10 infant deaths)
- 2014 Measles (Nationwide – 334 cases from January to May 2014 – most in 20 years)
- 2015 H5N2 Avian Flu Outbreak (Midwest – over 25 million chickens and turkeys destroyed as a precautionary measure at 83 locations)

Assets Exposed to the Hazard

Due to the unpredictable nature of emerging infectious diseases, all public and private structures are threatened by the hazard. This includes all critical facilities. Additionally, Dougherty County has over $25 million in annual agricultural sales, which could see significant impacts from any agriculture-related Emerging Infectious Diseases.

Estimated Potential Losses

Losses due to emerging infectious diseases are difficult to estimate due to the unpredictable nature of the hazard. The type of emerging infectious disease, location of the outbreak, and the impact of the outbreak would all affect the potential losses. Please see the critical facilities information for estimated potential losses for each critical facility.

Land Use and Development Trends

Dougherty County currently has no land use trends directly related to emerging infectious diseases.

Multi-Jurisdictional Considerations

All of Dougherty County, including all municipalities, are vulnerable to emerging infectious diseases. However, livestock and other farm animals are considered to be the greatest at risk, along with areas with large, concentrated human populations, such as schools.

Technological Hazard: **Emerging Infectious Disease**

Hazard Summary

An emerging infectious disease would have devastating effects on Dougherty County and all municipalities. These impacts would be immediate and long-lasting and could be potentially economically crippling. Of particular concern to the Dougherty County HMPC is impacts to Dougherty County's large agricultural business population (over $25 million in annual sales). Because of these considerations, the Dougherty County HMPC has developed mitigation actions with emerging infectious diseases in mind.

CHAPTER FOUR
–
HAZARD MITIGATION STRATEGIES

Summary of Updates to Chapter Four

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Dougherty County Hazard Mitigation Plan 2015.

Chapter 4 Section	Updates
Goals and Objectives	• Updated goals to match the needs of Dougherty County and all municipalities
Identification and Analysis of Mitigation Techniques	• Content Revised • Reviewed mitigation strategies identified in the 2015 plan and made updates • Identified mitigation strategies that were completed • Identified mitigation strategies to be removed

Goals and Objectives

Requirement §201.6(c)(3)

Requirement §201.6(c)(3)(i)

It is important that State and local government, public-private partnerships, and the average citizen can see the results of these mitigation efforts, therefore, the goals and strategies need to be achievable. The mitigation goals and objectives form the basis for the development of specific mitigation actions. County and municipal officials should consider the listed goals before making community policies, public investment programs, economic development programs, or community development decisions for their communities. The goals of Dougherty County have changed slightly in the last five years (since 2015) due to specific threat events, such as Hurricane Irma in 2017 and the 2019-2020 COVID-19 Pandemic. Because of the recentness of the impacts of these hazards and the devastation that occurred, these types of events have taken a greater priority, particularly in the increased priority of mitigation strategies directly related to these events and the development of new mitigation strategies related to these hazards.

Each jurisdiction covered by the Dougherty County Hazard Mitigation plan update – Dougherty County and the City of Albany– has limited ability to fully implement the mitigation actions described in this plan. These jurisdictions are severely hampered by their small population and tax base when attempting to raise enough revenue to pursue many of these actions. All jurisdictions lack the needed financial strength and staffing to implement all the actions described in this plan. Many of the actions will be pursued through grant programs and by partnering with public and private organizations who can supplement the needed resources to accomplish the goals outlined in this plan. For actions where grant funding or partnerships are not available, Dougherty County or municipality revenue streams may be supplemented through Special Purpose Local Option Sales Tax (SPLOST) funds, which are voted on by the electorate.

GOAL 1	Maximize the use of all resources by promoting intergovernmental coordination and partnerships in the public and private sectors
GOAL 2	Harden communities against the impacts of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proven effective
GOAL 3	Reduce and, where possible, eliminate repetitive damage, loss of life and property from disasters
GOAL 4	Bring greater awareness throughout the community about potential hazards and the need for community preparedness

These objectives state a more specific outcome that Dougherty County strives to accomplish over the next five years. Action steps are the specific steps necessary to achieve these objectives. Objectives are not listed in order of importance.

OBJECTIVE 1	Reduce damage to property and loss of life through the utilization of preventative activities
OBJECTIVE 2	Minimize the damage to property and loss of life through property protection measures
OBJECTIVE 3	Minimize the damage to property and loss of life through natural resource protection activities
OBJECTIVE 4	Reduce damage to property and loss of life through the utilization of structural mitigation projects
OBJECTIVE 5	Increase the ability of Dougherty County, its municipalities, and its citizens to respond to natural and manmade hazards through emergency service measures
OBJECTIVE 6	Increase public education and awareness of natural hazards
OBJECTIVE 7	Minimize the impacts on local citizens, industry, and infrastructure of a dam breach
OBJECTIVE 8	Implement additional protective measures and capabilities in response to manmade incidents
OBJECTIVE 9	Increase public awareness of local manmade hazards and proper response to those hazards

Identification and Analysis of Mitigation Techniques

Requirement §201.6(c)(3)(iv)

Requirement §201.6(c)(3)(iii)

In updating Dougherty County's mitigation strategy, a wide range of activities were considered to help achieve the mitigation goals and objectives. This includes the following activities as by the Emergency Management Accreditation Program (EMAP):

1) The use of applicable building construction standards;

2) Hazard avoidance through appropriate land-use practices;

3) Relocation, retrofitting, or removal of structures at risk;

4) Removal or elimination of the hazard;

5) Reduction or limitation of the amount or size of the hazard;

6) Segregation of the hazard from that which is to be protected;

7) Modification of the basic characteristics of the hazard;

8) Control of the rate of release of the hazard;

9) Provision of protective systems or equipment for both cyber and/or physical risks;

10) Establishment of hazard warning and communication procedures; and

11) Redundancy or duplication of essential personnel, critical systems, equipment, and information materials.

Part of the prioritization includes a general assessment according to the STAPLEE criteria, which stands for Social, Technical, Administrative, Political, Legal, Economic and Environmental. This process led to three designated priorities: High, Medium, and Low. Most items that require grant funding must undergo a full Benefit Cost Analysis to determine the action's actual cost effectiveness prior to funding. This process will be completed as part of the grant opportunity application process.

Strategy Priority	Priority Description	Strategies within this priority
LOW	Low priority strategies are those strategies that will have less direct impact on mitigating Dougherty County's hazards, are in the early stages of strategy development, or score poorly on a preliminary cost-benefit analysis	**2.b; 4.b; 5.d; 9.d**
MEDIUM	Medium priority strategies are those strategies that will have a direct impact on mitigation Dougherty County's hazards but will not have as large of an anticipated impact as High Priority strategies or may be focused on hazards that are not as potentially impactful or prevalent for Dougherty County. These strategies may be in the earlier stages of development or score mediocre on a preliminary cost-benefit analysis	**1.f; 1.i; 1.k; 1.l; 2.c; 2.d; 2.e; 2.k; 2.l; 2.m; 3.b; 5.a; 5.b; 5.c; 5.f; 5.g; 5.h; 5.i; 5.m; 5.p; 6.e; 6.f; 6.g; 6.h; 6.i; 6.j; 6.k; 6.l; 6.n; 7.a; 9.a; 9.b**
HIGH	High priority strategies are those strategies that would have a direct, large impact on mitigation Dougherty County's hazards. These strategies are oftentimes well-established needs of Dougherty County and/or all municipalities and have score high on a preliminary cost-benefit analysis	**1.a; 1.b; 1.c; 1.d; 1.e; 1.g; 1.h; 1.j; 2.a; 2.f; 2.g; 2.h; 2.i; 2.j; 3.a; 4.a; 4.c; 5.e; 5.j; 5.k; 5.l; 5.n; 5.o; 6.a; 6.b; 6.c; 6.d; 6.m; 8.a; 8.b; 8.c; 9.c**

The lead agency listed in the Mitigation Strategy charts will be responsible for the jurisdictional administration and implementation of the mitigation strategy prioritization. Prioritization was determined based on many factors. These include the likelihood of the event, the potential impact of the event, the current readiness posture of Dougherty County for the event, the all-hazard impact of the mitigation strategy, and a cost-benefit analysis for the mitigation action. For example, mitigation actions that address high-likelihood, high-impact events with a low cost would rate higher than low-likelihood, high-impact events with a high cost.

The following Mitigation Charts meet:
Requirement §201.6(c)(3)(ii)
Requirement §201.6(d)(3)

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
OBJECTIVE 1: Reduce damage to property and loss of life through the utilization of preventative activities																	
1.a	Maintain NFIP Compliance	Dougherty County Board of Commissioners *Dougherty County*	**X**									Local budgets	Staff time	12 months	**In Place; Ongoing**	**High**	**NEW**
1.b	Maintain NFIP Compliance	Albany City Commission *City of Albany*	**X**									Local budgets	Staff time	12 months	**In Place; Ongoing**	**High**	**NEW**
1.c	Continue enforcing the building codes and require contractors to build to a minimum wind speed. This will cover new construction and any new renovations/ additions that require a building permit	Planning and Code Enforcement *Dougherty County and Albany*			**X**	**X**	**X**					Local budgets	Staff time	12 months	**In place; Ongoing**	**High**	**1.1.a.5**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
1.d	Update and improve floodplain maps	Planning and Development Services and FEMA *Dougherty County and Albany*	**X**		**X**		**X**					Local and Federal Budgets	Staff time	60 months (dependent on FEMA)	**Dougherty County keeps the maps updated to match any changes issued by FEMA**	**High**	**2.2.a.1**
1.e	Continue diligent enforcement of building codes and floodplain management regulations to maximize property protection and safety of residents and to maintain the good standing of the city and county with the National Flood Insurance Program	Planning and Development Services *Dougherty County and Albany*	**X**				**X**					Local budgets	Staff time	18 months	**In place; Continue; Standard practice for the community**	**High**	**2.3.a.1**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
1.f	Update the stormwater management plan to ensure it is current and consistent with latest Flood Insurance Rating Maps (FIRM)	Dougherty County Public Works/Planning and Development Services *Dougherty County and Albany*	**X**		**X**		**X**					Public and private grants and/or local budgets	$15,000	36 months	**Plan is updated regularly as part of planning cycle**	**Medium**	**2.3.a.2**
1.g	Apply for Flood Mitigation Assistance funds to make the buyout option available to willing owners of properties vulnerable to flood damage in the City of Albany and Dougherty County. Repetitive Loss Properties would be top priority.	Planning and Development Services *Dougherty County and Albany*	**X**				**X**					Public and private grants and/or local budgets	$5 million	24 months	**Mitigation Assistance Application underway**	**High**	**3.1.a.3**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
1.h	Maintain the 3-foot freeboard requirement in effect for Dougherty County since 1999. (Freeboard is the elevation of the finished flood above the level of the 100-year floodplain required for new construction). Propose that the City of Albany amends its Floodplain Management Ordinance to adopt this standard.	Planning and Development Services *Dougherty County and Albany*	**X**					**X**				Local budgets	Staff time	18 months	**In place; Continue**	**High**	**3.1.a.4**
1.i	Utilize codes and other planning/zoning initiative to encourage the hardening of structures against natural hazards	Planning and Development *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**		**X**	**X**		Local budgets	Staff time	24 months	**NEW**	**Medium**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
1.j	Encourage new developments in Dougherty County and Albany to utilize underground utilities	Planning and Development Services *Dougherty County and Albany*		**X**	**X**	**X**	**X**		**X**		**X**	Local budgets	Staff time	24 months	**NEW**	**High**	**NEW**
1.k	Update the stormwater management plan to ensure it is current and consistent with latest Flood Insurance Rating Maps (FIRM)	Public Works/Planning and Development *Dougherty County and Albany*	**X**		**X**		**X**					Local budgets	Staff time	18 months	**Part of current ordinance – MS4 community; Plan is compliant**	**Medium**	**2.3.a.2**
1.l	Continue to protect from additional development properties that are vulnerable to flood damage with a priority focus on the Flint River corridor properties and other wetlands	Planning and Development *Dougherty County and Albany*	**X**				**X**					Local budgets	Staff time	48 months	**Researching means of buying out properties**	**Medium**	**3.1.a.1**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
OBJECTIVE 2: Minimize the damage to property and loss of life through property protection measures																	
2.a	Perform an analysis of the need for additional backup power generation for the Joshua Street Wastewater Treatment System	Public Works/ Engineering *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$10,000	30 months	**Stormwater Management Projects Identified (1st of original strategy)**	**High**	**3.2.a.1 (modified)**
2.b	Develop mitigation strategies to protect any at-risk historic properties	Planning and Development Services *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**		**X**	**X**		Local budgets	Staff time	30 months	**Ongoing; Need board positions filled to proceed**	**Low**	**4.1.a.2**
2.c	Add generators to all schools in Dougherty County	Dougherty County Schools, Fire Department/ EMA *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$8 million	60+ months	**NEW**	**Medium**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
2.d	Encourage the public and private identification of safe rooms	Fire Department/ EMA *Dougherty County and Albany*			**X**	**X**	**X**					Local budgets	Staff time	30 months	**In place; Ongoing**	**Medium**	**6.1.a.3**
2.e	Build pre-sheltering safe rooms at all schools	Dougherty County Schools and Fire Department/ EMA *Dougherty County and Albany*			**X**	**X**	**X**					Public and private grants and/or local budgets	$4 million	60 months	**NEW**	**Medium**	**NEW**
2.f	Purchase and install generators at all critical facilities	Fire Department/ EMA *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$20 million	60+ months	**NEW**	**High**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
2.g	Purchase and install generators at all lift stations	Albany Water Gas and Light and EMA *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$5 million	60+ months	**NEW**	**High**	**NEW**
2.h	Purchase and install generators at all fire stations	Fire Department and EMA *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$250,000	60+ months	**NEW**	**High**	**NEW**
2.i	Upgrade existing pump station capabilities, continue to upgrade pump stations, and upgrade downstream draining systems in flood prone areas	Albany/ Dougherty Public Works *Dougherty County and Albany*	**X**		**X**		**X**					Public and private grants and/or local budgets	$10 million	60+ months	**None, due to budget constraints**	**High**	**3.2.a.4 and 3.2.a.5**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
2.j	Encourage a self-inspection program at critical facilities to ensure that the building infrastructure is high wind resistant	Fire Department and EMA *Dougherty County and Albany*		**X**	**X**	**X**						Local budgets	Staff time	24 months	**In place; Continue**	**High**	**6.1.a.1**
2.k	Purchase backup generator power for city and county refueling locations	Albany and Dougherty Public Works *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$125,000	48 months	**NEW**	**Medium**	**NEW**
2.l	Purchase mobile backup generators for traffic control and operations	Albany and Dougherty Public Works *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$75,000	48 months	**NEW**	**Medium**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
2.m	Purchase and install backup generator at Dougherty County Health Department	Dougherty County Health Department *Dougherty County and Albany*		**X**	**X**	**X**	**X**					Public and private grants and/or local budgets	$30,000	36 months	**NEW**	**Medium**	**NEW**
OBJECTIVE 3: Minimize the damage to property and loss of life through natural resource protection activities																	
3.a	Continue to drain ponds and remove debris from drainage systems prior to severe weather events	Albany/ Dougherty Public Works *Dougherty County and Albany*	**X**		**X**		**X**					Local budgets	Staff time	24 months	**In place; Continue**	**High**	**3.2.a.6**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
3.b	Maintain retention ponds as necessary throughout Dougherty County to assist in Flood Control	Albany/ Dougherty Public Works; Planning and Development; Engineering *Dougherty County and Albany*	**X**				**X**					Public and private grants and/or local budgets	$1 million	60 months	**In place; Maintenance of ponds ongoing**	**Medium**	**3.2.a.3**
OBJECTIVE 4: Reduce damage to property and loss of life through the utilization of structural mitigation projects																	
4.a	Create a stormwater overflow separation structure to reduce localized flooding	Stormwater *Dougherty County and Albany*	**X**		**X**		**X**					Public and private grants and/or local budgets	$5 million	60 months	**Planning in process**	**High**	**NEW**
4.b	Build a bridge over the Flint River at Clark and Society Ave	Engineering and Georgia DOT *Dougherty County and Albany*	**X**		**X**		**X**			**X**		Public and private grants and/or local budgets	$15 million	60+ months	**None; other projects take priority; poor CBA**	**Low**	**3.1.a.2**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
4.c	Build two tornado shelters – one in East Albany and one in West Albany – to be utilized by mobile home residents and other vulnerable populations	EMA *Dougherty County and Albany*				**X**	**X**					Public and private grants and/or local budgets	$500,000	36 months	**NEW**	**High**	**NEW**
OBJECTIVE 5: Increase the ability of Upson County, its municipalities, and its citizens to respond to natural and manmade hazards through emergency service measures																	
5.a	Add an additional River Gage and a wind gauge at the airport	USGS, National Weather Service, and Airport *Dougherty County and Albany*	**X**		**X**	**X**	**X**					Public and private grants and/or local and federal budgets	$10,000	30 months	**NEW**	**Medium**	**NEW**
5.b	Purchase ATVs for Emergency Response Operations	Emergency Response Agencies (Fire Department/ EMA) *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**		**X**	**X**		Public and private grants and/or local budgets	$20,000 each	30 months	**NEW**	**Medium**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.c	Purchase Drones for situational awareness and emergency operations and have personal trained to use them	Fire Department/ EMA *Dougherty County and Albany*	**X**		**X**	**X**	**X**		**X**	**X**		Public and private grants and/or local budgets	$5,000	24 months	**NEW**	**Medium**	**NEW**
5.d	Provide fuel to volunteers who are delivering items during post-disaster operations	Fire Department/ EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**		**X**	**X**		Local budgets	$2,000	12 months	**NEW**	**Low**	**NEW**
5.e	Pre-identify sites for debris to go post disaster	EMA *Dougherty County and Albany*			**X**	**X**	**X**			**X**		Local budgets	Staff time	18 months	**NEW**	**High**	**NEW**
5.f	Hold discussions with Georgia Pacific to see if they will allow the staging of debris post disaster on their site	EMA *Dougherty County and Albany*			**X**	**X**	**X**			**X**		Local and private budgets	Staff time	18 months	**NEW**	**Medium**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.g	Purchase drones for the Engineering Department	Engineering and EMA *Dougherty County and Albany*	**X**				**X**					Public and private grants and/or local budgets	$5,000	18 months	**NEW**	**Medium**	**NEW**
5.h	Develop service territory mapping capabilities in the EOC utilizing GIS	EMA and GIS *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Local budgets	Staff time	24 months	**NEW**	**Medium**	**NEW**
5.i	Install automatic vehicle location system-wide for all utilities and city services for more efficient dispatching and emergency response for utilities	Albany Utilities *Dougherty County and Albany*		**X**	**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$25,000	30 months	**NEW**	**Medium**	**NEW**
5.j	Purchase debris removal and cleanup equipment	Dougherty County Public Works *Dougherty County and Albany*			**X**	**X**	**X**			**X**		Public and private grants and/or local budgets	$750,000	60 months	**NEW**	**High**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.k	Renew subscription for Code Red mass notification system	EMA *Dougherty County and Albany*		**X**	**X**	**X**	**X**					Local budgets	Staff time	12 months	**In place; Continue**	**High**	**7.1.a.1**
5.l	Purchase RapidWarn software for expanded Outdoor Warning Siren capabilities	EMA *Dougherty County and Albany*				**X**						Public and private grants and/or local budgets	$25,000	24 months	**NEW**	**High**	**NEW**
5.m	Purchase Zodiac boats for high water rescue operations	Albany Fire Department and EMA *Dougherty County and Albany*	**X**				**X**					Public and private grants and/or local budgets	$25,000	36 months	**NEW**	**Medium**	**NEW**
5.n	Build a tornado-safe Emergency Operations Center (EOC)	Fire Department and EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$500,000	60+ months	**NEW**	**High**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
5.o	Maintain an active and effective Southwest Georgia COAD organization	Southwest Georgia COAD and EMA *Dougherty County and EMA*	**X**	**X**	**X**	**X**	**X**	**X**		**X**		Public and private grants and/or local budgets	Staff time	12 months	**NEW**	**High**	**NEW**
5.p	Upgrade the 14 current Outdoor Warning Sirens in Albany and Dougherty County	EMA *Dougherty County and Albany*				**X**						Public and private grants and/or local budgets	$175,000	48 months	**NEW**	**Medium**	**NEW**
OBJECTIVE 6: Increase public education and awareness of natural hazards																	
6.a	Heighten public awareness of actions they can take to prepare for severe weather events	Fire Department/ EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local budgets	Staff time	12 months	**In place; Ongoing; Current focus on mass notification system sign up**	**High**	**1.1.a.1**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
6.b	Utilize the media and social media for the distribution and publication of severe weather information	Fire Department/ EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**			**X**	Local budgets	Staff time	12 months	**Currently utilize the EMA Facebook page; Public Health and EMA send out info; Preparedness Weeks with concentrated efforts**	**High**	**1.1.a.2**
6.c	Make the website more interactive and add a "chat box" to allow citizens to ask questions directly to staff	Fire Department/ EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local budgets	Staff time	30 months	**NEW**	**High**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
6.d	Educate homeowners and business owners how to prepare the property for severe weather events	Fire Department/ EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**					Local budgets	$2,500	12 months	**Continuing; homeowners and business owners checklist available online; presentations as requested by EMA; incorporated into Citizens Police Academy**	**High**	**1.1.a.4**
6.e	Utilize the ARES group in Dougherty County to get preparedness information out to the public	Fire Department/ EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local and private budgets	$2,500	24 months	**NEW**	**Medium**	**NEW**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
6.f	Increase the level of citizen education on flood issues in Albany and Dougherty County	Planning and Development Services/ Fire Department/ EMA *Dougherty County and Albany*	**X**		**X**		**X**					Local budgets	Staff time	24 months	Continuous and as needed; In process of CRS Audit currently	**Medium**	**2.1.a.1**
6.g	Update the Albany Dougherty website to provide flood hazard related information that is readily available	Planning and Development Services *Dougherty County and Albany*	**X**									Local budgets	Staff time	12 months	As needed and annual; In process of CRS Audit currently	**Medium**	**2.1.a.2**
6.h	Outreach to residents and property owners in Repetitive Loss Areas and Flood Hazard Zones through annual mailing of information brochures and letters	Planning and Development Services	**X**				**X**					Local budgets	Staff time	12 months	Annual; In process of CRS Audit currently	**Medium**	**2.1.a.3**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
6.i	Education program on personal emergency preparedness, i.e., emergency survival kits	Fire Department/ EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$5,000	18 months	**In place; Ongoing**	**Medium**	**5.1.a.1**
6.j	Partner with local radio stations to assure that appropriate warning is provided to County residents of impending Tornado	Fire Department/ EMA *Dougherty County and Albany*				**X**						Local budgets	Staff time	12 months	**In place; Ongoing**	**Medium**	**5.1.a.2**
6.k	Encourage the American Red Cross to teach the Citizen's Disaster Course on a frequent basis	American Red Cross, Fire Department/ EMA	**X**	**X**	**X**	**X**	**X**					Local and Private budgets	Staff time	12 month	**"Be Red Cross Ready" Class taught November 2020; Encouraging more frequent presentation**	**Medium**	**5.1.a.3**

