

AGENDA

REGULAR SCHOOL BOARD MEETING

GADSDEN COUNTY SCHOOL BOARD
MAX D. WALKER ADMINISTRATION BUILDING
35 MARTIN LUTHER KING, JR. BLVD.
QUINCY, FLORIDA

March 28, 2023

6:00 P.M.

THIS MEETING IS OPEN TO THE PUBLIC

1. CALL TO ORDER
2. OPENING PRAYER
3. PLEDGE OF ALLEGIANCE
4. RECOGNITIONS

ITEMS FOR CONSENT

5. REVIEW OF MINUTES – **SEE ATTACHMENT**

- a. February 9, 2023, 4:00 p.m. –Joint Meeting (Board of County Commissioners, School Board and City of Quincy Commissioners)
- b. February 28, 2023, 4:30 p.m. – School Board Workshop
- c. February 28, 2023, 6:00 p.m. - Regular School Board Meeting
- d. March 1, 2023, 9:00 a.m. – Master Board Training
- e. March 9, 2023, 5:00 p.m. – Student Hearing
- f. March 9, 2023, 6:00 p.m. – Student Hearing

ACTION REQUESTED: The Superintendent recommends approval.

6. PERSONNEL MATTERS (resignations, retirements, recommendations, leaves of absence, terminations of services, volunteers, and job descriptions) – **SEE PAGE #3**

- a. Personnel 2022 - 2023

ACTION REQUESTED: The Superintendent recommends approval.

7. AGREEMENT/CONTRACT/PROJECT APPLICATIONS

- a. School Board Resolution in Support of Gadsden County Board of County Commissioner’s Disaster Local Mitigation Plan (LMP) - **SEE PAGE #5**

Fund Source: N/A
Amount: N/A

ACTION REQUESTED: The Superintendent recommends approval.

8. STUDENT MATTERS – **SEE ATTACHMENT**

- a. Student Expulsion – See back-up material

Case #74-2223-0051

ACTION REQUESTED: The Superintendent recommends approval.

- b. Student Expulsion – See back-up material

Case #75-2223-0051

ACTION REQUESTED: The Superintendent recommends approval.

- c. Student Expulsion – See back-up material

Case #79-2223-0051

ACTION REQUESTED: The Superintendent recommends approval.

9. EDUCATIONAL ISSUES

- a. West Gadsden Middle School Out-of-State Field Trip Request - **SEE PAGE #179**

Fund Source: TSSSA
Amount: N/A

ACTION REQUESTED: The Superintendent recommends approval.

- b. Approval of the 2023 – 2024 PAEC Course Catalog - **SEE PAGE #195**

Fund Source: N/A
Amount: N/A

ACTION REQUESTED: The Superintendent recommends approval.

ITEMS FOR DISCUSSION

10. EDUCATIONAL ITEMS BY THE SUPERINTENDENT

11. SCHOOL BOARD REQUESTS AND CONCERNS

12. ADJOURNMENT



THE GADSDEN COUNTY SCHOOL DISTRICT

Educating Every Student Today, Making Gadsden Stronger Tomorrow

Elijah Key, Superintendent of Schools

35 Martin Luther King, Jr. Blvd Quincy, Florida 32351

Main: (850) 627-9651 or Fax: (850) 627-2760

www.GadsdenSchools.org

March 28, 2023

The School Board of
Gadsden County, Florida
Quincy, Florida 32351

Dear School Board Members:

I am recommending that the attached list of personnel actions be approved, as indicated. I further recommend that all appointments to grant positions be contingent upon funding.

Item 6A Instructional and Non-Instructional Personnel 2022-2023

The following reflects the total number of full-time employees in this school district for the 2022-2023 school term, as of March 28, 2023.

<u>Description Per DOE Classification</u>	<u>DOE Object#</u>	<u>#Employees March 2023</u>
Classroom Teachers and Other Certified	120 & 130	320.00
Administrators	110	54.00
Non-Instructional	150, 160, & 170	378.00
		<u>752.00</u>
Part Time Instructional		4.00
Part Time Non Instructional		3.00
Total		<u>7.00</u>
100% Grant Funded		166.00
Split Grant Funded		23.00
Total Grant Funded of 752 Employees		<u>189.00</u>

Sincerely,


Elijah Key, Jr.
Superintendent of Schools

Cathy S. Johnson
DISTRICT NO. 1
Havana, FL 32333
Midway, FL 32343

Steve Scott
DISTRICT NO. 2
Quincy, FL 32351
Havana, FL 32333

Leroy McMillan.
DISTRICT NO. 3
Chattahoochee, FL 323324
Greensboro, FL 32330

Charlie D. Frost
DISTRICT NO. 4
Gretna, FL 32332
Quincy, FL 32352

Karema D. Dudley
DISTRICT NO. 5
Quincy, FL 32351

AGENDA ITEM 6A INSTRUCTIONAL AND NON INSTRUCTIONAL 2022/2023**INSTRUCTIONAL**

<u>Name</u>	<u>Location</u>	<u>Position</u>	<u>Effective Date</u>
Hatfield, Daren	GBES	Teacher	03/07/2023
Jones, Tanya	HMS	Teacher	03/01/2023
Sheffield, Joseph	GEMS	Teacher	03/01/2023

PART TIME

<u>Name</u>	<u>Location</u>	<u>Position</u>	<u>Effective Date</u>
Harley, Angelina	SSES	Math Interventionist	03/08/2023

NON INSTRUCTIONAL

<u>Name</u>	<u>Location</u>	<u>Position</u>	<u>Effective Date</u>
Ellington, Russell	GCHS	Coord of Health and Drug Free Athletics	02/14/2023
Paden, Brittany	District/ESE	Program Specialist	03/01/2023
Robinson, Dominga	GCHS	Secretary	03/01/2023
Young, Sheryl	Transportation	Bus Driver	03/07/2023

REQUESTS FOR LEAVE, RESIGNATION, TRANSFERS, RETIREMENTS, TERMINATIONS OF EMPLOYMENT:**RESIGNATION**

<u>Name</u>	<u>Location</u>	<u>Position</u>	<u>Effective Date</u>
Anglin, Kelly	HMS	Teacher	03/02/2023
Baggett, Miranda **	District/Instructional	Program Specialist	02/28/2023
Lee, Keyondio	District/Instructional	Social Worker	03/10/2023
Mejia Portillo, Diana	GBES	Teacher	02/03/2023
Robinson, Dominga*	GCHS	Adjunct Instructor	02/28/2023
Smith, Alana	HMS	Teacher	03/10/2023
Smith, Armanda	District/ESE	Adjunct Instructor	03/02/2023

* Resigned to accept another position within the District

** Corrected date from February 28, 2023 board meeting

DROP RETIREMENT

<u>Name</u>	<u>Location</u>	<u>Position</u>	<u>DROP Ends</u>
Wynn, Vira	CES	ESE Paraprofessional	02/28/2023

OUT OF FIELD

<u>Name</u>	<u>Location</u>	<u>Area out of Field</u>	<u>Number of Periods</u>
Sheffield, Joseph	GEMS	General Science	All Periods