Strategy #	Mitigation Action	Lead and Supporting Agency, Department, Organization *Jurisdiction*	Flood	Winter Weather	Thunderstorm	Tornado	Tropical Cyclone	Drought	Wildfire	Earthquake	Extreme Temps	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
6.l	Train StormSpotters with National Weather Service training class	Fire Department/ EMA *Dougherty County and Albany*			**X**	**X**	**X**					Local and federal budgets	Staff time	12 months	**NEW**	**Medium**	**NEW**
6.m	Encourage businesses to develop emergency plans	EMA and LEPC *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local and private budgets	Staff time	12 months	**In place; Continue**	**High**	**6.1.a.2**
6.n	Continue to develop and distribute outreach materials for mitigation, preparedness, response, and recovery	EMA *Dougherty County and Albany*	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Local budgets	$2,500	12 months	**Continuous process**	**Medium**	**8.1.a.1**

Strategy #	Mitigation Action	Lead and *Supporting* Agency, Department, Organization	Dam Failure	Hazardous Materials	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
OBJECTIVE 7: Minimize the impacts on local citizens, industry, and infrastructure of a dam breach														
7.a	Encourage the development of EAPs at all Category I and II dams in Dougherty County	Planning and Development and EMA *Dougherty County and Albany*	**X**		**X**		**X**		Local budgets	Staff time	18 months	**NEW**	**Medium**	NEW
OBJECTIVE 8: Implement additional protective measures and capabilities in response to manmade incidents														
8.a	Purchase cleaning equipment and proper Personal Protective Equipment	Public Health, Fire Department/ EMA *Dougherty County and Albany*		**X**	**X**			**X**	Public and private grants and/or local budgets	$1 million	30 months	**NEW**	**High**	NEW
8.b	Build a hardened Energy Control Center	EMA *Dougherty County and Albany*		**X**	**X**		**X**		Public and private grants and/or local budgets	$5 million	60 months	**NEW**	**High**	NEW

Strategy #	Mitigation Action	Lead and *Supporting* Agency, Department, Organization	Dam Failure	Hazardous Materials	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
8.c	Purchase a HazMat Response Truck and additional equipment	Albany Fire Department *Dougherty County and Albany*		**X**	**X**	**X**	**X**	**X**	Public and private grants and/or local budgets	$300,000	36 months	**NEW**	**High**	NEW
OBJECTIVE 9: Increase public awareness of local manmade hazards and proper response to those hazards														
9.a	Develop power outage mapping capabilities	EMA and City of Albany *Dougherty and City of Albany*					**X**		Public and private grants and/or local budgets	$12,500	48 months	**NEW**	**Medium**	NEW
9.b	Hold an annual HazMat drop off day for proper disposal	EMA *Dougherty County and Albany*		**X**	**X**	**X**		**X**	Local budgets	$10,000	48 months	**NEW**	**Medium**	NEW

Strategy #	Mitigation Action	Lead and *Supporting* Agency, Department, Organization	Dam Failure	Hazardous Materials	Terrorism	Transportation	Infrastructure Failure	Emer. Disease	Funding Source	Estimated Cost	Completion Timeframe	Progress/ Status	Priority	Previous Strategy #
9.c	Continue to educate the public about the hazardous materials to which they are most frequently exposed	Albany Fire Department and EMA *Dougherty County and Albany*		**X**	**X**	**X**		**X**	Local budgets	Staff time	12 months	**In place; Continue**	**High**	9.1.a.1 (modified)
9.d	Identify and publicize hazardous materials disposal procedures	Dougherty County Public Works *Dougherty County and Albany*		**X**	**X**	**X**			Local budgets	Staff time	12 months	**Continuous**	**Low**	9.1.a.2

Completed Mitigation Strategies

Previous Strategy #	Strategy Description	Status
1.1.a.3	Update the Albany/Dougherty website to provide severe weather-related information that is readily accessible	COMPLETE; Strategy added to make website more interactive for the public
3.2.a.2	When the final report is received from Phase II of the USGS 2-dimensional model study of the Flint River corridor, carefully assess the resulting recommendations. Take action as indicated. Include the results in the review of this document.	COMPLETE; Final report showed minimal improvements; Poor Cost-Benefit Analysis for remaining proposals
9.1.a.1	Educate the public about the hazardous materials to which they are most frequently exposed	COMPLETE; Modified to Continue

Deleted Mitigation Strategies

Previous Strategy #	Strategy	Reason for Deletion
5.2.a.1	Construct a tornado safe room inside of the already planning Public Safety Training Center	Completed July 2010
6.1.a	Implement cost-effective activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to tornado hazards	Deleted for modification; Replaced with Strategy 1.i
4.1.a.1	Review all capital improvement plans to ensure that infrastructure improvement is not directed towards flood hazard areas	Redundant with other strategies already in place
5.1.a.2	Partner with local radio stations to assure that appropriate warning is provided to County residents of impending tornado	Automatically done through National Weather Service

CHAPTER FIVE
–
MAINTENANCE AND IMPLEMENTATION

Summary of Updates for Chapter Five

The following table provides a description of each section of this chapter, and a summary of the changes that have been made to the Dougherty County Hazard Mitigation Plan 2015.

Chapter 5 Section	Updates
Maintenance	• Separated from Plan Update • Content Revised
Plan Distribution	• New Section – Not in 2015 Plan
Implementation	• Content Revised
Evaluation	• Content Revised
Peer Review	• New Section – Not in 2015 Plan
Plan Update	• Content Revised
Conclusion	• Content Revised

Maintenance

Requirement §201.6(c)(4)(iii)

To adhere to best practices, state and federal guidelines, and lessons learned, the Dougherty County Hazard Mitigation Plan Update Committee has developed a method to ensure the regular review and update of the Plan occurs. Plan maintenance protocols identified during the 2015 Dougherty County Hazard Mitigation Plan was followed, to the best abilities of Dougherty County. This most importantly included an increased attempt for public participation and inclusion in the planning process. The Dougherty County Hazard Mitigation Plan Update Committee will reconvene annually in February to monitor and evaluate the progress of the mitigation strategies in the Plan. Dougherty County's Emergency Management Director, Cedric Scott, will be responsible for implementing this meeting. The Committee will discuss the following questions annually:

- Do the goals address current and expected hazards and conditions?
- Are the goals and objectives still relevant to the County?
- Has the nature or magnitude of risks changed?
- Does the risk assessment portion of the Plan need to be updated or modified?
- Are the goals and objectives meeting changes in state and federal policy?
- Are the current resources appropriate for implementing the Plan?
- Are there local implementation problems, such as technical, political, legal, or coordination issues with other agencies?
- Did the jurisdictions, agencies, and other partners participate in the plan implementation process as proposed?

The responsible parties for various mitigation strategies will provide a report during this annual meeting regarding the following:
- How well did the implementation processes work?
- Were any difficulties encountered during implementation?
- How successful was the coordination of efforts?
- Are there any suggestions for revision of any strategies?

Dougherty County's Emergency Management Director will send the minutes from this annual meeting to Dougherty County Board of Commissioners and the City of Albany for review.

If there are any updates or modifications to the Dougherty County Hazard Mitigation Plan, the Emergency Management Director will forward the changes to the Georgia Emergency Management Agency's Hazard Mitigation Officer. All annual reviews of the Dougherty County Hazard Mitigation Plan will be open to the public. These meetings will be advertised both in the local newspapers, but also on signage in the publicly used facility hosting the meeting.

Maintenance Log

Revision Date	Revised Section	Reason for Revision	Revised By
2019-2020	**Five Year Hazard Mitigation Plan Update**	**FEMA Requirement**	**Dougherty County Hazard Mitigation Planning Committee with assistance from Lux Mitigation and Planning**

Plan Distribution

This Plan will be distributed, but not limited, to the following departments and organizations within Dougherty County:

Dougherty County Board of Commissioners
Albany Fire Department
Dougherty County Emergency Management Agency
Dougherty County Sheriff's Office
Dougherty County Public Works
Dougherty County Planning and Development Services
Dougherty County Board of Education
City of Albany

A printed copy of the approved Plan will be available for viewing at the Dougherty County Commissioner's Office located at 222 Pine Avenue in Albany, GA 31701. A printed copy of the approved Plan will also be available for viewing at the Dougherty County Public Library located at 300 Pine Avenue in Albany. The existence and location of these copies will be publicized in the County's local newspaper, The Albany Herald.

All comments, questions, concerns, and opinions about the Plan will be directed to Director Cedric Scott of the Dougherty County Emergency Management Agency for follow-up.

Implementation

Requirement §201.6(c)(4)(ii)

Each jurisdiction participating in the Dougherty County Hazard Mitigation Plan is responsible for implementing specific mitigation actions as prescribed in this plan. In the Mitigation Strategies section, every proposed strategy is assigned to a specific local department or agency to assign responsibility and accountability and increase the likelihood of subsequent implementation.

In addition to the designation of a local lead department or agency, some strategies have secondary or assisting department or agencies listed as well. This allows for a sharing of responsibility and coordination of effort for some of the identified strategies that cross lines of departmental responsibility. The completion date has been assigned to assess whether identified mitigation strategies are being implemented in a timely fashion.

Dougherty County and all municipalities will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified and targeted for the proposed actions listed in the mitigation strategies. It will be the responsibility of each participating jurisdiction to determine additional implementation procedures beyond those listed within the Dougherty County Hazard Mitigation Plan.

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

Identified hazards and mitigation strategies of the 2015 Dougherty County Hazard Mitigation plan were integrated into the Local Emergency Operations Plan, multiple County and City SOPs and SOGs, and future planning and zoning plans. Dougherty County will integrate mitigation strategies identified in this plan into the Dougherty County Comprehensive Plan, Community Wildfire Protection Plan, Continuity of Operations Plan, and other future plans. Strategies identified in the previous plan were applied to grant applications, building and zoning requirements, and development planning considerations for Dougherty County and all municipalities. Many of these strategies will be applied using previously identified policies and ordinances, including the NFIP compliance ordinances and water-use ordinances, which have now been applied countywide. All jurisdictions have the

authority to adopt locally binding ordinances and policies to enhance the mitigation strategies in their jurisdiction.

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction 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	County/Municipal Code	Yes	No	No
Capital Improvements Plan		Yes	No	No
Comprehensive Plan	Dougherty County-Albany Joint Comprehensive Plan	Yes	No	No
Economic Development Plan	Dougherty County-Albany Joint Comprehensive Plan	Yes	No	Yes
Emergency Management Accreditation Program		No	No	Yes
Emergency Response Plan	Dougherty County Local Emergency Operations Plan (LEOP)	Yes	No	Yes
Flood Management Plan		Yes	No	No
Historic Preservation		Yes	No	No
National Flood Insurance Program Participation		Yes	No	Yes
Continuity of Government/		No	No	No

Operations Plan				
Post-Disaster Ordinance		Yes	No	No
Zoning Ordinances	County and City of Albany Codes	Yes	No	No

Opportunities to integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified. Some of the mechanisms include, but are not limited to, the Dougherty County and Albany City Joint Comprehensive Plan, the Dougherty County Community Wildfire Protection Plan, and future capital project and planning/zoning planning initiatives. Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the Dougherty County Hazard Mitigation Planning Committee to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

Evaluation

Requirement §201.6(c)(4)(i)

Periodic revisions and updates of the Dougherty County Hazard Mitigation Plan may be required to ensure that the goals of this plan are kept current with federal, state, and local regulations. These revisions should also consider any potential changes in the hazard vulnerability and mitigation priorities of Dougherty County.

The Dougherty County Hazard Mitigation Plan Update Committee will meet annually to review the Dougherty County Hazard Mitigation Plan. During this annual review, mitigation strategies will be reviewed to evaluate the progress that has occurred for each identified mitigation strategy. The Dougherty County Hazard Mitigation Plan Update Committee will also meet following any disaster event to review the identified mitigation strategies for that hazard and determine if timelines should be adjusted or additional mitigation strategies should be identified and added to the plan. These steps will ensure that the Dougherty County Hazard Mitigation Plan is continuously updated to allow for changes in hazard vulnerabilities and identified mitigation strategies.

The Dougherty County Hazard Mitigation Plan Update Committee will complete all evaluations of the Dougherty County Hazard Mitigation Plan.

Peer Review

State Requirement Element F1

To maintain standards of quality, improve performance, and provide credibility to the Dougherty County Hazard Mitigation Plan Update, representatives of local emergency management agencies bordering Dougherty County conducted a peer review of the Plan. The peer review of this Plan constitutes a form of self-regulation, accountability, and new insights offered by qualified professionals in neighboring communities, which face many of the same natural and man-made hazards.

Dougherty County Hazard Mitigation Plan Update was peer reviewed by:

_____

Richard Martin Date
Director
Calhoun County Emergency Management Agency

_____

Chief David Forrester Date
Director
Lee County Emergency Management Agency

_____

Billy McClung Date
Director
Terrell County Emergency Management Agency

_____

Thomas Whittington Date
Director
Worth County Emergency Management Agency

Plan Update

Requirement §201.6(c)(4)(i)

The Federal Disaster Mitigation Act of 2000 requires that the Hazard Mitigation Plan be updated at least once every five years. The Dougherty County Emergency Management Agency is the department responsible with ensuring this requirement is met. The Dougherty County Hazard Mitigation Plan Update Committee will be involved in this future process and will aid the Dougherty County Emergency Management Agency in ensuring that all jurisdictions provide input into the planning process. The public will be invited to participate in the planning process through public hearings to be held whenever major updates to this plan are needed and during annual review meetings. This plan will expire in the fourth quarter of 2025; therefore, the approval and adoption of the next plan update must be completed before that time.

In the second quarter of 2024, Dougherty County plans to begin the Hazard Mitigation Plan Update process for the fourth time. This planning process will include bi-monthly meetings to accomplish the identified goals of the Dougherty County Hazard Mitigation Plan Update. This process will be headed up by the Dougherty County Emergency Management Agency. The Dougherty County Hazard Mitigation Planning Committee will follow a similar process as was undertaken during this planning cycle to complete all FEMA and GEMA requirements for the Hazard Mitigation Plan Update. This process will be completed by the third quarter of 2025 to meet all identified planning deadlines.

Conclusion

As a result of the hazard mitigation planning process, Dougherty County, and all municipalities therein, as well as additional participating organizations have obtained a great deal of information and knowledge regarding Dougherty County's disaster history, natural and technological hazards, vulnerabilities, and potential strategies to lessen the impacts of the identified hazards.

One consistent theme identified by the Dougherty County Hazard Mitigation Planning Committee was the inability to consistently identify geographic locations that were more vulnerable to most hazards due to the widespread potential effects and random impact areas each hazard could have. This was exceedingly true for most natural hazards. Recognizing this challenge, the Dougherty County Hazard Mitigation Plan Update Committee determined it was best to identify many mitigation goals, objectives, and strategies that were both general and specific in nature. These strategies allow the Dougherty County Hazard Mitigation Plan Update Committee to adopt strategies that will have the greatest positive effect on the greatest amount of the population.

Appendix A – Dougherty County Dams Information

Category I Dams

There are No Category I Dams in Dougherty County

Category II Dams

Name	Latitude	Longitude	Height (feet)	Storage (acres)
Nilo Plantation Lake Dam No. 1	31.482944	-84.280861	7.20	199.00
Wooten Lake Dam	31.640861	-84.017111	7.00	201.50

Appendix B – Dougherty County Hazard Mitigation Plan Update Meeting Attendance Documentation

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #1 Attendees
Wednesday, July 15, 2020
(In-person meeting not held due to COVID-19 pandemic)

Alphonso Bogans
General Supervisor
City of Albany Public Works, Street Department

Jeremy Brown
Project Engineer
Dougherty County Public Works, Engineering Department

Sebon Burns
Deputy Chief
City of Albany Fire Department

Robert Carter
Chief Code Enforcement Officer
Dougherty County; City of Albany

Steven Carter
Chief Information Officer
City of Albany Technology and Communications Department

Sandra Cole
Region K Healthcare Coalition Facilitator
Georgia Department of Public Health, District 8-2 Southwest

John Dawson
Operations Manager
City of Albany Technology and Communications Department

Benita Dyes
Administrative Supervisor
Dougherty County Public Works

Ken Faust
Captain; Uniform Division Commander
Dougherty County Sheriff's Office

Paul Forgey
Director
City of Albany Planning and Development Services Department

LaTrena Greene
Administrative Assistant
City of Albany Fire Department

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #1 Attendees
Wednesday, July 15, 2020
(In-person meeting not held due to COVID-19 pandemic)

Jami Harper
Community Program Director
SOWEGA Council on Aging

Wendy Howell
Public Information Officer
Dougherty County Administration

Tateshea Irving
Sergeant
Dougherty County Police Department

Rubin Jordan
Assistant Fire Chief
City of Albany Fire Department

Kenneth "Bruce" Maples
Managing Director
City of Albany Engineering and Planning Department

Exylyn Mitchell
Materials Manager
City of Albany Central Services Department

Sonja Moody
Emergency Preparedness Interim Director
Georgia Department of Public Health, District 8-2 Southwest

Latonza Mosley
Administrative Manager
City of Albany Fire Department

Breanna Nixon
Manager, Workers' Compensation
City of Albany Risk Management Services Department

Henry Jack Nutt
Energy Control/ SCADA Manager
City of Albany Utilities Department

Cedric Scott
Director – Dougherty County Emergency Management Agency
Fire Chief – City of Albany Fire Department

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #1 Attendees
Wednesday, July 15, 2020
(In-person meeting not held due to COVID-19 pandemic)

Rebecca Sullivan
Captain
The Salvation Army

Joria West
General Supervisor
City of Albany Public Works, Sewer Department

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #2 Attendees
Wednesday, August 19, 2020
(In-person meeting not held due to COVID-19 pandemic)

Sam Allen
Director
Dougherty County Emergency Medical Services

Jeremy Brown
Project Engineer
Dougherty County Public Works, Engineering Department

Sebon Burns
Deputy Chief
City of Albany Fire Department

Sandra Cole
Region K Healthcare Coalition Facilitator
Georgia Department of Public Health, District 8-2 Southwest

John Dawson
Operations Manager
City of Albany Technology and Communications Department

Yvette Fields
Director
City of Albany Central Services Department

Paul Forgey
Director
City of Albany Planning and Development Services Department

Michael Fowler
Coroner
Dougherty County

Jami Harper
Community Program Director
SOWEGA Council on Aging

Eddie Jones
Captain
City of Albany Police Department

Rubin Jordan
Assistant Fire Chief
City of Albany Fire Department

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #2 Attendees
Wednesday, August 19, 2020
(In-person meeting not held due to COVID-19 pandemic)

Exylyn Mitchell
Materials Manager
City of Albany Central Services Department

Sonja Moody
Emergency Preparedness Interim Director
Georgia Department of Public Health, District 8-2 Southwest

Latonza Mosley
Administrative Manager
City of Albany Fire Department

Breanna Nixon
Manager, Workers' Compensation
City of Albany Risk Management Services Department

Henry Jack Nutt
Energy Control/ SCADA Manager
City of Albany Utilities Department

Ricky Schutter
Emergency Management Specialist
Georgia Department of Public Health, District 8-2 Southwest

Kathy Shemwell
Regional Director
Southwest Georgia Community Organizations Active in Disaster

Hank Wilson
Emergency Preparedness Specialist 3
Georgia Department of Public Health, District 8-2 Southwest

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #3 Attendees
Wednesday, September 16, 2020
(In-person meeting not held due to COVID-19 pandemic)

Sam Allen
Director
Dougherty County Emergency Medical Services

Dr. Dwight L. Baker
Director
City of Albany Human Resources

Alphonso Bogans
General Supervisor
City of Albany Public Works, Street Department

Jeremy Brown
Project Engineer
Dougherty County Public Works, Engineering Department

Sebon Burns
Deputy Chief
City of Albany Fire Department

Georgia Collier-Bolling
Director of Disaster Recovery and Grant Programs
Dougherty County Board of Commissioners

Troy L. Conley
Chief of Police
Dougherty County School System Police Department

Yvette Fields
Director
City of Albany Central Services Department

Paul Forgey
Director
City of Albany Planning and Development Services Department

Tennasha Gresham
Superintendent of Operations
City of Albany Transportation Department

Jami Harper
Community Program Director
SOWEGA Council on Aging

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #3 Attendees
Wednesday, September 16, 2020
(In-person meeting not held due to COVID-19 pandemic)

Tina Harrell
Administrative Manager
City of Albany

Vamella Lovett
Director
Dougherty County Health Department

Exylyn Mitchell
Materials Manager
City of Albany Central Services Department

Sonja Moody
Emergency Preparedness Interim Director
Georgia Department of Public Health, District 8-2 Southwest

Latonza Mosley
Administrative Manager
City of Albany Fire Department

Jimmy Norman
Director of Utility Operations
City of Albany Utilities Department

Henry Jack Nutt
Energy Control/ SCADA Manager
City of Albany Utilities Department

Cedric Scott
Director – Dougherty County Emergency Management Agency
Fire Chief – City of Albany Fire Department

Kathy Shemwell
Regional Director
Southwest Georgia Community Organizations Active in Disaster

Phyllis Whitley-Banks
Public Information Officer/ Crisis Communications Manager
City of Albany

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #4 Attendees
Wednesday, November 18, 2020
(In-person meeting not held due to COVID-19 pandemic)

Brandy Barron
Administrative Assistant
Dougherty County Emergency Medical Services

Sebon Burns
Deputy Chief
City of Albany Fire Department

Steven Carter
Chief Information Officer
City of Albany Technology and Communications Department

Sandra Cole
Region K Healthcare Coalition Facilitator
Georgia Department of Public Health, District 8-2 Southwest

Georgia Collier-Bolling
Director of Disaster Recovery and Grant Programs
Dougherty County Board of Commissioners

Yvette Fields
Director
City of Albany Central Services Department

Paul Forgey
Director
City of Albany Planning and Development Services Department

Jami Harper
Community Program Director
SOWEGA Council on Aging

Eddie Jones
Captain
City of Albany Police Department

Rubin Jordan
Assistant Fire Chief
City of Albany Fire Department

Vamella Lovett
Director
Dougherty County Health Department

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #4 Attendees
Wednesday, November 18, 2020
(In-person meeting not held due to COVID-19 pandemic)

Carolyn Maschke
Public Information Officer/Risk Communicator
Georgia Department of Public Health, District 8-2 Southwest

Michael McCoy
County Administrator
Dougherty County Board of Commissioners

Lauren McGrath
Emergency Management Specialist
City of Albany Fire Department/ Emergency Management

Exylyn Mitchell
Materials Manager
City of Albany Central Services Department

Sonja Moody
Emergency Preparedness Interim Director
Georgia Department of Public Health, District 8-2 Southwest

Latonza Mosley
Administrative Manager
City of Albany Fire Department

Breanna Nixon
Manager, Workers' Compensation
City of Albany Risk Management Services Department

Ryan Ramsey
Energy Control/SCADA Manager
City of Albany Utilities Department

Ricky Schutter
Emergency Management Specialist
Georgia Department of Public Health, District 8-2 Southwest

Cedric Scott
Director – Dougherty County Emergency Management Agency
Fire Chief – City of Albany Fire Department

Kathy Shemwell
Regional Director
Southwest Georgia Community Organizations Active in Disaster

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #4 Attendees
Wednesday, November 18, 2020
(In-person meeting not held due to COVID-19 pandemic)

Derrell Smith
Assistant Chief of Police
City of Albany Police Department

Ken Stock
Assistant City Manager
City of Albany

Sharon Subadan
City Manager
City of Albany

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #5 Attendees
Wednesday, December 2, 2020
(In-person meeting not held due to COVID-19 pandemic)

Sam Allen
Director
Dougherty County Emergency Medical Services

Jeanna Barnes
Emergency Preparedness Director
Georgia Department of Public Health, District 8-2 Southwest

Alphonso Bogans
General Supervisor
City of Albany Public Works, Street Department

Steven Carter
Chief Information Officer
City of Albany Technology and Communications Department

Sandra Cole
Region K Healthcare Coalition Facilitator
Georgia Department of Public Health, District 8-2 Southwest

Gregory L. Elders Sr.
Chief of Police
Albany State University Police Department

Yvette Fields
Director
City of Albany Central Services Department

Paul Forgey
Director
City of Albany Planning and Development Services Department

LaTrena Greene
Administrative Assistant
City of Albany Fire Department

Rubin Jordan
Assistant Fire Chief
City of Albany Fire Department

Vamella Lovett
Director
Dougherty County Health Department

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #5 Attendees
Wednesday, December 2, 2020
(In-person meeting not held due to COVID-19 pandemic)

Kenneth "Bruce" Maples
Managing Director
City of Albany Engineering and Planning Department

Carolyn Maschke
Public Information Officer/Risk Communicator
Georgia Department of Public Health, District 8-2 Southwest

Michael McCoy
County Administrator
Dougherty County Board of Commissioners

Lauren McGrath
Emergency Management Specialist
City of Albany Fire Department/ Emergency Management

Exylyn Mitchell
Materials Manager
City of Albany Central Services Department

Sonja Moody
Emergency Preparedness Interim Director
Georgia Department of Public Health, District 8-2 Southwest

Latonza Mosley
Administrative Manager
City of Albany Fire Department

Breanna Nixon
Manager, Workers' Compensation
City of Albany Risk Management Services Department

Jimmy Norman
Director of Utility Operations
City of Albany Utilities Department

Ryan Ramsey
Energy Control/SCADA Manager
City of Albany Utilities Department

Ricky Schutter
Emergency Management Specialist
Georgia Department of Public Health, District 8-2 Southwest

Dougherty County Hazard Mitigation Plan 2021
Zoom Meeting #5 Attendees
Wednesday, December 2, 2020
(In-person meeting not held due to COVID-19 pandemic)

Cedric Scott
Director – Dougherty County Emergency Management Agency
Fire Chief – City of Albany Fire Department

Ken Stock
Assistant City Manager
City of Albany

Sharon Subadan
City Manager
City of Albany

Appendix C – Dougherty County Critical Facilities Data

Name	Jurisdiction	Address
Albany Fire Station # 2	*Albany city*	1500 Palmyra Rd
Electrical Sub Station # 2	*Albany city*	130 Haley Street
Electrical Sub Station # 3	*Albany city*	1501 N. Madison Street
Electrical Sub Station # 5	*Albany city*	610 N. Magnolia St.
Electrical Sub Station #7	*Albany city*	1600 E. Broad Ave.
Electrical Sub Station # 9	*Dougherty County*	2135 Gillionville Road
Electrical Sub Station # 10	*Albany city*	1500 Martin Luther King Jr. Dr
Electrical Sub Station # 14	*Albany city*	2507 Whatley Dr.
Electrical Sub Station # 17	*Albany city*	1900 Rodgers Avenue
Electrical Sub Station # 18	*Dougherty County*	405 Cordele Road
Electrical Sub Station # 19	*Dougherty County*	1813 W. Oakridge Drive
Electrical Sub Station # 20	*Dougherty County*	1224 Liberty Expressway
Electrical Sub Station # 21	*Dougherty County*	4700 Gillionville Road
Propane Plant # 1	*Albany city*	999 S. Maple St.
Propane Plant # 2	*Albany city*	2414 Old Haley Farm Rd.
MillerCoors Regulator/Meter Station	*Dougherty County*	Clark Ave. @ N. Mock Rd.
Pit Regulator Station - P&G	*Dougherty County*	512 Liberty Expressway
Regulator Station # 1	*Albany city*	Front Street
Regulator Station # 2	*Dougherty County*	Palmyra Road
Regulator Station # 3	*Albany city*	2400 Monroe St.
Regulator Station # 4	*Albany city*	Monroe Street
Regulator Station # 5	*Albany city*	Oakridge Drive
Regulator Station # 6	*Albany city*	Ridgemont
Regulator Station # 7	*Albany city*	Phillips Drive
Regulator Station # 8	*Albany city*	Valencia
Regulator Station # 9	*Albany city*	Westover Blvd.
Regulator Station # 10	*Albany city*	Dawson Road
Regulator Station # 11	*Albany city*	Lines Avenue
Regulator Station # 12	*Albany city*	West Road
Regulator Station # 13	*Dougherty County*	Turner Field Road
Regulator Station # 14	*Dougherty County*	Mock Road
Regulator Station # 15	*Dougherty County*	Mock Road
Regulator Station # 16	*Dougherty County*	Duitman
Regulator Station # 17	*Albany city*	Sanborn Avenue
Regulator Station # 18	*Albany city*	Sunset Lane
Regulator Station # 19	*Dougherty County*	Radium Springs Road