Terminations

<u>Name</u>	<u>Location</u>	<u>Position</u>	<u>Effective Date</u>
Alderman, Morgan	HMS	Teacher	03/28/2023
Johnson, Richard	JASMS	Teacher	03/28/2023
Miles, Krystal	JASMS	Teacher	03/28/2023
Riles, Dominique	JASMS	Custodian	03/28/2023
Smith, Joyce	WGMS	Custodial Assistant	03/28/2023
Sweeting, Cassandra	HMS	Custodial Assistant	03/28/2023

SUBSTITUTES**Teacher**
Baker, Annette**Custodial**
Conway, Jomala

SUMMARY SHEET

RECOMMENDATION TO SUPERINTENDENT FOR SCHOOL BOARD AGENDA

AGENDA ITEM NO. 7a

DATE OF SCHOOL BOARD MEETING: March 28, 2023

TITLE OF AGENDA ITEM: School Board Resolution in Support of Gadsden County Board of County Commissioner’s Disaster Local Mitigation Plan (LMP)

DIVISION:

____ This is a CONTINUATION of a current project, grant, etc.

PURPOSE AND SUMMARY OF ITEM:

The School Board and local municipalities are required to submit a resolution to the Board of County Commissioners supporting the Local Mitigation Strategy Plan (LMP) for disasters. The resolution allows the district to apply for County LMP funds for disaster preparedness and mitigation within the district (e.g. generator for Havana Magnet School should it be needed as a disaster shelter).

FUND SOURCE: N/A

AMOUNT: N/A

PREPARED BY: Dr. Sylvia R. Jackson


POSITION: Assistant Superintendent for Support Services

INTERNAL INSTRUCTIONS TO BE COMPLETED BY PREPARER

1
____ Number of ORIGINAL SIGNATURES NEEDED by preparer.

SUPERINTENDENT’S SIGNATURE: page(s) numbered N/A

CHAIRPERSON’S SIGNATURE: page(s) numbered N/A

REVIEWED BY:  _____

A RESOLUTION OF THE GADSDEN COUNTY SCHOOL BOARD, FLORIDA;
ADOPTING THE LOCAL MITIGATION STRATEGY

WHEREAS, the Gadsden County School Board is subject to natural hazards such as floods, hurricanes, tropical storms, sinkholes, wildfires, drought, heat waves, winter storms, tornados, etc and these hazards affect the health and property of Gadsden County School Board as well as its economic viability; and

WHEREAS, the Local Mitigation Strategy Committee worked to prepare the countywide, unified Local Mitigation Strategy to include a report detailing countywide hazards and vulnerabilities, a list of critical facilities, a list of policy recommendations and a prioritized list of hazard mitigation programs, projects and initiatives; and

WHEREAS, hazard mitigation consists of actions such as structural enhancements, planning, code enforcement and responsible development, taken to permanently reduce or eliminate the long term risks to people and property from the effects of hazards; and

WHEREAS, the Local Mitigation Strategy has previously been adopted by the County and all municipalities within Gadsden County, Florida.

NOW THEREFORE, BE IT RESOLVED BY THE GADSDEN COUNTY SCHOOL BOARD, FLORIDA, hereby adopts the Local Mitigation Strategy; RESOLVED, FURTHER, that this resolution shall become effective immediately upon adoption.

PASSED AND DULY ADOPTED, in regular session by the Gadsden County School Board, Florida on this 28 day of March 2023.

GADSDEN COUNTY SCHOOL BOARD
QUINCY, FLORIDA

Attest:

Superintendent Elijah Key, Jr.

Board Chair Leroy McMillan



LOCAL MITIGATION STRATEGY PLAN 2022 Update



Overview

According to Title 44 CFR §201.1, the purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

Hazard mitigation is any sustained action taken to reduce or eliminate the long- term risk to human life and property from hazards, Title 44 CFR §201.2. The mitigation activities may be implemented prior to, during, or after an event. It has been noted that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

Gadsden County is threatened by a number of different types of natural hazards (i.e., flooding, flash floods, heavy rain, hurricanes/tropical storms, thunderstorms/winds, tomadoes, lightning, wildfires, hailstorms, drought, etc.). These hazards endanger the health and safety of the population of the county, jeopardizing its economic vitality, and imperil the quality of its environment.

The importance of avoiding or minimizing the vulnerabilities to these hazards, the county's public and private sector interests established the Local Mitigation Strategy (LMS) Committee/Workgroup to develop a comprehensive planning process, risk assessment, and a strategy to mitigate with specific projects that are based on a sound planning process that account for the inherent risk and capabilities of the county's communities.

Extensive research and analysis have been performed to identify the hazards threatening the jurisdictions of the cities of Quincy, Chattahoochee, Gretna and Midway, the towns of Greensboro and Havana and unincorporated Gadsden County to estimate the relative risks posted to the community by those hazards.

This study has been used by the Committee/Workgroup Members to assess the vulnerabilities of the facilities and jurisdictions of Gadsden County to the impacts of future disasters involving those hazards. With these identified, the Committee has worked to identify proposed mitigation projects that will avoid or minimize these vulnerabilities and to make the communities of Gadsden County much more resistant to the impacts of future disasters.

The current or ongoing local mitigation projects or initiatives for Gadsden County LMS are aimed at reducing the impacts of future disasters and have been developed and will continue to be evaluated by the Committee/Workgroup for implementation whenever the financial resources become available.

The mitigation project list is considered a "living document". The project list will and should evolve as projects are undertaken and completed, as future disasters affect the county and new needs are identified, and as local priorities change. As the mitigation projects identified in this plan are implemented, step-by- step, Gadsden County will become a more "disaster resistant" community.

This document details the work of the Gadsden County LMS Committee over the past several years to develop the planning organization, to undertake the needed technical analyses, and to coordinate the mitigation projects that have been proposed by the participating jurisdictions and organizations.

The Federal Emergency Management Agency (FEMA) and the Florida Division of Emergency Management (FDEM) require that the following governing bodies; the cities of Quincy, Chattahoochee, Gretna and Midway, the towns of Greensboro and Havana and unincorporated Gadsden County adopt this LMS document. Adoption of the Gadsden County LMS by the City and County Commissions will not have any legal effect on the Comprehensive Plan or any other legally binding documents. However, adoption of the LMS will give the county and its jurisdictions priority with respect to funding for disaster recovery and hazard mitigation from state and federal sources.

Through the publication of this LMS plan, the Committee/Workgroup continues to solicit the involvement of the entire community to make the people, neighborhoods, businesses, and institutions of Gadsden County safer from the impacts of disaster events. *Note: Throughout the LMS plan, reference to the LMS Committee or Workgroup will be either, or both, and the LMS mitigation projects could be projects, actions, or initiatives.*

Gadsden County's Local Mitigation Strategy Plan is organized into the following sections:

Section 1: Introduction identifies the purpose and context for the plan.

Section 2: Planning Process provides the details used to develop the plan, including how it was prepared, who was involved in the process for each jurisdiction, and how the public was involved.

Section 3: Geography, Demographics and Land Use of Gadsden County are identified with details on the current and future land use, which are important elements in the mitigation planning.

Section 4: Hazards, Risk and Vulnerability Assessment defines the type and previous occurrences of the natural hazards, the probability, the location, the vulnerability, the extent, and impact of the natural hazards that affect the county and its' municipality.