Regulator Station # 20	*Dougherty County*	Radium Springs Road
US Highway 19 Gate Station	*Dougherty County*	1610 US 19 South
Lee County Gate Station	*Lee County*	Armena Rd.
Water Tank # 1	*Albany city*	314 W. Roosevelt Avenue
Water Tank # 2	*Albany city*	200 Dewey Street
Water Tank # 3	*Dougherty County*	2011 Gillionville Road
Water Tank # 4	*Albany city*	501 Holly Dr.
Water Tank # 5	*Albany city*	312 N. Madison Street
Water Tank # 6	*Albany city*	2507 Whatley Drive
Water Tank # 8	*Albany city*	2420 Dundee Ln.
Water Tank # 9	*Albany city*	1801 Clark Avenue
Water Tank # 10	*Albany city*	417 B Oakwood Dr.
Water Tank # 11	*Albany city*	1215 Lajuana Lane
Water Well # 6	*Albany city*	200 Dewey Street
Water Well # 7	*Albany city*	90 N. Front Street
Water Well # 8	*Albany city*	700 Flint Avenue
Water Well # 9	*Albany city*	313 W. Broadway
Water Well # 12	*Albany city*	1513 W. Third Avenue
Water Well # 13	*Albany city*	314 Roosevelt Avenue
Water Well # 14	*Albany city*	1611 Highland Avenue
Water Well # 15	*Albany city*	1905 N. Hoover Street
Water Well # 16	*Albany city*	1515 N. Jefferson Street
Water Well # 17	*Albany city*	1703 Owens Street
Water Well # 18	*Albany city*	2402 Dawson Road
Water Well # 19	*Albany city*	2002 Stratford Dr.
Water Well # 20	*Albany city*	630 Zackery
Water Well # 21	*Albany city*	501 Holly Drive
Water Well # 22	*Albany city*	2414 Old Haley Farm Rd.
Water Well # 23	*Albany city*	2010 Schley Avenue
Water Well # 24	*Albany city*	2826 Gillionville Road
Water Well # 25	*Albany city*	108 Independence Drive
Water Well # 26	*Albany city*	2304 Old Dominion Road
Water Well # 27	*Albany city*	2507 Whatley Drive
Water Well # 28	*Albany city*	
Water Well # 29	*Albany city*	523 County Line Road
Water Well # 30	*Albany city*	1602 Clark Avenue
Water Well # 31	*Albany city*	3809 Old Dawson Road
Water Well # 32	*Albany city*	1300 Cordele Road
Water Well # 33	*Dougherty County*	3702 Gillionville Road
Water Well # 34	*Albany city*	1215 La Juana Drive

Water Well # 35	*Dougherty County*	1813 W. Oakridge Drive
Water Well # 36	*Dougherty County*	2107 Hanover Street
Water Well # 37	*Albany city*	4712 Gillionville Road
Water Well # 38	*Dougherty County*	5201 Gillionville Road
Water Well # 39	*Dougherty County*	3208 Old Dawson Road
Water Well #40	*Dougherty County*	1726 Lily Pond
Water Well #41	*Dougherty County*	1726 Lily Pond
Water Well #42	*Dougherty County*	1726 Lily Pond
Water Well #43	*Dougherty County*	1726 Lily Pond
Water Well #44	*Dougherty County*	1726 Lily Pond
Water Well #45	*Dougherty County*	1726 Lily Pond
Water Well #46	*Dougherty County*	1726 Lily Pond
Water Well #47	*Dougherty County*	1726 Lily Pond
Utility Operations Administration Bldg.	*Albany city*	207 Pine Ave.
Seaboard Bldg.	*Albany city*	218 N. Washington St.
Water Treatment Plant	*Dougherty County*	1726 Lily Pond
Water, Gas & Light Maint. Bldg. & Shop	*Dougherty County*	1726 Lily Pond
Water Department Equipment Shed	*Dougherty County*	1726 Lily Pond
Water Department Equipment Shed	*Dougherty County*	1726 Lily Pond
Gas Department Equipment Shed	*Dougherty County*	1726 Lily Pond
Gas Department Equipment Shed	*Dougherty County*	1726 Lily Pond
Gas Department Equipment Shed	*Dougherty County*	1726 Lily Pond
Light Department Equipment Shed	*Dougherty County*	1726 Lily Pond
Administration Building	*Dougherty County*	1726 Lily Pond
Warehouse Building	*Dougherty County*	1726 Lily Pond
Water Department Building	*Dougherty County*	1726 Lily Pond
Gas Department Building	*Dougherty County*	1726 Lily Pond
Light Department Building	*Dougherty County*	1726 Lily Pond
2-Megawatt Generator	*Dougherty County*	1726 Lily Pond
Operations Fuel Tanks	*Dougherty County*	1726 Lily Pond
Operations Fuel Island	*Dougherty County*	1726 Lily Pond
Well Field Sewer Lift Station	*Dougherty County*	1726 Lily Pond
Utility Operations Fiber Hut	*Dougherty County*	1726 Lily Pond
Fiber Building	*Albany city*	2107 Hanover #1
Fiber Building	*Albany city*	2107 Hanover #2
Fiber Building	*Albany city*	2107 Hanover #3
Fiber Building	*Albany city*	2107 Hanover #4
Fiber Building	*Albany city*	3612 Old Dawson Rd.

Fiber Building	*Dougherty County*	1281 US 19 South, Lee Co.
Fiber Building	*Albany city*	2107 Hanover #4
Fiber Building	*Albany city*	999 S. Maple
Fiber Building	*Albany city*	312 S. Madison
Fiber Building	*Albany city*	207 Pine
DCPW Administration Building	*Dougherty County*	2038 Newton Rd.
DCPW Crew Qtrs & Fleet Maintenance	*Dougherty County*	2108 Habersham Rd.
Dougherty County Fuel Island	*Dougherty County*	2038 Newton Rd.
Southside Library	*Albany city*	Oakridge Dr
Lincoln Heights Fundamental School	*Albany city*	700 Corn Ave
Fire Station # 1	*Albany city*	320 N Jackson St
Westtown Library	*Albany city*	2124 Waddell Ave
Sherwood Elementary School	*Albany city*	2200 Barnesdale Way
Fire Station # 5	*Dougherty County*	2035 Newton Rd
Southside Middle School	*Albany city*	1615 Newton Rd
Monroe High School	*Albany city*	900 Lipitt Dr
Lake Park Elementary	*Albany city*	605 Meadowlark Dr
DCPW Equipment Shed	*Dougherty County*	2108 Habersham Rd.
DCPW Equipment Shed	*Dougherty County*	2108 Habersham Rd.
DCPW Equipment Shed	*Dougherty County*	2108 Habersham Rd.
DCPW Equipment Shed	*Dougherty County*	2108 Habersham Rd.
Dougherty County Jail	*Albany city*	225 Pine Ave
Dougherty County Landfill	*Dougherty County*	10 Mi Se Albany Ss Fleming Rd
Albany-Dougherty Co Governmental Cent	*Albany city*	222 Pine Ave
Water Pollution Control	*Albany city*	Joshua St
Fire Station # 4	*Albany city*	2601 Gordon Ave
Phoebe Putney Memorial Hospital	*Albany city*	417 Third Ave
Sylvandale Elementary School	*Albany city*	1520 Cordell Avenue
Radium Springs Middle School	*Albany city*	2600 Radium Springs Dr
Fire Station # 7	*Albany city*	200 N Mock Rd
Northwest Library	*Albany city*	22215 Barnesdale Way
Fire Station #3	*Albany city*	501 Holly Dr
Tullulah Massey Library	*Albany city*	2004 Strafford Drive
Isabella Elementary School	*Albany city*	300 Cason Street
Fire Station # 9	*Albany city*	1406 Antioch Rd
Central Library	*Albany city*	300 Pine Ave
Dougherty County Jail	*Albany city*	1302 Evelyn St
Sylvester Road Elementary School	*Dougherty County*	2600 Trenton Ln

Jackson Heights Elementary School	*Albany city*	1305 E Second St
Northside Elementary	*Albany city*	901 14th Ave
Morningside Elementary School	*Albany city*	120 Sunset Blvd
Turner Elementary School	*Albany city*	2001 Leonard Ave
Magnolia Elementary School	*Albany city*	2100 Samford Dr
Dougherty Middle School	*Albany city*	1800 Massey Dr
Mock Road Elementary School	*Albany city*	2237 Cutts Dr
Dougherty County Police Department	*Albany city*	2106 Habersham Rd
Radium Springs Elementary School	*Albany city*	2400 Roxanna Rd
DCPW Rosewood Storm PS	*Dougherty County*	NE Rosewood Drive
DCPW Mockingbird Storm PS	*Dougherty County*	0 Mockingbird Drive
Fire Station # 8	*Dougherty County*	5924 Newton Rd
DCPW Cordele Rd. Storm Pump Station	*Dougherty County*	N. Cordele Rd.
Palmyra Elementary School	*Albany city*	1225 Fourth Ave
Merry Acres Middle School	*Albany city*	1601 Florence Dr
Fire Station # 10	*Albany city*	4717 Gillionville Rd
Southwest Georgia Regional Airport	*Dougherty County*	3905 Newton Rd
Westown Elementary School	*Albany city*	1113 University Ave
Albany High School	*Albany city*	801 Residence Ave
DCPW Betty's Dr. Storm Pump Station	*Dougherty County*	2521 Betty's Dr.
Sowega Council on Aging	*Albany city*	335 West Society Avenue
Dougherty County Health Department	*Albany city*	1710 South Slappey Boulevard
Dougherty County EMS Headquarters	*Dougherty County*	1436 Palmyra Road
Dougherty County EMS East Station	*Dougherty County*	401 Jordan Street
Dougherty County EMS South Station	*Dougherty County*	2040 Newton Road
Dougherty County EMS West Station	*Dougherty County*	503 North Westover Blvd
Dougherty County EMS Southeast Station	*Dougherty County*	401 Honeysuckle Drive
Albany Police Department	*Albany city*	201 Oglethorpe Blvd
Albany Utility Building	*Albany city*	401 Pine Avenue

Appendix D – Hazard Data Tables

Thunderstorms

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	2	18.826M	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	01/15/1971	11:40	CST	Thunderstorm Wind	51 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	04/30/1971	05:27	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/16/1974	01:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/05/1975	16:30	CST	Hail	1.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/10/1976	16:38	CST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/04/1976	14:00	CST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	08/30/1976	18:04	CST	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/24/1977	01:35	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	03/21/1977	21:55	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/12/1977	16:20	CST	Hail	1.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/12/1977	19:10	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/02/1977	10:25	CST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	01/25/1978	17:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	01/25/1978	17:00	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	05/23/1979	13:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/10/1981	19:22	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K

DOUGHERTY CO.	DOUGHERTY CO.	GA	02/10/1981	19:35	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	05/16/1983	06:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	05/16/1983	06:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	05/16/1983	06:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/13/1984	23:29	CST	Hail	2.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	04/05/1985	21:50	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/09/1985	15:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/23/1985	14:58	CST	Hail	1.00 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	11/21/1985	22:00	CST	Thunderstorm Wind	56 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/26/1986	14:45	CST	Hail	1.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/20/1986	15:49	CST	Thunderstorm Wind	57 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	11/20/1986	13:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/28/1987	15:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	05/24/1988	16:35	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/27/1988	14:25	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/15/1988	17:08	CST	Hail	0.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	05/01/1989	11:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/08/1989	17:58	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/14/1989	15:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/13/1989	12:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K

DOUGHERTY CO.	DOUGHERTY CO.	GA	08/25/1989	17:34	CST	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/10/1990	06:55	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/10/1990	07:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/16/1990	12:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	02/16/1990	12:37	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/08/1990	18:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	08/30/1990	12:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	09/10/1990	13:35	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	09/10/1990	14:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	01/30/1991	10:59	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	01/30/1991	11:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	04/19/1991	15:30	CST	Hail	0.88 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	04/20/1991	16:40	CST	Hail	1.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/04/1991	17:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/10/1991	18:15	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/24/1991	19:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	01/13/1992	05:00	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/15/1992	15:25	PST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	06/30/1992	11:06	PST	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	07/01/1992	11:00	CST	Hail	1.75 in.	0	0	0.00K	0.00K

Dougherty	DOUGHERTY CO.	GA	03/31/1993	15:30	EST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Albany	DOUGHERTY CO.	GA	05/31/1993	15:20	EST	Hail	0.88 in.	0	0	0.00K	0.00K
Albany	DOUGHERTY CO.	GA	05/31/1993	15:20	EST	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
Albany	DOUGHERTY CO.	GA	06/26/1994	12:15	EST	Thunderstorm Wind	0 kts.	0	0	0.50K	0.00K
Albany	DOUGHERTY CO.	GA	07/22/1994	18:30	EST	Thunderstorm Wind	0 kts.	0	0	0.50K	0.00K
Albany	DOUGHERTY CO.	GA	05/19/1995	12:45	EST	Thunderstorm Wind	0 kts.	0	0	600.00K	0.00K
Albany	DOUGHERTY CO.	GA	06/01/1995	15:55	EST	Hail	1.75 in.	0	0	0.00K	0.00K
Albany	DOUGHERTY CO.	GA	06/01/1995	16:00	EST	Hail	0.75 in.	0	0	0.00K	0.00K
Albany	DOUGHERTY CO.	GA	06/01/1995	16:20	EST	Hail	1.75 in.	0	0	0.00K	0.00K
Albany	DOUGHERTY CO.	GA	07/16/1995	20:55	EST	Thunderstorm Wind	0 kts.	0	0	15.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	03/06/1996	17:40	EST	Hail	2.50 in.	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	06/01/1997	15:04	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	11/01/1997	16:15	EST	Hail	1.75 in.	0	0	0.00K	0.00K
DOUGHERTY CO ARPT	DOUGHERTY CO.	GA	02/28/1998	02:17	EST	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/28/1998	02:18	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/19/1998	16:10	EST	Thunderstorm Wind		0	0	50.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/28/1998	17:05	EST	Hail	1.00 in.	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	07/30/1998	19:25	EST	Hail	0.75 in.	0	0	0.00K	0.00K
NORTHEAST PORTION	DOUGHERTY CO.	GA	08/18/1998	18:05	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/18/1999	03:50	EST	Hail	0.75 in.	0	0	0.00K	0.00K

ALBANY	DOUGHERTY CO.	GA	05/10/1999	17:00	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/13/1999	17:40	EST	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/13/1999	19:45	EST	Thunderstorm Wind		0	0	5.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	08/13/1999	14:28	EST	Thunderstorm Wind		0	0	2.00K	0.00K
NORTHEAST PORTION	DOUGHERTY CO.	GA	08/14/1999	14:15	EST	Thunderstorm Wind		0	0	10.00K	0.00K
PECAN CITY	DOUGHERTY CO.	GA	09/07/1999	13:40	EST	Thunderstorm Wind		0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/14/2000	00:25	EST	Thunderstorm Wind		0	0	15.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/11/2000	14:30	EST	Thunderstorm Wind		0	1	10.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/22/2000	16:40	EST	Thunderstorm Wind		0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/23/2000	15:30	EST	Thunderstorm Wind		0	0	1.00K	0.00K
ACREE	DOUGHERTY CO.	GA	08/10/2000	19:46	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	03/12/2001	11:30	EST	Hail	0.88 in.	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	03/15/2001	05:20	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	09/23/2001	15:52	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/31/2002	13:35	EST	Hail	0.88 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/31/2002	13:35	EST	Thunderstorm Wind		0	0	20.00K	0.00K
NORTHWEST PORTION	DOUGHERTY CO.	GA	05/31/2002	13:37	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	08/01/2002	15:30	EST	Thunderstorm Wind		0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/24/2002	09:05	EST	Thunderstorm Wind	55 kts. EG	0	1	250.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/22/2003	08:45	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

ALBANY	DOUGHERTY CO.	GA	07/29/2003	14:12	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	08/28/2003	18:30	EST	Lightning		0	0	20.00K	0.00K
COUNTYWIDE	DOUGHERTY CO.	GA	06/27/2004	18:30	EST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/15/2004	15:35	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/15/2004	15:40	EST	Thunderstorm Wind	55 kts. EG	0	0	1.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	07/15/2004	15:45	EST	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
RADIUM SPGS	DOUGHERTY CO.	GA	07/15/2004	15:50	EST	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/15/2004	15:55	EST	Hail	1.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/19/2006	17:45	EST	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/19/2006	17:50	EST	Hail	1.00 in.	0	0	0.00K	0.00K
COUNTYWIDE	DOUGHERTY CO.	GA	05/10/2006	18:10	EST	Thunderstorm Wind	60 kts. EG	0	0	75.00K	0.00K
COUNTYWIDE	DOUGHERTY CO.	GA	05/10/2006	18:28	EST	Thunderstorm Wind	55 kts. EG	0	0	0.50K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/14/2006	17:20	EST	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/14/2006	17:23	EST	Hail	0.88 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/14/2006	17:35	EST	Hail	1.25 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/25/2006	19:15	EST	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/25/2006	19:15	EST	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/14/2007	21:00	EST-5	Thunderstorm Wind	60 kts. EG	0	0	1.00K	0.00K
(ABY)SW GEORGIA REGIONAL AIRPO...	DOUGHERTY CO.	GA	06/09/2007	17:36	EST-5	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K

(ABY)SW GEORGIA REGIONAL AIRPO...	DOUGHERTY CO.	GA	06/09/2008	19:07	EST-5	Thunderstorm Wind	67 kts. MG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/09/2008	19:08	EST-5	Thunderstorm Wind	65 kts. EG	0	0	50.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/09/2008	19:13	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/07/2009	04:15	EST-5	Thunderstorm Wind	54 kts. MG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/28/2009	14:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/05/2009	11:58	EST-5	Hail	1.50 in.	0	0	0.00K	0.00K
ACREE	DOUGHERTY CO.	GA	06/28/2009	13:44	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/28/2009	15:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	06/15/2010	19:05	EST-5	Thunderstorm Wind	64 kts. MG	0	0	45.00K	0.00K
PRETORIA	DOUGHERTY CO.	GA	03/09/2011	13:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	03/09/2011	13:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	04/05/2011	01:04	EST-5	Thunderstorm Wind	55 kts. MG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/05/2011	01:10	EST-5	Thunderstorm Wind	55 kts. EG	0	0	20.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/28/2011	07:38	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/15/2011	20:15	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
WALKER	DOUGHERTY CO.	GA	09/05/2011	15:24	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	09/05/2011	15:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	09/05/2011	15:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	09/05/2011	15:30	EST-5	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K

LOCKETT CROSSING	DOUGHERTY CO.	GA	01/21/2012	18:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/21/2012	18:45	EST-5	Lightning		0	0	7.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	01/21/2012	18:55	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/21/2012	18:56	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
RADIUM SPRINGS	DOUGHERTY CO.	GA	01/21/2012	19:05	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	02/18/2012	21:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	30.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	02/18/2012	21:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/18/2012	21:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/06/2012	14:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/06/2012	14:30	EST-5	Thunderstorm Wind	55 kts. EG	0	0	8.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/06/2012	14:35	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	05/06/2012	14:36	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	05/06/2012	15:00	EST-5	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
PRETORIA	DOUGHERTY CO.	GA	05/22/2012	15:55	EST-5	Hail	1.00 in.	0	0	1.00K	0.00K
PECAN CITY	DOUGHERTY CO.	GA	06/14/2012	13:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/01/2012	21:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	07/26/2012	12:14	EST-5	Thunderstorm Wind	50 kts. MG	0	0	0.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	08/09/2012	13:47	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	08/09/2012	13:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	08/09/2012	13:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	7.00K	0.00K

PRETORIA	DOUGHERTY CO.	GA	09/03/2012	16:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/30/2013	18:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	01/30/2013	18:22	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	06/27/2013	22:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	06/27/2013	22:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	03/16/2014	11:50	EST-5	Lightning		0	0	50.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/06/2014	20:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/16/2014	16:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
RADIUM SPRINGS	DOUGHERTY CO.	GA	06/20/2014	14:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
RADIUM SPRINGS	DOUGHERTY CO.	GA	06/20/2014	14:10	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	06/20/2014	14:12	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/21/2014	16:15	EST-5	Lightning		0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	08/19/2014	14:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	09/19/2014	14:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	09/19/2014	15:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	09/19/2014	15:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	09/19/2014	15:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	12/23/2014	05:36	EST-5	Hail	1.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/23/2014	05:44	EST-5	Hail	1.75 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/25/2015	18:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

ALBANY	DOUGHERTY CO.	GA	06/17/2015	19:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/17/2015	19:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	06/17/2015	19:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	06/17/2015	19:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/08/2015	16:15	EST-5	Thunderstorm Wind	60 kts. EG	0	0	100.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/08/2015	16:16	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/08/2015	16:25	EST-5	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/15/2015	16:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	17:58	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:03	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:08	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:12	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:12	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:15	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	07/20/2015	18:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/22/2015	14:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/22/2015	14:58	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	07/22/2015	15:06	EST-5	Lightning		0	0	5.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/22/2015	16:00	EST-5	Thunderstorm Wind	55 kts. EG	0	0	4.00K	0.00K

EAST ALBANY	DOUGHERTY CO.	GA	08/19/2015	16:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
WALKER	DOUGHERTY CO.	GA	02/24/2016	01:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	02/24/2016	01:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/24/2016	01:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	05/03/2016	22:04	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	06/28/2016	22:00	EST-5	Lightning		0	0	7.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	07/31/2016	14:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/31/2016	14:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DUCKER	DOUGHERTY CO.	GA	01/02/2017	22:05	EST-5	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	01/02/2017	22:14	EST-5	Thunderstorm Wind	74 kts. EG	0	0	17.000M	0.00K
ALBANY	DOUGHERTY CO.	GA	01/02/2017	22:19	EST-5	Thunderstorm Wind	59 kts. MG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/21/2017	12:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ACREE	DOUGHERTY CO.	GA	01/21/2017	12:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DUCKER	DOUGHERTY CO.	GA	01/21/2017	12:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	01/21/2017	12:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	40.00K	0.00K
SOUTH ALBANY	DOUGHERTY CO.	GA	01/21/2017	13:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/22/2017	00:45	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/22/2017	02:17	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
(ABY)SOUTHWEST GA RGNL ARPT	DOUGHERTY CO.	GA	01/22/2017	15:27	EST-5	Thunderstorm Wind	64 kts. MG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	04/03/2017	12:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	EST-5	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	EST-5	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/03/2017	12:42	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
RADIUM SPRINGS	DOUGHERTY CO.	GA	04/03/2017	12:48	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	04/03/2017	12:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
SOUTH ALBANY	DOUGHERTY CO.	GA	05/23/2017	12:32	EST-5	Hail	0.75 in.	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	07/13/2017	18:00	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	07/13/2017	18:06	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.00K	0.00K
SOUTH ALBANY	DOUGHERTY CO.	GA	02/07/2018	13:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/02/2018	12:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
DUCKER	DOUGHERTY CO.	GA	07/06/2018	20:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/21/2018	10:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	07/22/2018	16:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
PECAN CITY	DOUGHERTY CO.	GA	08/31/2018	17:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/02/2018	02:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	03/03/2019	14:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	03/26/2019	21:00	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K

ALBANY	DOUGHERTY CO.	GA	05/11/2019	14:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
WALKER	DOUGHERTY CO.	GA	07/18/2019	17:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	09/09/2019	17:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/06/2020	15:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/06/2020	15:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LOCKETT CROSSING	DOUGHERTY CO.	GA	04/13/2020	04:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
SOUTH ALBANY	DOUGHERTY CO.	GA	06/22/2020	17:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RADIUM SPRINGS	DOUGHERTY CO.	GA	06/22/2020	17:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	08/18/2020	20:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	08/18/2020	20:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Totals:								0	2	18.826M	0.00K

Winter Weather

Location	County/Zone	St.	Date	Time	T.Z.	Type	Dth	Inj	PrD	CrD
Totals:							0	0	51.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/10/2011	05:00	EST-5	Ice Storm	0	0	1.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/28/2014	13:00	EST-5	Winter Storm	0	0	50.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/17/2018	04:00	EST-5	Winter Weather	0	0	0.00K	0.00K
Totals:							0	0	51.00K	0.00K

Flooding

Location	County/Zone	St.	Date	Time	Type	Dth	Inj	PrD	CrD
Totals:						0	0	116.301M	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	03/08/1998	12:00	Flood	0	0	115.000M	0.00K
ALBANY	DOUGHERTY CO.	GA	03/26/2000	17:30	Flash Flood	0	0	500.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	06/25/2006	20:30	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	03/28/2009	12:25	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	03/28/2009	12:50	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/02/2009	00:00	Flood	0	0	750.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	02/18/2012	21:25	Flood	0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	08/09/2012	14:05	Flash Flood	0	0	1.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	08/19/2013	19:30	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	04/07/2014	13:30	Flood	0	0	0.00K	0.00K
CRESTWOOD	DOUGHERTY CO.	GA	04/07/2014	14:30	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	09/07/2014	17:45	Flash Flood	0	0	0.00K	0.00K
WALKER	DOUGHERTY CO.	GA	08/28/2015	18:45	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/28/2015	13:00	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/01/2016	00:00	Flood	0	0	50.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood	0	0	0.00K	0.00K
PECAN CITY	DOUGHERTY CO.	GA	12/05/2016	18:00	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	01/22/2017	00:45	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/13/2018	22:30	Flood	0	0	0.00K	0.00K
EAST ALBANY	DOUGHERTY CO.	GA	11/07/2018	20:28	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/02/2018	05:30	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/18/2019	17:20	Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	07/19/2019	16:48	Flash Flood	0	0	0.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	09/16/2020	20:30	Flash Flood	0	0	0.00K	0.00K

Drought

Location	County/Zone	St.	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	09/01/1997	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	11/23/2010	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	12/01/2010	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	02/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	05/10/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	06/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	07/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	08/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	09/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	10/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	11/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	12/01/2011	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	02/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	03/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	04/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	05/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	06/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	07/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	08/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	09/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	10/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	11/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	12/01/2012	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/01/2013	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	02/01/2013	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	11/15/2016	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	12/01/2016	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	01/09/2018	00:00	Drought		0	0	0.00K	0.00K

DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	02/01/2018	00:00	Drought		0	0	0.00K	0.00K
DOUGHERTY (ZONE)	DOUGHERTY (ZONE)	GA	10/08/2019	00:00	Drought		0	0	0.00K	0.00K
Totals:							0	0	0.00K	0.00K

Tornadoes

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								5	69	311.663M	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	04/26/1973	14:00	CST	Tornado	F1	0	0	25.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	05/01/1989	11:05	EST	Tornado	F1	0	1	250.00K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	08/19/1992	13:48	EST	Tornado	F0	0	0	2.50K	0.00K
DOUGHERTY CO.	DOUGHERTY CO.	GA	11/12/1992	16:30	EST	Tornado	F1	0	0	250.00K	0.00K
Albany	DOUGHERTY CO.	GA	06/16/1994	17:28	EST	Tornado	F0	0	0	0.50K	0.00K
Albany	DOUGHERTY CO.	GA	11/07/1995	13:59	EST	Tornado	F2	0	36	10.000M	0.00K
ALBANY	DOUGHERTY CO.	GA	10/26/1997	12:45	EST	Tornado	F0	0	0	10.00K	0.00K
ALBANY	DOUGHERTY CO.	GA	12/16/2000	16:50	EST	Tornado	F2	0	0	750.00K	0.00K
WILLIAMSBURG	DOUGHERTY CO.	GA	09/16/2004	06:30	EST	Tornado	F0	0	0	75.00K	0.00K
PUTNEY	DOUGHERTY CO.	GA	03/02/2007	00:08	EST-5	Tornado	EF2	0	0	300.00K	0.00K
TURNER CITY	DOUGHERTY CO.	GA	01/02/2017	22:32	EST-5	Tornado	EF1	0	0	0.00K	0.00K
PRETORIA	DOUGHERTY CO.	GA	01/22/2017	15:15	EST-5	Tornado	EF3	5	32	300.000M	0.00K
Totals:								5	69	311.663M	0.00K

Appendix E – Dougherty County Worksheet 3As

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Dougherty County
Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	41,374	41,374	100.000%	2,082,406,283	2,082,406,283	100.000%	87,956	87,956	100%
Commercial	7,987	7,987	100.000%	905,260,968	905,260,968	100.000%	0	0	#DIV/0!
Industrial	455	455	100.000%	54,756,265	54,756,265	100.000%	0	0	#DIV/0!
Agricultural	252	252	100.000%	24,229,838	24,229,838	100.000%	0	0	#DIV/0!
Religious/ Non-profit	1,421	1,421	100.000%	98,994,240	98,994,240	100.000%	0	0	#DIV/0!
Government	2,369	2,369	100.000%	1,071,793,943	1,071,793,943	100.000%	0	0	#DIV/0!
Education	150	150	100.000%	17,073,330	17,073,330	100.000%	0	0	#DIV/0!
Utilities	48	48	100.000%	284,149,000	284,149,000	100.000%	0	0	#DIV/0!
Total	54,056	54,056	100.000%	4,538,663,847	4,538,663,847	100.000%	87,956	87,956	100%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Dougherty County
Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	41,374	32,149	77.703%	2,082,406,263	1,618,100,231	77.703%	87,956	68,345	78%
Commercial	7,987	4,827	60.436%	905,260,968	547,100,875	60.436%	0	0	#DIV/0!
Industrial	455	324	71.209%	54,756,265	38,991,274	71.209%	0	0	#DIV/0!
Agricultural	252	187	74.206%	24,229,838	17,980,078	74.206%	0	0	#DIV/0!
Religious/ Non-profit	1,421	1,114	78.395%	98,994,240	77,607,026	78.395%	0	0	#DIV/0!
Government	2,369	1,474	62.220%	1,071,793,943	666,873,901	62.220%	0	0	#DIV/0!
Education	150	102	68.000%	17,073,330	11,609,864	68.000%	0	0	#DIV/0!
Utilities	48	33	68.750%	284,149,000	196,352,438	68.750%	0	0	#DIV/0!
Total	54,056	40,210	74.386%	4,538,663,847	3,173,615,688	69.924%	87,956	68,345	78%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Albany (Dougherty County)
Hazard: Non-Spatially Defined Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	29,821	29,821	100.000%	1,451,594,740	1,451,594,740	100.000%	72,130	72,130	100%
Commercial	7,206	7,206	100.000%	836,504,105	836,504,105	100.000%	0	0	#DIV/0!
Industrial	386	386	100.000%	35,928,383	35,928,383	100.000%	0	0	#DIV/0!
Agricultural	8	8	100.000%	1,471,900	1,471,900	100.000%	0	0	#DIV/0!
Religious/ Non-profit	1,150	1,150	100.000%	74,665,188	74,665,188	100.000%	0	0	#DIV/0!
Government	1,992	1,992	100.000%	778,680,613	778,680,613	100.000%	0	0	#DIV/0!
Education	128	128	100.000%	15,841,750	15,841,750	100.000%	0	0	#DIV/0!
Utilities	22	22	100.000%	54,406,240	54,406,240	100.000%	0	0	#DIV/0!
Total	40,713	40,713	100.000%	3,249,092,899	3,249,092,899	100.000%	72,130	72,130	100%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?		N
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		N
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		N
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?		N
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

GEMA Worksheet #3a **Inventory of Assets**
Jurisdiction: Albany (Dougherty County)
Hazard: Wildfire Hazard

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	29,821	21,871	73.341%	1,451,594,740	1,064,613,144	73.341%	72,130	52,901	73%
Commercial	7,206	4,145	57.522%	836,504,105	481,169,791	57.522%	0	0	#DIV/0!
Industrial	386	302	78.238%	35,928,383	28,109,756	78.238%	0	0	#DIV/0!
Agricultural	8	5	62.500%	1,471,900	919,938	62.500%	0	0	#DIV/0!
Religious/ Non-profit	1,150	854	74.261%	74,665,188	55,447,018	74.261%	0	0	#DIV/0!
Government	1,992	1,404	70.482%	778,680,613	548,829,107	70.482%	0	0	#DIV/0!
Education	128	101	78.906%	15,841,750	12,500,131	78.906%	0	0	#DIV/0!
Utilities	22	18	81.818%	54,406,240	44,514,196	81.818%	0	0	#DIV/0!
Total	40,713	28,700	70.493%	3,249,092,899	2,236,103,080	68.822%	72,130	52,901	73%

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?		N
2. Do you know whether your critical facilities will be operational after a hazard event?		N
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	Y	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?		N

Appendix F – Documentation of Peer Review

Baker County

Calhoun County

Lee County

Mitchell County

Terrell County

Worth County

Appendix G – Documentation of Public Meeting Attendance

Public Meeting #1 – February 25, 2021 – 10am

Account Information

Date: February 25, 2021 10:01:52 AM
Dial-in number: (951) 981-7533
Access code: 8786271
Account: #s14289717 (Katy Westbrook)

Audio

Caller	Service Type	Start Time	End Time	Duration
+1 954 288 8364 - FORT LAUDER, FL Host		10:01:52 AM	10:17:22 AM	16m

Number of attendees: 1
Toll minutes: 16m

Note: All times in Eastern Time

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Public Meeting #2 – February 25, 2021 – 2pm

Account Information

Date: February 25, 2021 2:08:07 PM
Dial-in number: (951) 981-7533
Access code: 8786271
Account: #s14289717 (Katy Westbrook)

Audio

Caller	Service Type	Start Time	End Time	Duration
+1 954 288 8364 - FORT LAUDER, FL Host		2:08:07 PM	2:35:29 PM	28m

Number of attendees: 1
Toll minutes: 28m

Note: All times in Eastern Time

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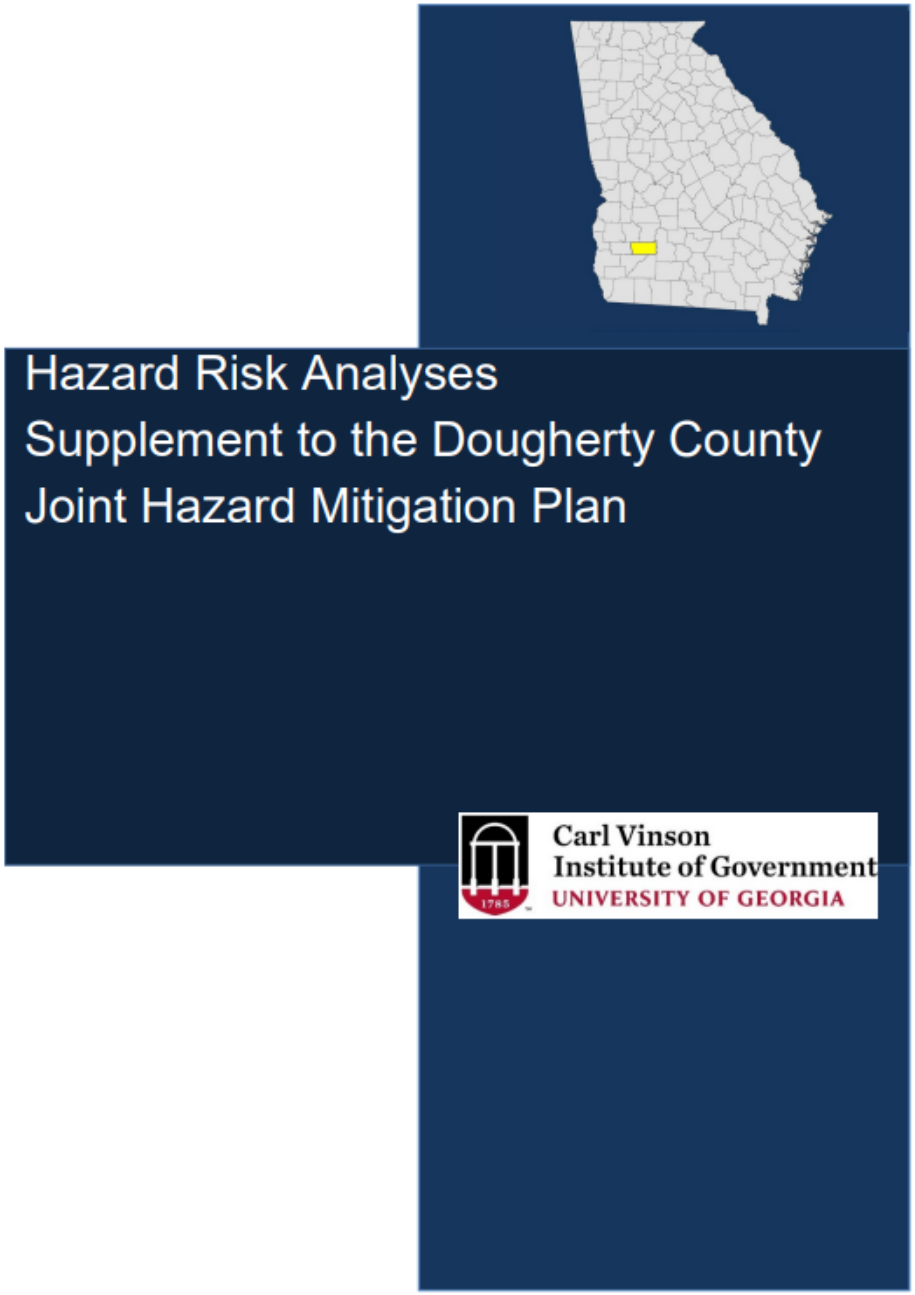
Appendix H – Dougherty County HAZUS Report



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Introduction

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires state, local, and tribal governments to develop and maintain a mitigation plan to be eligible for certain federal disaster assistance and hazard mitigation funding programs.