Section 5: Mitigation Strategy provides the risk assessment, which are based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing structures. The areas in this section will consist of the LMS goals and objectives, the National Flood Insurance Program (NFIP) and compliance, the implementation of the mitigation projects, the jurisdictions that will benefit from the mitigation projects and potential funding sources.

Section 6: Plan Evaluation, Maintenance and Adoption will discuss the evaluation and maintenance of the LMS plan, including adoption of the Plan by Resolution once approved by FDEM and FEMA. Details on how Gadsden's development has impacted vulnerability, changes in development and completed projects are noted. It will examine other community planning mechanisms, and public participation in the plan's maintenance process.

TABLE OF CONTENTS

SECTIONS	Page
1 – Introduction _____	1
2 - Planning Process _____	5
3 - Geography, Demographics and Land Use _____	13
4 – Hazards, Risk and Vulnerability Assessment _____	20
5 - Mitigation Strategy _____	136
6 - Plan Evaluation, Maintenance and Adoption _____	149

TABLES	Page
2.1 Participating Organizations by Jurisdictions, August 1, 2022 _____	7
3.1 Demographics for Gadsden County _____	14
3.2 Total Just Value Real and Personal Tangible Property _____	16
4.1 Hazards Profiled for Gadsden County _____	21
4.2 Impacts on Structures and Infrastructure from the Hazards in Gadsden County _____	23
4.3 Disaster Declarations for Gadsden County (Sept 2004-June 2022) _____	25
4.4 Flood Zone Definitions _____	27
4.5 Flood and Flash Flood Occurrences in Gadsden County (Feb 1950-Jun 2022) _____	30
4.6 Flood Vulnerability for County Population _____	32
4.7 Structures Located in the Floodplain Area in Gadsden County _____	33
4.8 Value of Structures in the Floodplain Area in Gadsden County _____	33
4.9 County Facilities in the Floodplain Area _____	33
4.10 Direct Economic Loss for Buildings, Gadsden County, by Floodplain _____	33
4.11 Value of Gadsden County Facilities in the Floodplain Area _____	33
4.12 Dams in Gadsden County _____	38
4.13 Hurricane and Tropical Storm Occurrences in Gadsden County (Feb 1950- Jun 2022) _____	55
4.14 Probabilistic Hurricane Wind Count of Structures Within Return Period Of Areas _____	58
4.15 Probabilistic Hurricane Wind Value Of Structures Damaged Within Return Period Areas _____	58
4.16 Probabilistic Hurricane Wind 10-Year Total Economic Value by Storm Intensity _____	58
4.17 Probabilistic Hurricane Wind 20-Year Total Economic Value by Storm Intensity _____	58
4.18 Probabilistic Hurricane Wind 50-Year Total Economic Value by Storm Intensity _____	58
4.19 Probabilistic Hurricane Wind 100-Year Total Economic Value by Storm Intensity _____	58
4.20 Probabilistic Hurricane Wind 200-Year Total Economic Value by Storm Intensity _____	58
4.21 Probabilistic Hurricane Wind 500-Year Total Economic Value by Storm Intensity _____	59
4.22 Probabilistic Hurricane Wind 1000-Year Total Economic Value by Storm Intensity _____	59
4.23 Direct Economic Loss for Buildings by Return Period _____	59
4.24 Tornado or Funnel Cloud Occurrences, Gadsden County (Mar 1950- Jun 2022) _____	65
4.25 Annual Average No. of Structures by Occupancy Types that are Vulnerable to Severe Thunderstorms (Not Tornadoes) Hazards in Gadsden County _____	67
4.26 Annual Average Value of Structures by Occupancy Type that are Vulnerable to Severe Thunderstorms (Not Tornadoes) Hazards in Gadsden County _____	68
4.27 Thunderstorm/Wind Occurrences, Gadsden County (Mar 1950-Jun 2022) _____	72
4.28 Lightning Occurrences, Gadsden County (Mar 1950- May 2022) _____	88
4.29 Hailstorm Occurrences in Gadsden County (Mar 1950-Mar 2022) _____	89
4.30 Annual Average No. of Structures By Occupancy Type Vulnerable to Severe Thunderstorms (Including Hail and Wind) Hazard in Gadsden County _____	91
4.31 Annual Average Value of Structures by Occupancy Type that are Vulnerable to Severe Thunderstorms (Including Hail And Wind) Hazard in Gadsden County _____	91

4.32 Fires by Cause, Gadsden County, (Jan 2000-Sept 2016)	98
4.33 Fire by Cause, Gadsden County (Sept 2016-Apr 2022)	99
4.34 Fire by Size, Gadsden County (Jan 1980-Sept 2016)	100
4.35 Fires By Size, Gadsden County, (Sept 2016 – Apr 2022)	100
4.36 Consequences of Wildfire	102
4.37 Estimated Wildfire by Population Level of Concern Category	105
4.38 Structures – Level of Concern for Wildfires	106
4.39 Value of Structures/Level of Concern for Wildfires	106
4.40 County Facilities by Level of Concern for Wildfires	106
4.41 Value of County Facilities by Level of Concern for Wildfires	107
4.42 Drought Occurrences in Gadsden County (2010 – Jun 2022)	110
4.43 Estimated % of the Population Potentially Affected by a Heat Wave Event	114
4.44 Winter Storm/Winter Weather/Freezing Events in Gadsden County (1950-2022)	118
5.1 National Flood Insurance Program (NFIP) Participation	138
5.2 NFIP Policy Statistics	138
5.3 Comprehensive Range of Mitigation Projects for Each Jurisdiction	145

Figures

	Page
3.A Gadsden County Roads	17
3.B: Future Land Use Map Legend	18
3.C: Future Land Use Map	19
4.D: Gadsden County Flood Zone Map	26
4.E: Gadsden County Flood Zone Map 1	28
4.F: Gadsden County Flood Zone Map 2	29
4.G1: Sinkhole Occurrences In Gadsden County	45
4.G2: Sinkhole Occurrence In Leon/Gadsden Boundary County	46
4.G3: Sinkhole Occurrence in Gadsden County	47
4.G4: Swallet Occurrence in Gadsden County	48
4.H: Sinkhole Type Development and Distribution in Florida	49
4.I: FL Geological Survey on Sinkholes in Gadsden County	50
4.J: Saffir-Simpson Wind Scale	53
4.K: Tracks of Hurricanes, Tropical Storms, Tropical Depressions, and Extratropical Storms in Gadsden County (1851-2020)	54
4.L: Map of Number of Average Annual Tornado Watches, US (1993-2021)	62
4.M: Tornado Reports, Us (2021)	62
4.N Enhanced Fujita (EF) Scale	64
4.N.1: Total Lightning Density Gridden Map, 2021, Cloud to Ground Stokes Plus Cloud Pulses	84
4.N.2: Total Lightening Density Gridded Map, (2015-2020) Cloud to Ground Strokes Plus Cloud Pulses	85
4.N.3: Total Lightening Density, Per County, 2021	86
4.N.4: Total Lightening Density, Per County, 2015-2021	87
4.O: Florida Geological Survey, Landslide, Gadsden County	95
4.P: Gadsden County Fire Occurrences	101
4.Q: Gadsden County Wildland Fire Susceptibility Index	103
4.R: Gadsden County Wildfire Levels of Concern	104
4.S: US Drought Monitor Map	109
4.T: Keetch Byram Drought Index	111
4.U: Heat Index Chart	111
4.V: Heat Related Incident Rate, Florida Counties	113

APPENDICES

Appendix 1: LMS Committee Meeting Documentation (2016-2022)

Appendix 2: Mitigation Goals and Objectives

Appendix 3: Master List of Mitigation Projects and Initiatives

Section 1 – Introduction

As stated by FEMA....” Mitigation is valuable to society in these ways:

- ✓ It creates safer communities by reducing loss of life and property damage. For example, the rigorous building standards adopted by 20,000 communities across the country are saving the nation more than \$1.1 billion a year in prevented flood damages.
- ✓ It allows individuals to minimize post-flood disaster disruptions and recover more rapidly. For example, homes built to National Flood Insurance Program (NFIP) standards incur less damage from floods. When floods cause damage, flood insurance protects the homeowner's investment, as it did for the more than 200,000 Gulf Coast residents who received more than \$23 billion in payments following the 2005 hurricanes.
- ✓ It lessens the fiscal impact on individuals, communities, and society. For example, a recent study by the Multi-hazard Mitigation Council shows that each dollar spent on mitigation saves society an average of four dollars.”

Every community is exposed to some level of risk from hazards and hazards cannot be eliminated, but it is possible to determine what hazards will affect the county communities, where they are most severe, and identify projects that can be taken to reduce the severity of the hazard.

As previously noted, mitigation is any action taken to permanently reduce or eliminate long-term risk to people and their property from the effects of hazards. Examples of mitigation projects for Gadsden County might include:

- ✓ Improve drainage systems and provide erosion control;
- ✓ Construct a critical facility to provide services for the community;
- ✓ Implement a warning system to alert residents of an imminent hazards;
- ✓ Wind retrofit critical facilities that provide essential services;
- ✓ Install backup generators at critical facilities;
- ✓ Upgrade water systems to ensure operability during disasters.

Ideally, a community can minimize the effects of future hazards through a mix of code enforcement, planning, and responsible development.

Significant disaster events can cost the community and local government substantial loss for the businesses and residents in Gadsden County. The businesses located in high hazard areas can suffer when damaged or isolated by storms, and residents who build in flood prone areas are subject to evacuation, damage to their homes, lower home values, and higher insurance premiums.

Hazards have real costs to businesses and residents, and businesses in high hazard areas can suffer when revenue loss by damaged or isolated by storms. The county residents who build in flood prone areas are subject to evacuation, damage to their homes, lower home values, and higher insurance premiums.

The County's critical facilities are those facilities necessary for a community's response and recovery from a

- ▶ The Act established a requirement for local governments to have a FEMA-approved hazard mitigation plan to be eligible for funding from FEMA through Pre- and Post-Disaster grant programs such as Pre-Disaster Mitigation Assistance (PDM) or the Hazard Mitigation Grant Program (HMGP).
- ▶ All natural hazards that affect the county will need to be addressed in the risk and vulnerability assessment section of the Hazard Mitigation Plan.
- ▶ The Act establishes November 1, 2004, as the date by which local governments and tribal organizations were required to prepare and adopt their respective plans to be eligible for FEMA Hazard Mitigation Assistance. In addition, local jurisdictions must review and revise their county LMS plan to reflect changes in development, progress in local mitigation efforts, changes in mitigation project priorities, and resubmit it for approval within 5 years from date of FEMA approval to remain eligible for the mitigation project grant funding.

Gadsden County LMS Plan Update 2022

This Plan encompasses the process of reviewing and revising the Gadsden County LMS in accordance with the DMA 2000. The main goal of the local mitigation strategy is to identify and assess the risk and vulnerability to various natural disasters the County and its municipality face, and then develop local strategies to reduce the impact of future disasters. This plan is a continuation of the 2016 efforts and is the product of the third 5-year revision and update process.

The Gadsden County LMS Committee/Workgroup prepares the community, the businesses, and institutions more resistant to the impacts of future disasters by evaluating the exposure of the community to all types of future natural hazards to identify ways to make the county more resistant to their impacts. This document reports the results of that planning process for the current planning period.

The Gadsden County LMS is intended by the Committee/Workgroup to serve many purposes, which include the following:

- Structured planning concepts in a methodical process to identify vulnerabilities to future disasters and to propose the mitigation projects necessary to avoid or minimize exposure. Each step in the planning process builds upon the previous process so that there is a higher level of assurance that the mitigation projects proposed by the participants have a valid basis for both their justification and priority for implementation. It is a principal element for the LMS plan to document the process and to present its results to the community.
- The Committee/Workgroup continues to search for new ways to make the community more aware of the natural hazards that threaten the public health and safety, the economic vitality of businesses, and the operational capability of important institutions. The LMS plan identifies the natural hazards threatening Gadsden County including the location, the probability, the extent, and potential impact from the hazard.
- It details the specific vulnerabilities of the neighborhoods of Gadsden County and the facilities that are important to the community's daily life. This information will be helpful to individuals that wish to understand how the community could become safer from the impacts of future disasters.

Engage the Entire Community

An important goal for the Gadsden County Emergency Management (EM) Department is to get the entire community involved. *Participating in county festivals, workshops, school, and local civic group presentations, with the chamber of commerce and the department of health, the EM Department reaches out to communicate the importance of mitigation planning and public safety.*

Also, the Emergency Management Department reaches out to the community residents in in the local mitigation planning process. The county has a small, but dedicated group that participate on the LMS committee/workgroup with active members from the local and state government, the community businesses and residents, representation from each jurisdiction, and the neighboring communities.

The Gadsden County LMS provides information needed by the managers and leaders of local government, business and industry, community associations, and other key institutions and organizations to take actions to address vulnerabilities to future disasters. In addition, it provides proposals for specific projects and programs that are needed to eliminate or minimize those vulnerabilities.

Mitigation Projects

These mitigation projects have been justified based on their economic benefits using a uniform technical analysis, as well as prioritization for implementation utilizing a selected criteria approach. This path is intended to provide a decision tool for the management of participating organizations and agencies regarding why the proposed mitigation should be implemented, which should be implemented first, and the economic and public welfare benefits of doing so.

A key purpose of the planning process utilized by the Gadsden County Committee is to ensure that proposals for mitigation projects are reviewed and coordinated among the participating jurisdictions within the county.

Each mitigation project proposed by one jurisdiction or participating organization, when implemented, will be compatible with the interests of adjacent jurisdictions and unlikely to duplicate or interfere with mitigation projects proposed by others. The Gadsden County LMS will provide each participating local jurisdiction with a specific plan of action that can be adopted and implemented pursuant to its own authorities and responsibilities.

Therefore, the plan addresses mitigation projects for each participating jurisdiction. These projects can be adopted and implemented for the jurisdiction's own purposes and on its own schedule. In this way, the format of the plan and the operational concept of the planning process ensure that proposed mitigation projects are coordinated and prioritized effectively among jurisdictions, while nonetheless allowing each jurisdiction to adopt only the proposed projects for which it has the authority or responsibility to implement when resources are available.