Mitigation seeks to reduce a hazard's impacts, which may include loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment that quantifies the potential losses of a disaster by assessing the vulnerability of buildings, infrastructure, and people.

In recognition of the importance of planning in mitigation activities, FEMA Hazus-MH, a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses.

In 2021, the Georgia Department of Emergency Management partnered with the Carl Vinson Institute of Government at the University of Georgia to develop a detailed risk assessment focused on defining hurricane, riverine flood, and tornado risks in Dougherty County, Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets.

Risk Assessment Process Overview

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Dougherty County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Dougherty County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus-MH inventory and the modeling parameters used for each scenario.

County Inventory Changes

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

General Building Stock Updates

General Building Stock (GBS) is an inventory category that consists of aggregated data (grouped by census geography — tract or block). Hazus-MH generates a combination of site-specific and aggregated loss estimates based on the given analysis and user input.

The GBS records for Dougherty County were replaced with data derived from parcel and property assessment data obtained from Dougherty County. The county provided property assessment data was current as of March 2021 and the parcel data current as of March 2021. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Dougherty County is 99.2%. The generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Table 1: GBS Building Exposure Updates by Occupancy Class*

General Occupancy	Default Hazus-MH Count	Updated Count	Default Hazus-MH Exposure	Updated Exposure
Agricultural	120	39	$28,697,000	$5,940,000
Commercial	2,521	2,898	$1,890,939,000	$1,257,017,000
Education	85	11	$137,026,000	$8,236,000
Government	75	36	$70,189,000	$19,746,000
Industrial	481	1,041	$304,735,000	$387,717,000
Religious	335	252	$225,951,000	$50,484,000
Residential	31,721	27,651	$6,674,077,000	$4,075,584,000
Total	**35,338**	**31,928**	**$9,331,614,000**	**$5,804,724,000**

*The exposure values represent the total number and replacement cost for all Dougherty County Buildings

For Dougherty County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined Facility

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(UDF)[1], or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

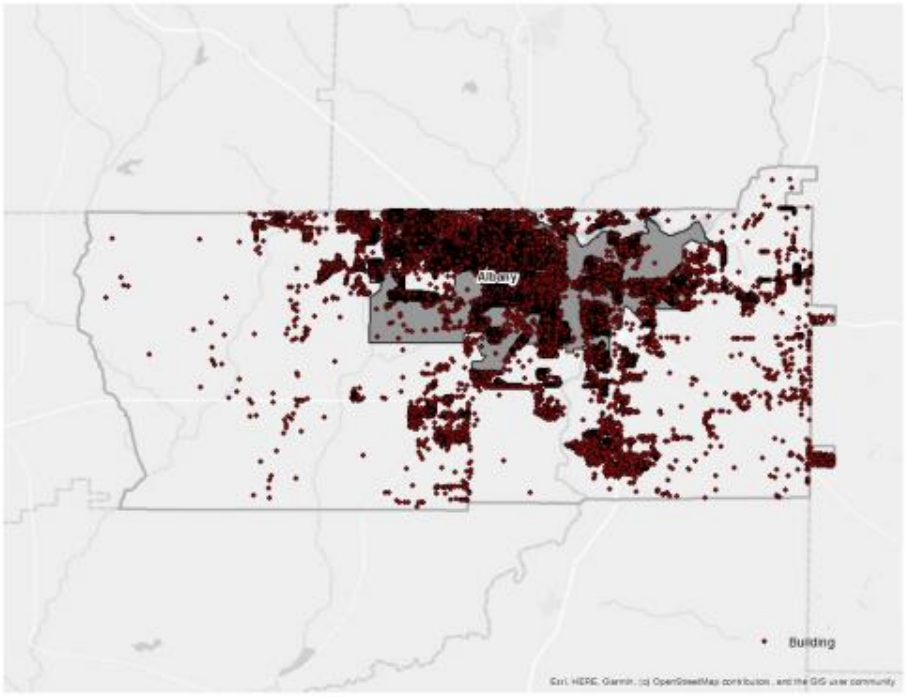

Figure 1: Dougherty County Overview

Essential Facility Updates

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS) as of February 2021. For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data.

Essential facilities include:

- Care facilities
- EOCs
- Fire stations
- Police stations
- Schools

[1] The UDF inventory category in Hazus-MH allows the user to enter site-specific data in place of GBS data.

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Albany		
EOC	1	$1,296,000
Care	2	$290,590,000
Fire	8	$8,694,000
Police	3	$63,491,000
School	19	$126,367,000
Total	**33**	**$490,438,000**
Unincorporated Areas of Dougherty County		
EOC	0	$0
Care	0	$0
Fire	5	$2,972,000
Police	0	$0
School	2	$9,561,000
Total	**7**	**$12,533,000**

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Assumptions and Exceptions

Hazus-MH loss estimates may be impacted by certain assumptions and process variances made in this risk assessment.

- The Dougherty County analysis used Hazus-MH Version 2.2 SP1, which was released by FEMA in May 2015.
- County provided parcel and property assessment data may not fully reflect all buildings in the county. For example, some counties do not report not-for-profit buildings such as government buildings, schools and churches in their property assessment data. This data was used to update the General Building Stock as well as the User Defined Facilities applied in this risk assessment.
- Georgia statute requires that the Assessor's Office assign a code to all of the buildings on a parcel based on the buildings primary use. If there is a residential or a commercial structure on a parcel and there are also agricultural buildings on the same parcel Hazus-MH looks at the residential and commercial "primary" structures first and then combines the value of all secondary structures on that parcel with the value of the primary structure. The values and building counts are still accurate but secondary structures are accounted for under the same classification as the primary structure. Because of this workflow, the only time that a parcel would show a value for an agricultural building is when there are no residential or commercial structures on the parcel thus making the agricultural building the primary structure. This is the reason that agricultural building counts and total values seem low or are nonexistent.
- GBS updates from assessor data will skew loss calculations. The following attributes were defaulted or calculated:
  - Foundation Type was set from Occupancy Class
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Replacement Cost
- It is assumed that the buildings are located at the centroid of the parcel.
- The essential facilities extracted from the GMIS were only used in the portion of the analysis designated as essential facility damage. They were not used in the update of the General Building Stock or the User Defined Facility inventory.

The hazard models included in this risk assessment included:

- Hurricane assessment which was comprised of a wind only damage assessment.
- Flood assessment based on the 1% annual chance event that includes riverine assessments.
- Tornado assessment based on GIS modeling.

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Hurricane Risk Assessment

Hazard Definition

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)[2]. 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. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale (Table 3). This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.

Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane's winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to the wind damages inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

Table 3: Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Damage
1	74 - 95	Very dangerous winds will produce some damage
2	96 - 110	Extremely dangerous winds will cause extensive damage
3	111 - 130	Devastating damage will occur
4	131 -155	Catastrophic damage will occur
5	> 155	Catastrophic damage will occur

The National Oceanic and Atmospheric Administration's National Hurricane Center created the HURDAT database, which contains all of the tracks of tropical systems since the mid-1800s. This database was used to document the number of tropical systems that have affected Dougherty County by creating a 20-mile buffer around the county to include storms that didn't make direct landfall in Dougherty County but impacted the county. Note that the storms listed contain the peak sustained winds, maximum pressure and maximum attained storm strength for the entire storm duration. Since 1851, Dougherty County has had 38 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Dougherty County[3]

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1851	August 16-27	UNNAMED	115	0	H3

[2] National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. http://www.nhc.noaa.gov/aboutgloss.shtml#h. Retrieved 2012-23-02.

[3] Atlantic Oceanic and Meteorological Laboratory (2012). "Data Center." National Oceanic and Atmospheric Administration. http://www.aoml.noaa.gov/hrd/data_sub/re_anal.html. Retrieved 7-20-2015.

YEAR	DATE RANGE	NAME	MAX WIND(Knots)	MAX PRESSURE	MAX CAT
1856	August 25 - September 03	UNNAMED	115	969	H3
1860	August 08-16	UNNAMED	127	0	H3
1871	August 14-23	UNNAMED	115	955	H3
1871	August 17-30	UNNAMED	115	965	H3
1873	June 01-02	UNNAMED	46	0	TS
1877	September 21 - October 05	UNNAMED	115	0	H3
1886	June 17-24	UNNAMED	98	0	H2
1894	October 01-12	UNNAMED	121	0	H3
1901	September 21 - October 02	UNNAMED	52	0	TS
1904	October 31 - November 06	UNNAMED	52	0	TS
1909	June 26 - July 04	UNNAMED	52	0	TS
1911	August 04-12	UNNAMED	58	0	TS
1912	July 12-17	UNNAMED	52	0	TS
1912	September 02-06	UNNAMED	52	0	TS
1914	September 15-19	UNNAMED	69	0	TS
1917	September 20-30	UNNAMED	150	949	H4
1919	September 29 - October 02	UNNAMED	46	0	TS
1923	June 22-29	UNNAMED	58	1006	TS
1926	July 22 - August 02	UNNAMED	138	967	H4
1928	August 03-13	UNNAMED	104	977	H2
1929	September 19 - October 05	UNNAMED	155	986	H4
1941	October 03-13	UNNAMED	121	1004	H3
1947	October 08-16	UNNAMED	104	1000	H2
1950	September 01-09	EASY	121	996	H3
1950	October 13-20	KING	132	1002	H4
1953	September 23-27	FLORENCE	115	1001	H3
1956	September 20 - October 03	FLOSSY	92	1011	H1
1964	August 28 - September 16	DORA	132	1007	H4
1970	July 19-23	BECKY	63	1015	TS
1972	June 14-23	AGNES	86	1001	H1
1985	November 15-23	KATE	121	1006	H3
1995	August 22-28	JERRY	40	1010	TS
1998	August 31 - September 08	EARL	98	1005	H2
2004	September 13-29	JEANNE	121	1010	H3
2005	October 05-07	TAMMY	52	1006	TS
2017	August 30 - September 13	IRMA	178	1008	H5
2018	October 06-15	MICHAEL	161	1006	H5

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Category Definitions:

TS – Tropical storm

TD – Tropical depression

H1 – Category 1 (same format for H2, H3, and H4)

E – Extra-tropical cyclone

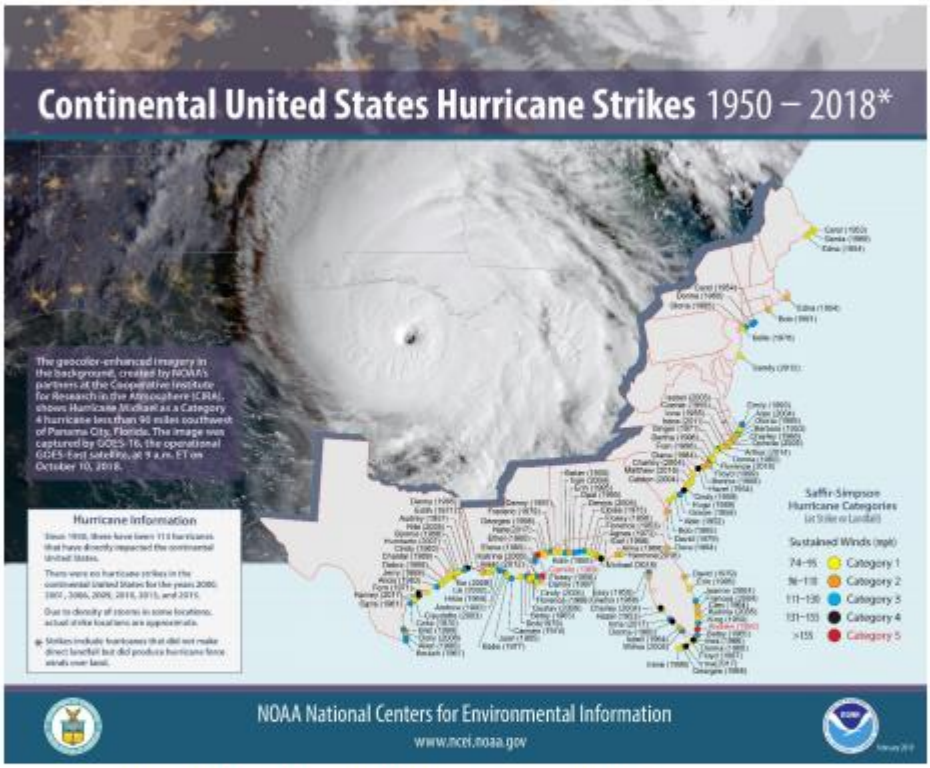

Figure 2: Continental United States Hurricane Strikes: 1950 to 2018[4]

[4] Source: NOAA National Centers for Environmental Information

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Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Category One storm with maximum winds of 88 mph.

Wind Damage Assessment

Separate analyses were performed to determine wind and hurricane storm surge related flood losses. This section describes the wind-based losses to Dougherty County. Wind losses were determined from probabilistic models run for the Category One storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled Category One storm.

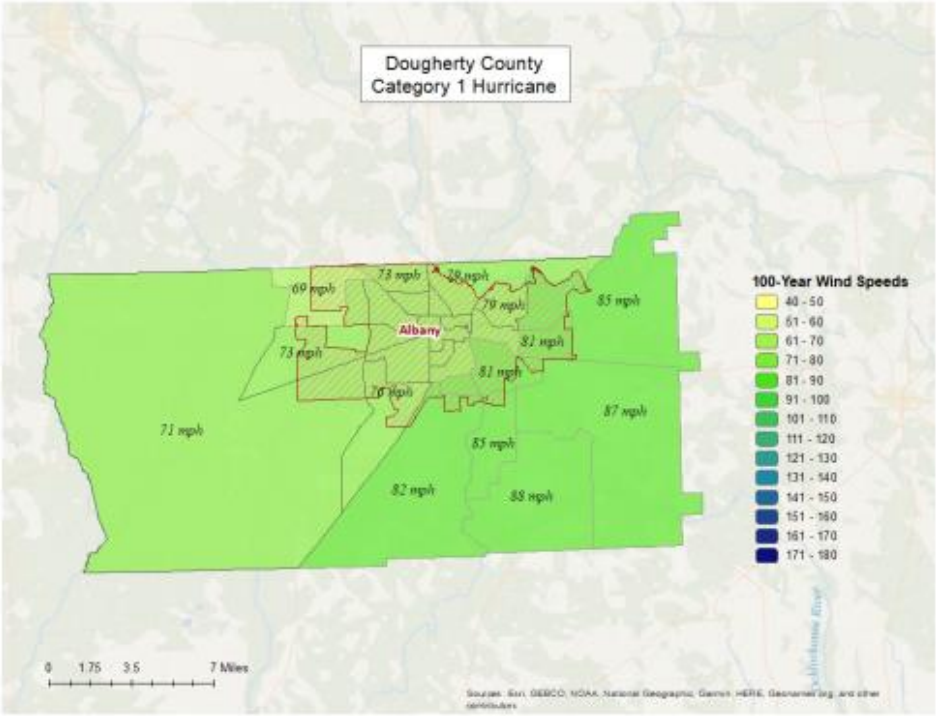

Figure 3: Wind Speeds by Storm Category

Wind-Related Building Damages

Buildings in Dougherty County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. The following table shows a summary of the results of wind-related building damage in Dougherty County for the Category One (100 Year Event) storm. The loss ratio

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expresses building losses as a percentage of total building replacement cost in the county. Figure 4 illustrates the building loss ratios of the modeled Category One storm.

Table 5: Hurricane Wind Building Damage

Classification	Number of Buildings Damaged	Total Building Damage	Total Economic Loss[5]	Loss Ratio
Category One	580	$9,533,430	$12,850,050	0.16%

Note that wind damaged buildings are not reported by jurisdiction. This is due to the fact that census tract boundaries – upon which hurricane building losses are based – do not closely coincide with jurisdiction boundaries.