Planning Process

The planning process used by the LMS Committee/Workgroup meets the analysis and documentation needs of the planning process. The plan utilizes technical analysis and the formulation of proposed mitigation projects for incorporation into this plan.

Goals and Objectives

The following sections of the Gadsden County LMS present the detailed information to support these objectives. In addition, it documents the structural and non-structural mitigation projects proposed by the participating jurisdictions to address the identified exposure. The plan will also address the goals and objectives of the Committee for the next planning period, during which this plan will continue to be expanded and refined.

Summary of Updates

1. Minor editing for clarity and formatting, no substantive updates.

End of Section 1 Introduction

###

Section 2 - Planning Process

Requirements:

§201.6 (a) (1) - A local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. A local government must have a mitigation plan approved pursuant to this section in order to apply for and receive mitigation project grants under all other mitigation grant programs.

§201.6 (b) (1) - An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

§201.6 (b) (2) - An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-profit interests to be involved in the planning process; and

§201.6 (b) (3) - Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

§201.6 (c) (1) - Documentation of the **planning process** used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

The Gadsden County LMS Plan is a local community plan, which was developed by the LMS Committee/Workgroup in 2016 for compliance with the DMA 2000 requirements, and in accordance with law it was updated in 2022, to meet the 5-year update requirement.

The Gadsden County Emergency Management (EM) Department initiated the LMS planning process by hiring a professional consulting firm to facilitate and coordinate the updated LMS plan for compliance and conformance with current laws. Facilitated by the consultant, the EM Department and the Committee/Workgroup worked together to engage local agencies, community members and the public in the planning process.

The Gadsden County LMS Committee/Workgroup consists of local government agencies, business interests, community organizations, regional agencies, institutions, and the public. Gadsden County (unincorporated), the cities of Quincy, Chattahoochee, Gretna and Midway, and the towns of Greensboro and Havana, and the Gadsden County School Board (a special district) are the continuing jurisdictions. There have been no new jurisdictions added since the last Local Mitigation Strategy plan.

This following describes the organizational structure used to complete the public planning process for the Plan update and is further defined and described in each section of the Plan.

Public Participation

The Gadsden County LMS Committee/Workgroup **encourages participation** by all interested local and neighboring jurisdictions, agencies, organizations, and individuals. Broad community representation is promoted in the Committee and at public meetings to provide opportunities for public commentary and consideration of the local mitigation strategy (see "*Public Involvement*" below.).

LMS Committee/Workgroup Participation: The organization is intended to represent a partnership between the public and private sector of the community, working together to create a disaster resistant

Gadsden County LMS Plan Update 2022

community. The proposed mitigation projects developed by the Committee and listed in this plan, when implemented, are intended to make the entire community a safer from the impacts of future disasters, for the benefit of every individual, neighborhood, business, and institution. See Table 2.1 for a list members.

The Gadsden County EM Department is the lead agency in scheduling and conducting the efforts of the Local Mitigation Strategy Committee/Workgroup and is primarily responsible for updating the LMS plan.

The LMS Committee/Workgroup is responsible for:

- ✓ Official decisions regarding the planning process;
- ✓ Determining the priority and approving the proposed mitigation project for each jurisdiction;
- ✓ Deleting projects that are no longer applicable for implementation; and,
- ✓ Coordinating the technical analysis and planning activities.

These activities include conducting the hazard identification and vulnerability assessment processes, as well as receiving and coordinating the mitigation projects for incorporation into this plan.

Members of many organizations were invited via e-mail correspondence to discuss the importance of participation on the Gadsden County LMS Committee/Workgroup. Each jurisdiction was represented in the LMS Committee (see Table 2.1). In addition, the Gadsden County LMS Committee/Workgroup benefited from the assistance and support of its members.

Participation in the Committee is not limited in any manner, and all members of the community, whether representing the public or private sector, are welcome to participate.

Public Involvement in the Drafting Stage of the LMS Plan Update

The public and neighboring communities are encouraged and provided opportunities to become involved and give input into the Gadsden County Local Mitigation Strategy to gauge the plan effectiveness and help identify local hazards to be placed on the county project list.

The public input and involvement, including local/adjacent government representatives and the local businesses and citizens, are solicited via public meeting notices on the County's website and public notices placed in local county newspapers as well as notices placed on the County's webpage. Prior to public meetings, a draft of the LMS Plan update is made available to the public and input encouraged. Below are the local newspapers used for public notices, as well as the physical locations where a paper copy of the draft LMS Plan was available for review, and the County's webpage where an electronic version of the draft LMS Plan was available:

Local Newspapers for Public Notices (Legal Ads):

- Gadsden County Times
- Havana Herald
- Chattahoochee News Herald Paper/Online

Paper copy available at the following locations:

- Gadsden County Office of Growth Management, 1-B East Jefferson Street, Quincy
- Cowen Public Library, 300 Maple Street, Chattahoochee
- Havana Public Library, 203 East 5th Avenue, Havana

Gadsden County LMS Plan Update 2022

- William McGill Public Library, 732 South Pat Thomas Parkway, Quincy

Electronic version available at:

https://www.gadsdencountyfl.gov/local_mitigation_strategy_/index.php

LMS Committee/Workgroup Membership

Gadsden County has an active LMS Committee/Workgroup Members (see Table 2.1 below), as discussed above, that participate and provide on-going support and assistance in the LMS meetings with active members from the local and state government, the community businesses and residents, representation from each jurisdiction, and the neighboring communities.

Table 2.1- LMS Participating Organizations by Jurisdiction, August 1, 2022

Name	Title	Jurisdiction
Tashonda Whaley, Chairman	Emergency Management Director	Sheriff's Office
Antonia Jefferson, Vise-Chairman	City Manager	City of Gretna
Ed Dixon or designee	County Administrator	Gadsden County
Candace Hill	Emergency Management Department	Sheriff's Office
Henry Grant	City Manager	City of Midway
Adrian Cooksey	Director	Health Department
Andre Walker	Fire Chief	Gadsden County - EMS
Kris Hood	EMS Chief	Gadsden County- EMS
Robert Nixon	City Manager	City of Quincy
Brian Alexander	Police Chief	City of Gretna-Police Department
Lisa Burnette	Governmental Representative	Talquin Electric
Stacey Hannigan	Operations Manager	Health Department
Tammy Farlin	School Board Representative	School Board - Special District
Justin Stiel	Growth Management Director	Gadsden County
Matthew Bryant	Safety and Security Specialist	School Board
Robert Presell	City Manager	City of Chattahoochee
Dennis Henderson	Town Manager	Town of Greensboro
Tracy Smith	Town Manager	Town of Havana
Roosevelt Morris	Building Inspector	Gadsden County
Alan Meeks	Facilities Manager	Gadsden County
Jeremiah Lee	Public Works/Roads & Bridges	Gadsden County

Summary of the Planning Process

LMS Committee/Workgroup Meetings: Local Mitigation Strategy Meetings were held at the Gadsden County Sheriff's Office, 339 E. Jefferson Street, Quincy, FL 32351. The LMS meetings have continued to occur no less than annually since FEMA's approval of the 2016 Plan (i.e., the five year-planning cycle 2016-2022). ***See Appendix I for the meeting notices or advertisements, agendas, attendee sign-in sheets and meeting minutes.***

Gadsden County LMS Plan Update 2022

The procedure or direction used by the Gadsden County LMS Committee/Workgroup is based on the following important concepts:

- A comprehensive and dedicated planning group representing both jurisdictions within Gadsden County that establishes specific goals and objectives to address the community's vulnerabilities to the hazards that affect the community.
- It utilizes an analysis of the identified hazards, the risk evaluation and vulnerability assessment.
- Mitigation projects by the specific jurisdiction or organization with the authority and responsibility for the project implementation.