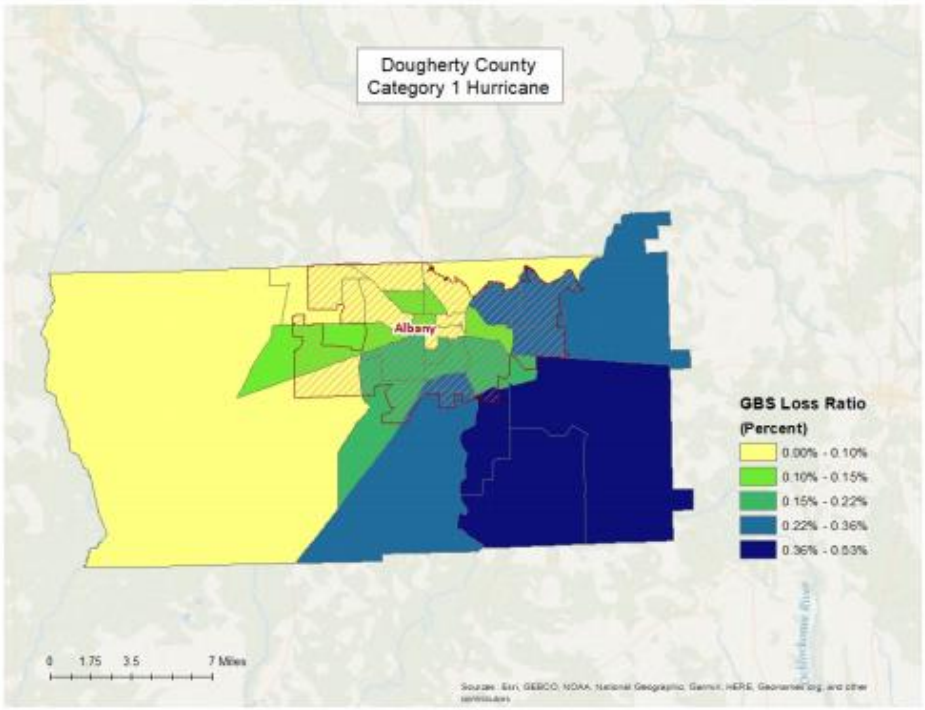

Figure 4: Hurricane Wind Building Loss Ratios

[5] Includes property damage (infrastructure, contents, and inventory) as well as business interruption losses.

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Essential Facility Losses

Essential facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. Hazus-MH identified the essential facilities that may be moderately or severely damaged by winds. The results are compiled in Table 6.

There are 40 essential facilities in Dougherty County.

Classification	Number
EOCs	1
Fire Stations	13
Care Facilities	2
Police Stations	3
Schools	21

Table 6: Wind-Damaged Essential Facility Losses

Classification	Facilities At Least Moderately Damaged > 50%	Facilities Completely Damaged > 50%	Facilities with Expected Loss of Use (< 1 day)
Category One	1	0	40

Shelter Requirements

Hazus-MH estimates the number of households evacuated from buildings with severe damage from high velocity winds as well as the number of people who will require short-term sheltering. The results are listed in Table 7.

Table 7: Displaced Households and People

Classification	# of Displaced Households	# of People Needing Short-Term Shelter
Category One	1	0

Debris Generated from Hurricane Wind

Hazus-MH estimates the amount of debris that will be generated by high velocity hurricane winds and quantifies it into three broad categories to determine the material handling equipment needed:

- Reinforced Concrete and Steel Debris
- Brick and Wood and Other Building Debris
- Tree Debris

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Different material handling equipment is required for each category of debris. The estimates of debris for this scenario are listed in Table 8. The amount of hurricane wind related tree debris that is estimated to require pick up at the public's expense is listed in the eligible tree debris column.

Table 8: Wind-Related Debris Weight (Tons)

Classification	Brick, Wood, and Other	Reinforced Concrete and Steel	Eligible Tree Debris	Other Tree Debris	Total
Category One	1,828	0	6,934	53,420	62,182

Figure 5 shows the distribution of all wind related debris resulting from a Category One storm. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

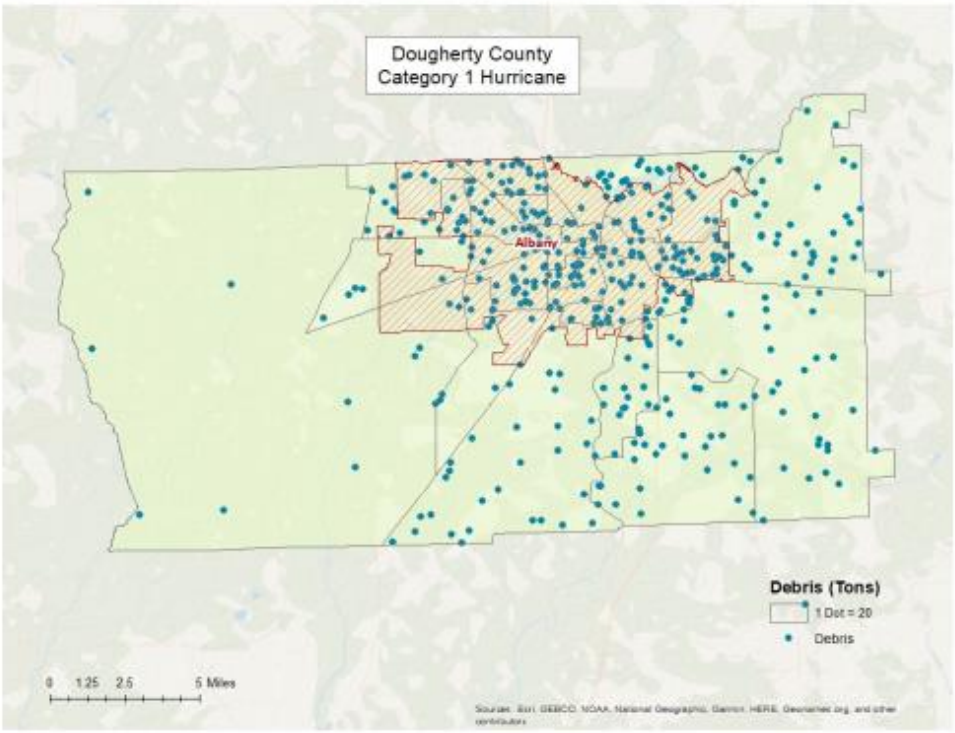

Figure 5: Wind-Related Debris Weight (Tons)

Flood Risk Assessment

Hazard Definition

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of three types: upstream floods, downstream floods, or coastal floods.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Georgia, but they are most common in the spring and summer months.

Downstream floods, also called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage.

Coastal floods occurring on the Atlantic and Gulf coasts may be related to hurricanes or other combined offshore, nearshore, and shoreline processes. The effects of these complex interrelationships vary significantly across coastal settings, leading to challenges in the determination of the base (1-percent-annual-chance) flood for hazard mapping purposes. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The Dougherty County flood risk assessment analyzed at risk structures in the SFHA.

> The SFHA is the area where the National Flood Insurance Program's (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The owner of a structure in a high-risk area must carry flood insurance, if the owner carries a mortgage from a federally regulated or insured lender or servicer.

The following probabilistic risk assessment involves an analysis of a 1% annual chance riverine flood event (100-Year Flood) and a 1% annual chance coastal flood.

Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in March 2021. The flood boundaries were overlaid with the USGS 10 meter DEM using

the Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. Figure 6 illustrates the riverine inundation boundary associated with the 1% annual chance.

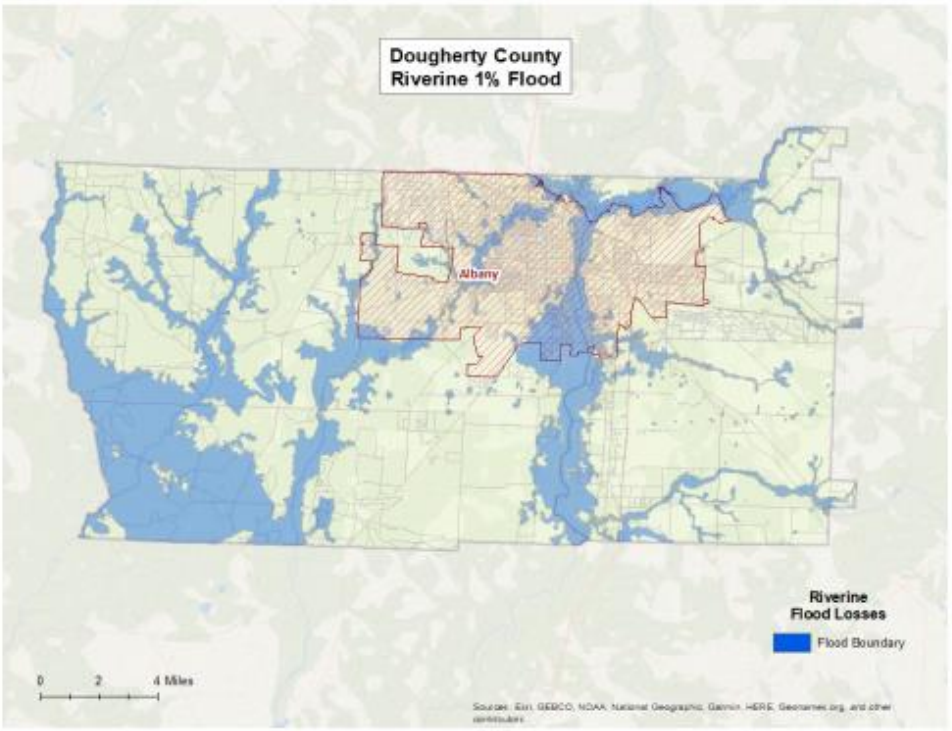

Figure 6: Riverine 1% Flood Inundation

Riverine 1% Flood Building Damages

Buildings in Dougherty County are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. Table 9 provides a summary of the potential flood-related building damage in Dougherty County by jurisdiction that might be experienced from the 1% flood. Figure 7 maps the potential loss ratios of total building exposure to losses sustained to buildings from the 1% flood by 2010 census block and Figure 8 illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 9: Dougherty County Riverine 1% Building Losses

Occupancy	Total Buildings in the Jurisdiction	Total Buildings Damaged in the Jurisdiction	Total Building Exposure in the Jurisdiction	Total Losses to Buildings in the Jurisdiction	Loss Ratio of Exposed Buildings to Damaged Buildings in the Jurisdiction
Albany					
Agricultural	28	1	$5,363,833	$7,511	0.14%
Religious	195	11	$39,550,389	$209,584	0.53%
Residential	21,490	2,576	$3,032,973,374	$57,345,442	1.89%
Government	30	3	$19,582,287	$104,544	0.53%
Industrial	865	36	$289,967,562	$390,107	0.13%
Commercial	2,626	182	$1,230,338,715	$3,943,175	0.32%
Unincorporated					
Religious	57	3	$10,947,143	$53,992	0.49%
Commercial	272	33	$26,740,580	$282,291	1.06%
Industrial	176	3	$97,767,324	$8,431	0.01%
Agricultural	11	3	$583,694	$5,945	1.02%
Residential	6,161	538	$1,042,670,504	$18,160,014	1.74%
County Total					
	31,911	**3,389**	**$5,796,485,406**	**$80,511,036**	

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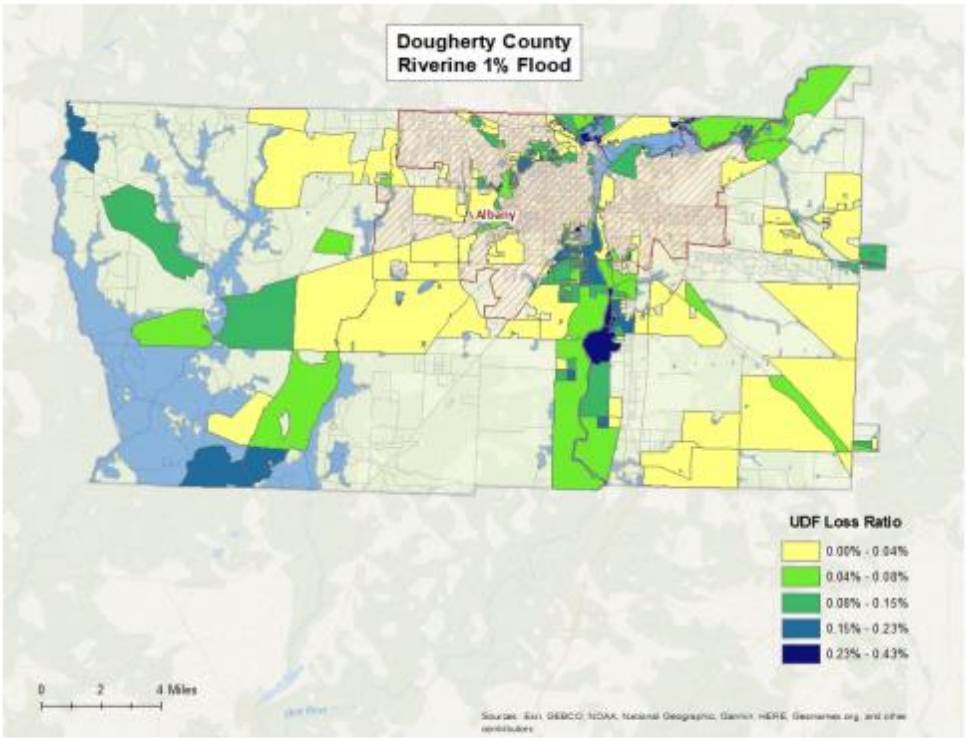

Figure 7: Dougherty County Potential Loss Ratios of Total Building Exposure to Losses Sustained to Buildings from the 1% Riverine Flood by 2010 Census Block

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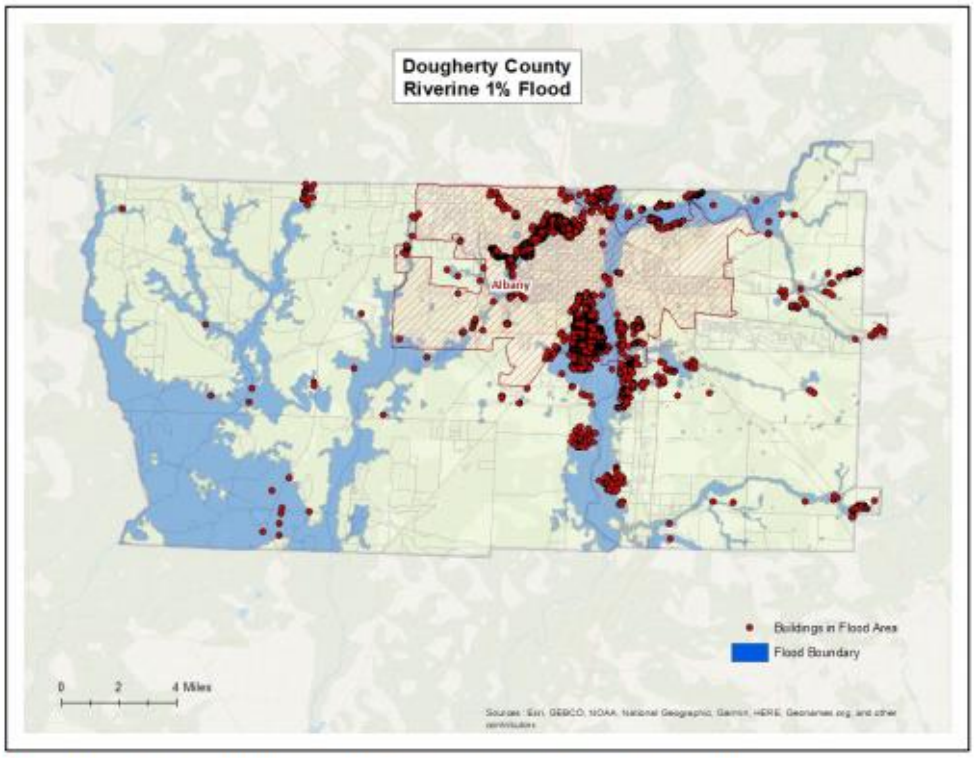

Figure 8: Dougherty County Damaged Buildings in Riverine Floodplain (1% Flood)

Riverine 1% Flood Essential Facility Losses

An essential facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). The analysis identified one essential facility that were subject to damage in the Dougherty County riverine 1% probability floodplain.

Table 10: Riverine 1% Flood Damaged Essential Facilities

Name	Category	City
Dougherty County EMS Headquarters	Fire Station	Albany

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Riverine 1% Flood Shelter Requirements

Hazus-MH estimates that the number of households that are expected to be displaced from their homes due to riverine flooding and the associated potential evacuation. The model estimates 4,835 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 14,504 individuals, of which 12,762 may require short term publicly provided shelter. The results are mapped in Figure 9.

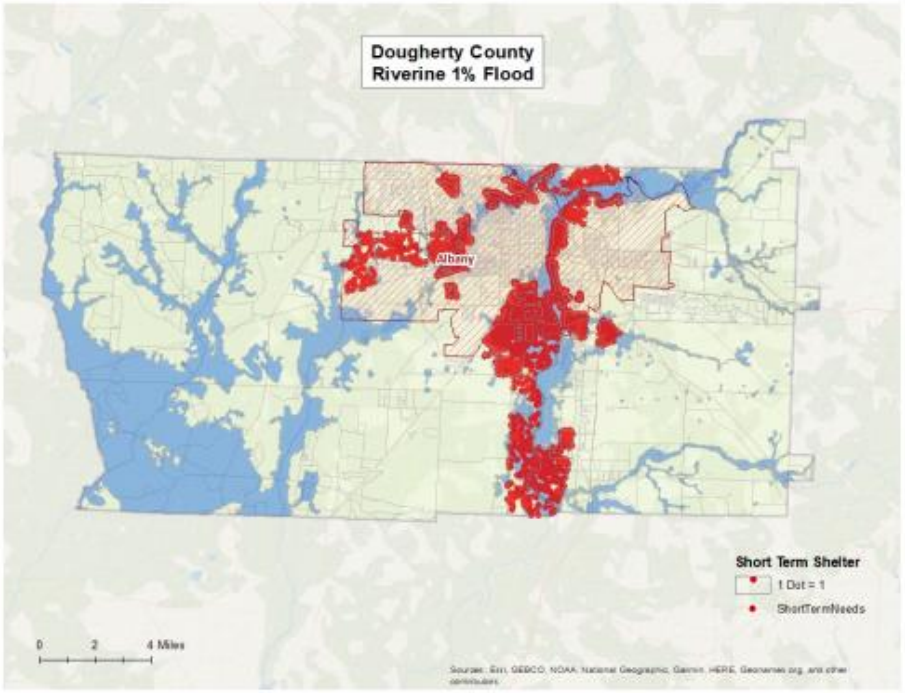

Figure 9: Riverine 1% Estimated Flood Shelter Requirements

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Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories:

- Finishes (dry wall, insulation, etc.)
- Structural (wood, brick, etc.)
- Foundations (concrete slab, concrete block, rebar, etc.)