The planning process begins with the development of the Committee/Workgroup as an organization and obtaining participation from the local government jurisdictions and key organizations and institutions. The planning work conducted to develop this document relies heavily on the expertise of the participating agencies and organizations, rather than on detailed scientific or engineering studies. The Committee/Workgroup relies on the best judgment of the participating individuals, because of their role in the community, which can achieve a level of detail in the analysis that is more than adequate for purposes of local mitigation planning.

Analyzing the need for the community and then evaluating proposed mitigation projects to avoid or minimize vulnerability of the community to future disasters is important, and an area that will be reviewed and addressed on an annual basis. The goals and objectives set by the Committee are intended to help focus the effort of the participants by directing attention to certain types of neighborhoods, or by emphasizing implementation of selected types of proposed mitigation projects.

The Committee/Workgroup initially establishes a planning schedule for the upcoming planning period that allows the participants to anticipate their involvement in the technical analyses and evaluations. The Committee reviews the current LMS Goals and Objectives and the Master List of Mitigation Projects and Initiatives (see Section 5) in guiding the planning efforts.

Conducting the needed analyses and then proposing mitigation projects to avoid or minimize vulnerability of the community to future disasters is a time-consuming process. Therefore, for the planning period, the goals and objectives set by the Committee are intended to help focus the effort of the participants by directing attention to certain types of facilities or neighborhoods, or by emphasizing implementation of selected types of proposed mitigation initiatives or projects.

Hazard Identification and Risk Estimation: The Committee/Workgroup analyzes the natural hazards that threaten all or portions of the community. Where possible, specific geographic areas subject to the impacts of the identified hazards are delineated. Data is analyzed on previous occurrences for the natural hazards. In addition, the Committee uses general information to estimate the relative risk of the various hazards as an additional method to focus their analysis and planning efforts. They compare the likelihood or probability that a hazard will impact an area, as well as the consequences of that impact to public health and safety, property, the economy, and the environment. This comparison of the consequences of an event with its probability of occurrence is a measure of the risk posed by that hazard to the community.

Depending on the participating jurisdiction, a variety of information is obtained regarding hazard identification and risk estimation. The planners representing the jurisdiction attempt to incorporate consideration of hazard specific maps, including flood plain delineation maps, whenever applicable, and GIS-based analyses of hazard areas and the locations of critical facilities, infrastructure components and other properties located within the defined hazard areas.

Gadsden County LMS Plan Update 2022

Estimating the relative risk of different hazards is followed by the assessment of the vulnerabilities in the areas of potential impact to the types of physical or operational agents potentially resulting from a hazard event. (Refer to Section 4, Hazards, Risk and Vulnerability Assessment.)

Vulnerability Assessment: There are two procedures available to the Committee to assess the communities' vulnerabilities to future disasters.

- ▶ Analyze and examine the vulnerabilities of the important facilities, systems, and neighborhoods to the impacts of future disasters. For the participating jurisdictions and organizations, the individuals most familiar with the facility, system or neighborhood will provide a guided, objective assessment process established by Committee, and a complete the analysis and examination details.

The process ranks both the hazards to which the facility, system or neighborhood is most vulnerable, as well as the consequences to the community should it be disrupted or damaged by a disaster. This process typically results in identification of specific vulnerabilities that can be addressed by specific mitigation projects that can be proposed and incorporated into this plan.

The LMS Committee will review past occurrences and decide on the need for specific mitigation projects based on the type or location of damage they caused. Analysis on these experiences can result in the formulation of specific mitigation projects for incorporation into the plan.

- ▶ The second method for assessment of community vulnerabilities involves comparison of the existing policy, program and regulatory framework promulgated by local jurisdictions to control growth, development and facility operations in a manner that minimizes vulnerability to future disasters.

The Committee/Workgroup members can assess the individual jurisdictions' existing codes, plans, and programs to compare their provisions and requirements against the hazards posing the greatest risk to that community. If indicated, the participating jurisdiction can then propose development of additional codes, plans or policies as mitigation projects for incorporation into the Gadsden County LMS for future implementation when it is appropriate to do so.

Source Documents and Jurisdictional Authority: The Committee/Workgroup consulted, reviewed, and analyzed the following documents:

- ✓ Gadsden County Land Development Code
- ✓ Gadsden County Code of Ordinances
- ✓ Gadsden County Stormwater Policies & Procedures Manual
- ✓ City of Chattahoochee Code of Ordinances
- ✓ City of Gretna Code of Ordinances
- ✓ City of Midway Code of Ordinances
- ✓ City of Quincy Code of Ordinances
- ✓ Town of Greensboro Code of Ordinances
- ✓ Town of Havana Performance Zoning Ordinances
- ✓ NFWMD Strategic Water Management Plan
- ✓ Enhanced State Hazard Mitigation Plan

Gadsden County LMS Plan Update 2022

- ✓ Gadsden County List of Critical Facilities which includes Facilities Storing Hazardous Materials
- ✓ Gadsden County Comprehensive Emergency Management Plan (CEMP)
- ✓ Gadsden County Comprehensive Plan (COMP)
- ✓ Gadsden County Ingestion Pathway Plan, 2016

Over the last five years, the only planning mechanism updated to ensure consistency with the LMS Plan was the updated Comprehensive Emergency Management Plan, which was adopted by the Florida Division of Emergency Management on June 22, 2022 and was formally adopted by the Gadsden County Board of Commissioners on August 2, 2022.

Each jurisdiction and special district have the authority vested in them in accordance with federal, state and local laws to adopt or amend local laws, policies and programs including, but not limited to, those concerning growth management and disaster response, recovery and mitigation efforts, e.g., Comprehensive Plan, zoning ordinances, building codes, CEMP, etc. Refer to Section 6, Plan Evaluation, Maintenance and Adoption for discussion on incorporation of documentation into the Plan update.

Hazard Mitigation Projects: Developing hazard mitigation projects or initiatives enables the Committee/Workgroup participants to prioritize the most significant vulnerabilities and define specific hazard mitigation projects to eliminate or minimize those vulnerabilities.

Once the highest priorities are defined, the Committee/Workgroup members can identify specific mitigation projects for the plan that would eliminate or minimize those vulnerabilities. This procedure involves describing the project, relating it to one of the goals and objectives established by the Committee, and justifying its implementation based on its economic benefits and/or protection of public health and safety, as well as valuable or irreplaceable resources.

The proposed mitigation projects are prioritized and scored for implementation in a consistent manner by each participating organization based on technical merit, the cost effectiveness, and acceptability by the public upon implementation. In addition, points are awarded for each goal and/or objective supported by the project or program from the LMS. In characterizing a mitigation project for incorporation into the LMS plan, it is important to recognize that the level of analysis conducted by each organization involved has been intentionally designed to be appropriate in this stage in the planning process.

In the interest of the LMS Committee/Workgroup to have a satisfactory level of confidence that a proposed mitigation project, when it is implemented, will be cost effective, feasible to implement, acceptable to the community, and technically effective in its purpose. To do this, the technical analyses conducted, including the development of a benefit to cost ratio for each proposal, have been based on a straightforward, streamlined approach, relying on the informed judgment of experienced local officials.

The analyses have not been specifically designed to meet the known or anticipated requirements of any state or federal funding agency, due largely to the fact that such requirements can vary with the agency and type of proposal. Therefore, at the point when the organization proposing the project is applying for funding from any state or federal agency, or from any other public or private funding source, that organization will then address the specific informational or analytical requirements of the funding agency. (Refer to Section 5 for a detailed

discussion on the prioritization process.)

Developing the Local Mitigation Strategy Plan: After the vulnerability assessment has been performed and mitigation projects are identified, the information used to characterize the project is submitted to the Committee/Workgroup for review and inter-jurisdictional coordination.

The Committee/Workgroup members assure that the proposal is consistent with the goals and objectives established by each jurisdiction for the planning period. Once the Committee/Workgroup has reviewed and coordinated the submitted project, it is formally considered for incorporation into the Gadsden County LMS. The proposed project is identified as consistent with the goals and objectives for the planning period and would be beneficial for the community as a whole if and when implemented. If so, the Committee then informally votes to incorporate the proposed project into the strategy.

At an annual, semi-annual, or quarterly LMS meeting, each mitigation project included in the plan is evaluated to determine the following:

- If the project or initiative should remain as a valid and ongoing project (deferred until a later time due to funding).
- If the mitigation project is completed (all details are gathered on the hazard(s) mitigated, mitigation goals achieved, jurisdiction, funding source, total cost to complete the project, agency responsible for implementation, timeline to complete the project, and any specific details relevant to the project).
- If the project should be removed or deleted from the mitigation project list (LMS plan); and if there are any new projects that should be added to the mitigation project list (LMS plan). See Section 5, Mitigation Strategy for the details on the ongoing, completed, deleted or new mitigation projects for Gadsden County.

Approval of the Current Edition of the Plan: At the end of each planning period, a plan document such as this is prepared for release to the community and for action by the governing bodies of the jurisdictions and organizations that participated in the planning process. (Reference Section 6.)

Implementation of Approved Mitigation Projects: Once incorporated into the Gadsden County LMS, the agency or organization proposing the project becomes responsible for its' implementation, if feasible, otherwise it could be assigned to another department, if the LMS Committee/Workgroup votes and all agree on the decision for the other organization. This could be developing a budget for the effort or making application to state and federal agencies for financial support for implementation.

On-going Activities of the LMS Committee/Workgroup

To support the participating jurisdictions in the completion of the community profiles and vulnerability assessments, the Committee/Workgroup will set a review for each technical step, provide training in the evaluation, if needed, and distribute the necessary forms for completion.

The support staff supporting the LMS Committee/Workgroup is from the Gadsden County Emergency Management Department. The staff facilitated the work of the

Gadsden County LMS Plan Update 2022

Committee/Workgroup by advertising the LMS meetings, notifying the members and the public on the upcoming meeting, preparing the meeting agenda, completing the meeting minutes, updating the LMS mitigation project list, keeping documented data on the natural hazard events that occur, and providing technical assistance or direction on the analysis as needed. The participating jurisdictions, organizations, and individuals in the Gadsden County LMS Committee/Workgroup have all worked diligently to complete this plan and will continue to do so in the future to create a truly disaster resistant community for the benefit of all its citizens.

Summary of Updates:

1. Updated list of applicable CFR citations
2. Updated list of LMS Committee/Workgroup Membership, see table 2.1, and clarified that School Board is a special district.
3. Incorporated and referenced LMS Committee meeting documentation as Appendix 1
4. Updated references to show current Plan year.
5. Updated references to newspapers for legal notices of public meetings and added physical locations for citizens to review paper copy of LMS Plan updates and added documents to County website.
6. Added, CEMP, list of Critical Facilities, List of Facilities Storing Hazardous Materials and Gadsden County Ingestion Pathway Plan 2016 to list of source documents reviewed.
7. Added language explaining local jurisdictions authority and role regarding creating and updating local laws, policies, and programs.
8. Added language explaining that the CEMP was only plan updated based on LMS Plan.
9. Minor editing and formatting for clarity and cohesiveness with other sections of the LMS Plan.

End of Section 2: Planning Process

####

Section 3 - Geography, Demographics and Land Use

Requirement: §201.6 (c) (2) (ii)(C) – [The plan should describe vulnerability of in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Geography of Gadsden County

Gadsden County is in the Florida's northwest Panhandle Region and part of the Tallahassee Metropolitan Statistical Area. Created in 1832, Gadsden County is named for James Gadsden of South Carolina, who served as Andrew Jackson's aide-de-camp in Florida in 1818. The county was historically known for its tobacco crop, which is obsolete today. The county is bordered by Decatur and Seminole counties Georgia on the north; Grady County, Georgia on the northeast; Leon County, Florida on the east; Liberty and Calhoun counties Florida on the southwest, and Jackson County, Florida on the northwest. The county seat is Quincy and is ranked the 43rd populous county in Florida.

The total area of Gadsden County is 529 square miles (338,560 acres), of which 517 miles (331,025 acres) is land, and 12 square miles (7,680 acres) is water. Residential, commercial, and industrial development is widely dispersed around the county. Areas with the largest development generally occur in and around the communities of Chattahoochee, Quincy, and Havana. Productive timberland and agriculture areas account for 90 percent of the county's developed land (Gadsden County, Florida, Comprehensive Plan).

Topography: The topography is generally between 150 and 300 feet National Geodetic Vertical Datum of 1929 (NGVD) with forested areas and rolling hills interspersed with five small creeks, lakes, and rivers. Low areas exist along the broad, flat floodplains of the Apalachicola River, Ochlocknee River, and Lake Talquin, with elevations generally under 100 feet NGVD.

Demographics

Gadsden County is Florida's 43rd most populous county (out of 67 counties). See Table 3.1. following page, for data on the demographics of Gadsden County.