Different types of material handling equipment will be required for each category. Debris definitions applied in Hazus-MH are unique to the Hazus-MH model and so do not necessarily conform to other definitions that may be employed in other models or guidelines.

The analysis estimates that an approximate total of 11,618 tons of debris might be generated: 1) Finishes- 9,241 tons; 2) Structural – 1,082 tons; and 3) Foundations- 1,295 tons. The results are mapped in Figure 10.

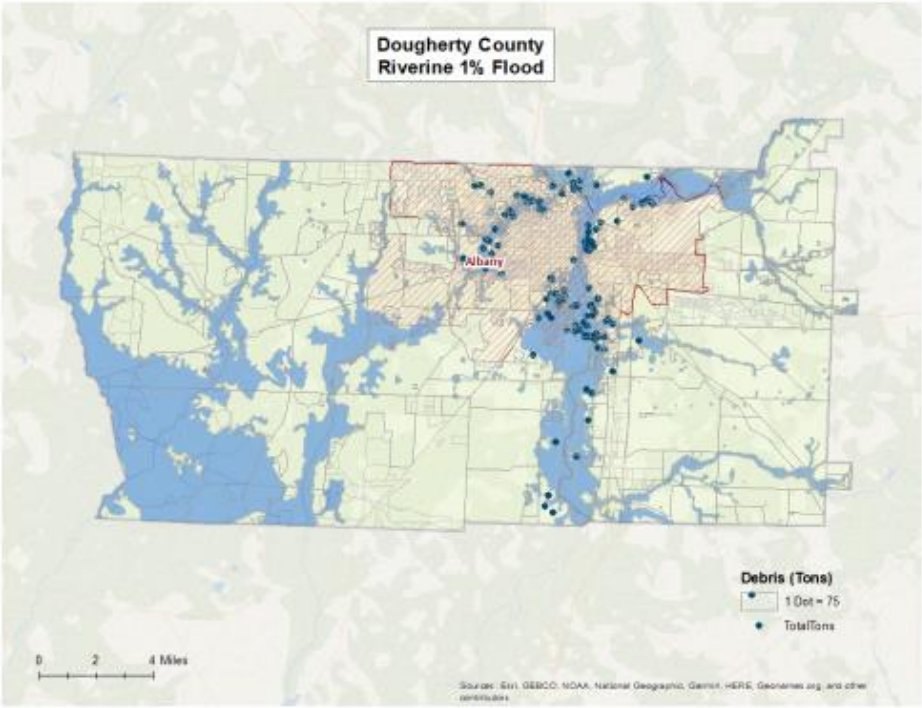

Figure 10: Riverine 1% Flood Debris Weight (Tons)

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Tornado Risk Assessment

Hazard Definition

Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are defined as violently-rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently-rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 10.

Table 10: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 *Gale*	65-85 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
EF1 Moderate	86-110 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
EF2 Significant	111-135 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
EF3 Severe	136-165 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
EF4 Devastating	166-200 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
EF5 Incredible	> 200 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Source: http://www.srh.noaa.gov

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Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornados (southeast to northwest). The tornado path was placed to travel through Albany. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 11 depicts tornado path widths and expected damage.

Table 11: Tornado Path Widths and Damage Curves

Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF-5	2,400	100%
EF-4	1,800	100%
EF-3	1,200	80%
EF-2	600	50%
EF-1	300	10%
EF-0	300	0%

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 11 describes the zone analysis.

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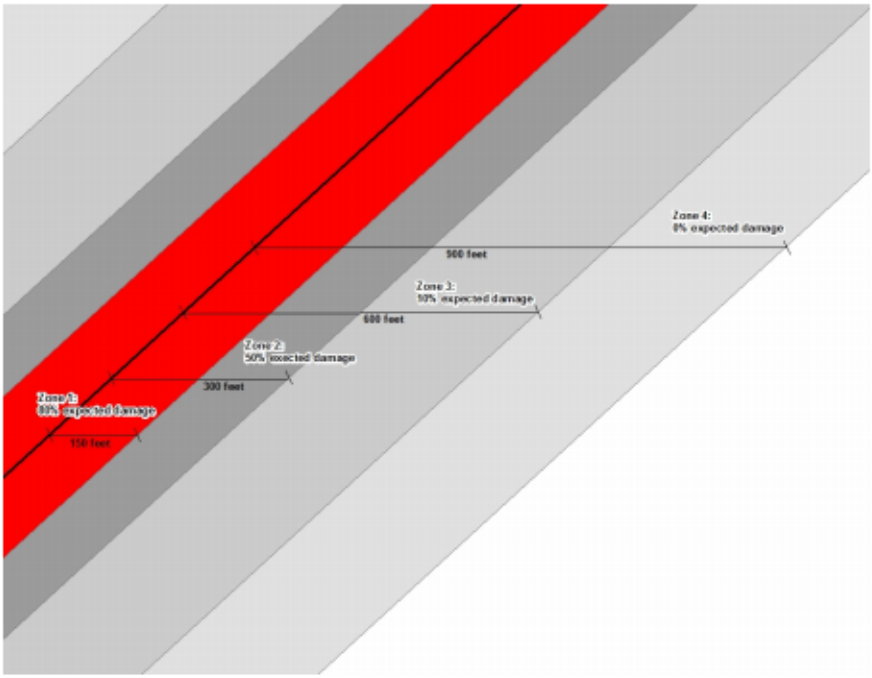

Figure 11: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 12. Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 12 and the damage curve buffer zones are shown in Figure 13.

Table 12: EF3 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

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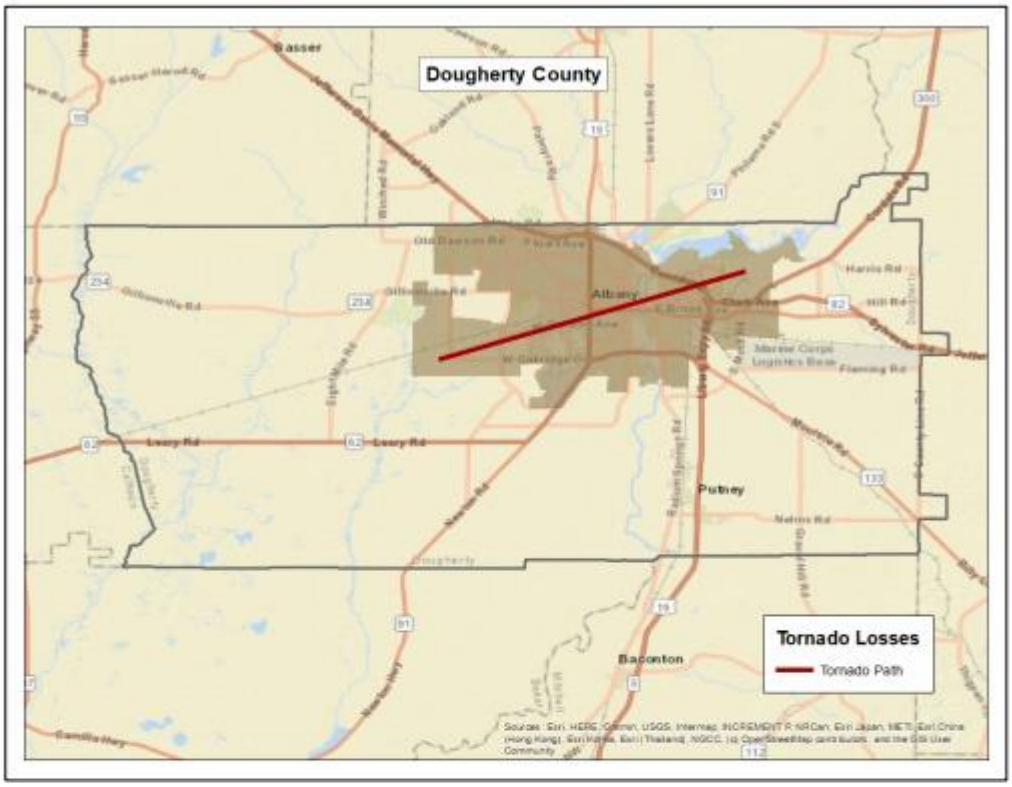

Figure 12: Hypothetical EF3 Tornado Path in Dougherty County

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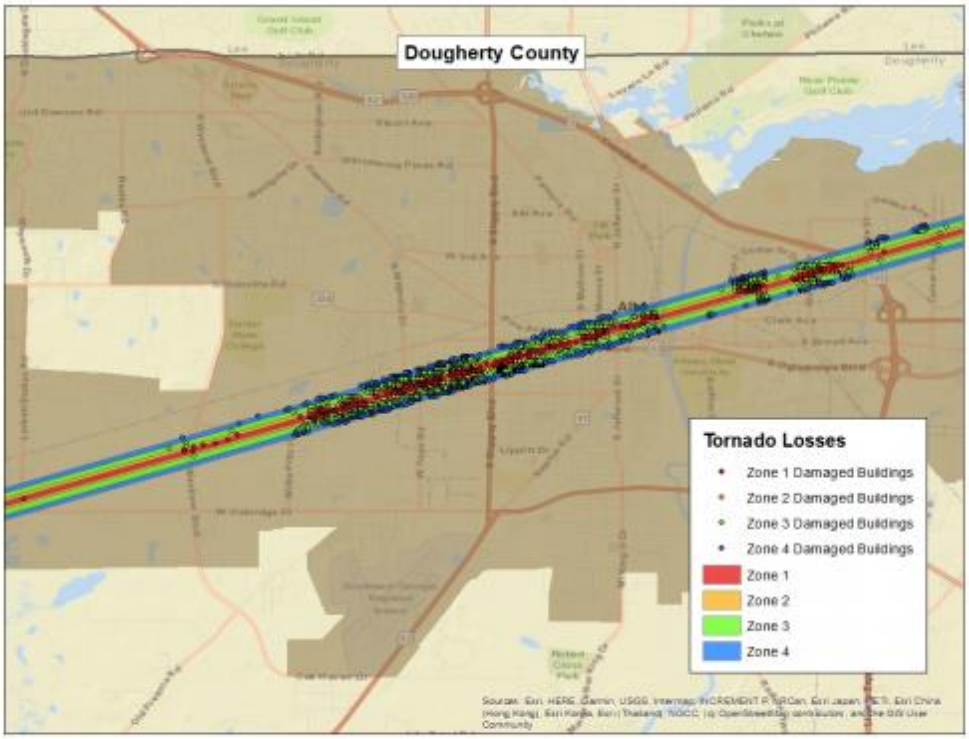

Figure 13: Modeled EF3 Tornado Damage Buffers in Dougherty County

EF3 Tornado Building Damages

The analysis estimated that approximately 1,909 buildings could be damaged, with estimated building losses of $89 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Dougherty County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 13.

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Table 13: Estimated Building Losses by Occupancy Type

Occupancy	Buildings Damaged	Building Losses
Agricultural	1	$25,671
Commercial	339	$22,171,430
Education	4	$1,545,104
Government	9	$6,759,666
Industrial	99	$1,896,318
Religious	21	$1,871,938
Residential	1,436	$54,855,880
Total	**1,909**	**$89,126,007**

EF3 Tornado Essential Facility Damage

There were four essential facilities located in the tornado path – two schools, one fire station, and one police station. Table 14 outlines the specific facility and the amount of damage under the scenario.

Table 14: Estimated Essential Facilities Damaged

Facility	Amount of Damage
Dougherty County Sheriff's Department	Major Damage
Albany Fire Station #1/EMA	Minor Damage
Robert H. Harvey Elementary School	Minor Damage
Sylvandale Academy	Minor Damage

According to the Georgia Department of Education, Robert H. Harvey Elementary School's enrollment was approximately 542 students as of October 2020 and Sylvandale Academy hosts students throughout the day. Depending on the time of day, a tornado strike as depicted in this scenario could result in significant injury and loss of life. In addition, arrangements would have to be made for the continued education of the students in another location.

The location of the damaged Essential Facility is mapped in Figure 14.

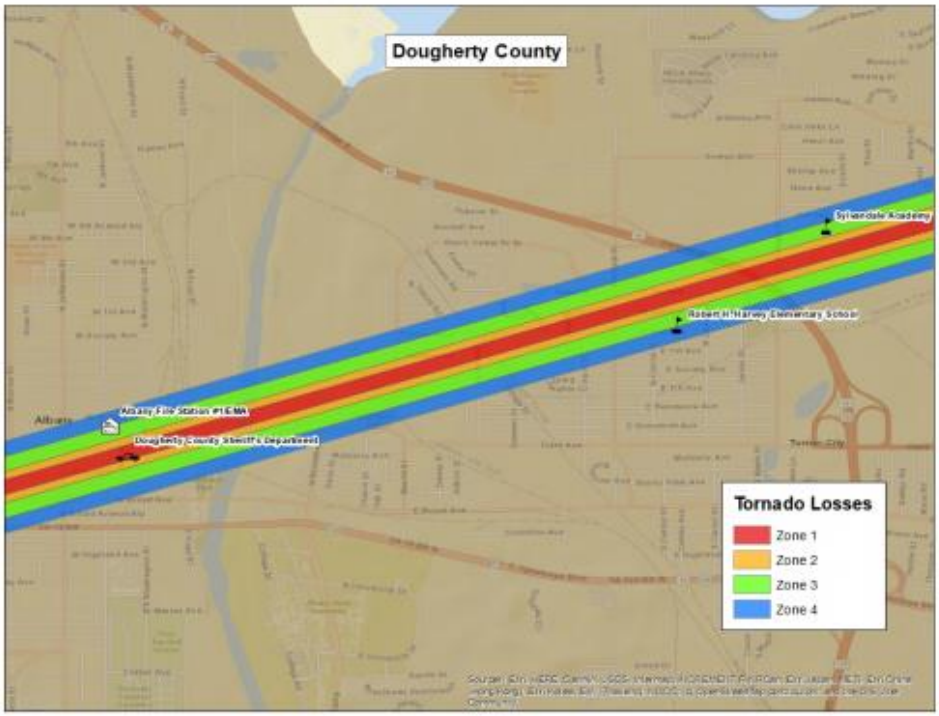

Figure 14: Modeled Essential Facility Damage in Dougherty County

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Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Dougherty County, Georgia. Changes made to the default Hazus-MH inventory and the modeling parameters used to setup the hazard scenarios are described within this document.

Reported losses reflect the updated data sets. Steps, algorithms and assumptions used during the data update process are documented in the project workflow named PDM_GA_Workflow.doc.

Statewide Inventory Changes

The default Hazus-MH Essential Facility inventory was updated for the entire state prior to running the hazard scenarios for Dougherty County.

Updates to the Critical Facility data used in GMIS were provided by Dougherty County in February 2021. These updates were applied by The Carl Vinson Institute of Government at the University of Georgia. Table 15 summarizes the difference between the original Hazus-MH default data and the updated data for Dougherty County.

Table 15: Essential Facility Updates

Site Class	Feature Class	Default Replacement Cost	Default Count	Updated Replacement Cost	Updated Count
EF	Care	$285,090,000	1	$290,590,000	2
EF	EOC	$880,000	1	$1,296,000	1
EF	Fire	$6,240,000	9	$11,666,000	13
EF	Police	$661,000	1	$63,491,000	3
EF	School	$132,436,000	20	$135,928,000	21

County Inventory Changes

The GBS records for Dougherty County were replaced with data derived from parcel and property assessment data obtained from Dougherty County. The county provided property assessment data was current as of March 2021 and the parcel data current as of March 2021.

General Building Stock Updates

The parcel boundaries and assessor records were obtained from Dougherty County. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary. Each parcel point was linked to an assessor record based upon matching parcel numbers. The generated Building Inventory represents the approximate locations (within a parcel) of building exposure. The Building Inventory was aggregated by Census Block and imported into Hazus-MH using the Hazus-MH Comprehensive Data Management System (CDMS). Both the 2010 Census Tract and Census Block tables were updated.

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The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Dougherty County was 99.2%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 16 outlines the adjustments made to Dougherty County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	185	1%
Construction Unknown	160	0%
Condition Unknown	140	0%
Foundation Unknown	165	1%
Year Built Unknown	16	0%
Total Buildings	**32,599**	**0%**

Approximately 0% of the CAMA values were either missing (<Null> or '0'), did not match CAMA domains or were unusable ('Unknown', 'Other', 'Pending'). These were replaced with 'best available' values. Missing YearBuilt values were populated from average values per Census Block. Missing Condition, Construction and Foundation values were populated with the highest-frequency CAMA values per Occupancy Class. Missing Area values were populated with the average CAMA values per Occupancy Class.

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Dougherty County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means ($/sqft) values for each Occupancy Class.

Differences between the default and updated data are due to various factors. The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

User Defined Facilities

Building Inventory was used to create Hazus-MH User Defined Facility (UDF) inventory for flood modeling. Hazus-MH flood loss estimates are based upon the UDF point data. Buildings within the flood boundary were imported into Hazus-MH as User Defined Facilities and modeled as points.

Table 17: User Defined Facility Exposure

Class	Hazus-MH Feature	Counts	Exposure
BI	Building Exposure	31,928	$ 5,804,900,616
Riverine UDF	Structures Inside 1% Annual Chance Riverine Flood Area	3,501	$507,307,591

Assumptions

- Flood analysis was performed on Building Inventory. Building Inventory within the flood boundary was imported as User Defined Facilities. The point locations are parcel centroid accuracy.
- The analysis is restricted to the county boundary. Events that occur near the county boundary do not contain loss estimates from adjacent counties.
- The following attributes were defaulted or calculated:
  First Floor Height was set from Foundation Type
  Content Cost was calculated from Building Cost