Gadsden County LMS Plan Update 2022

TABLE 3.1 Demographics for Gadsden County

July 1, 2021, Estimate – US Census QuickFacts	43,714
% change 2015- 2021	-9.5%
2025 Projection based on 2021 estimate – BEBR - medium	44,100
% change 2021 – 2025	0.9%
2030 Projection based on 2021 estimate – BEBR - medium	44,300
% change 2021 – 2030	1.3%
Estimated population by jurisdiction, 2021 – BEBR	
City of Quincy	7,886
City of Chattahoochee	2,741
City of Gretna	1,365
City of Midway	3,617
Town of Greensboro	471
Town of Havana	1,777
Unincorporated Gadsden County	25,956
Estimated Density – Person per square mile, 2021 US Census QuickFacts	
2010	89.8
2021	84.7
Distribution of Population by Age, percent, 2021, US Census QuickFacts	
Persons under 5 years	6.0%
Persons under 18 years	21.6%
Persons 65 years and over	18.7%
Percent in Poverty, 2020	
All ages in poverty – FL EDR	21.9%
Under age 18 in poverty – FL EDR	34.9%
Ages 5-17 in families in poverty – FL EDR	32.5
The Population figures differ according to the inclusion of inmates in the County's correctional facilities and the State Hospital.	
Gadsden Correctional Institution, Re-Entry Center, and Annex Work Camp – total capacity:	2,384
Gadsden County Jail – total capacity:	156
State Hospital – total capacity	1,042

Gadsden County LMS Plan Update 2022

Housing Units, 2020, US Census, from Florida Office of Economic and Demographic Research ("FL EDR")	18,929	
Occupied, FL EDR	16,806	
Owner-occupied/Renter-occupied*	12,330	4,476
Vacant FL EDR	2,123	
* - Based on the proportion of owner-occupied to renter-occupied housing in the 2010 census.		
Mobile Home Units - 4,500 – 5,000 ** - see below		
According to the property appraiser's office, as of June 2016, the best guess for the number of mobile home units located throughout Gadsden County is 4,500 – 5,000, approximately 36% + of the residents live in mobile homes.		
** - The exact number of mobile home units was not available due to these specifics:		
A. If a mobile home resident does not renew the registration decal, then they are not counted in the tax collector's office records.		
B. Specifics from the Florida Highway Safety and Motor Vehicles (FLHSMV) Department on "registered mobile homes" has a total count from over 50 years + of registered vehicles and if the mobile home has been demolished, or no longer residing in the county, it is not removed from the master list. Therefore, the number of registered mobile homes in Gadsden County per the FLDHSMV as of 2/1/15, 6,671 mobile homes cannot be considered current data. [As of 4/3/22, 6,871 mobile homes were registered in Gadsden County per the FLDHSMV]		
C. Also, all mobile homes would need to be identified if they are a single unit or a doublewide unit.		
<i>Mobile Home Residents</i> (see details below for further information)		
Per the US Census, American Community Survey, 2020, the 5-Year Estimates on population in occupied housing units by tenure is:	Owner Occupied – 30,836 persons	Renter Occupied - 11,184 persons
Per the US Census, American Community Survey, 2020, the 5-Year Estimates on number of occupied housing units by tenure is:	Owner Occupied – 12,643 units	Renter Occupied - 4,664 units

Sources: US Census Bureau, and the Bureau of Economic and Business Research, University of Florida

County Structures: The number of parcels (count) data shown in Table 3.2 below, is from the Department of Revenue Property Tax Oversight data and will be used for impact.

Real and Tangible Property Just Value: As stated, in the Florida Department of Revenue's Statewide Property Tax Overview (2021), the total Just Value of the real property parcels and the tangible personal property for the County are: \$2,561,174,171 - see Table 3.2.

The "just value" is the fair value of property for tax purposes. It describes the full cash or market value of property and is the price at which the property would most likely sell.

Table 3.2 – Total Just Value Real Property and Tangible Personal Property, 2021

Gadsden County- Property Type	# of Parcels	Just Value
Single Family Residential	14,874	\$1,268,071,730
Multi-Family Residential	198	\$36,289,424
Agricultural	3,461	\$659,492,158
Vacant Residential	5,529	\$64,634,961
Vacant Acreage	535	\$27,451,263
Commercial and Industrial	649	\$208,881,809
Government	715	\$192,382,422
Vacant Commercial and Industrial	307	\$13,836,866
Institutional	470	\$77,207,414
Miscellaneous	1,071	\$12,926,124
Total Real Property Value		\$2,561,174,171

Source: State of Florida, Department of Revenue Property Tax Oversight, published 2022.
https://floridarevenue.com/property/Documents/2021_County_Profiles.

Land Use

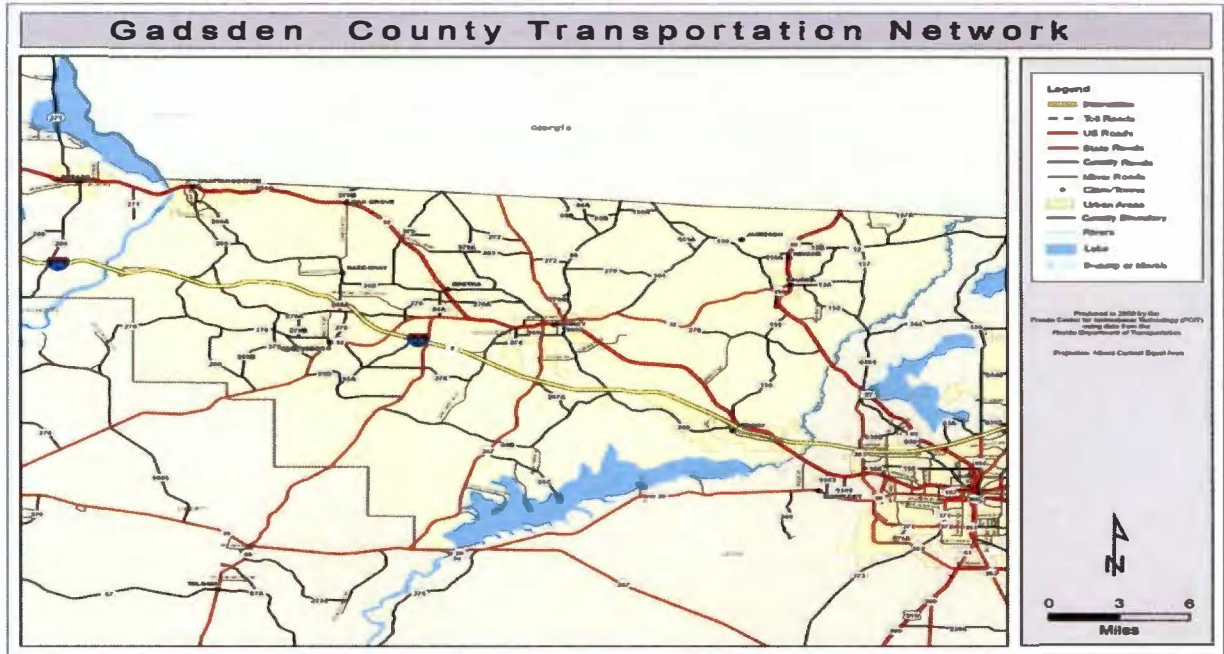
Land use in this area is predominately forested and pasture with some areas of low density residential, which are subject to disaster caused by weather phenomenon or wildfires, and consists of wildlife and water management areas, which are ecologically sensitive. The land use patterns are influenced by the waterways and road system.

In addition, as stated by the 2017 Census of Agriculture, there were 522 farms, accounting for 66,243 acres of farmland, or approximately 20% of the total County area, and the market value of agricultural products sold at \$90,491,000 in 2017, the effects of drought could severely impact this industry. Historically, Gadsden County produces significant agricultural revenue from the production of quail, timber, cotton, corn, and peanuts.

Changes in Development: In the last five years (2016-2021) there were no developments, Comprehensive Plan amendments or zoning changes affecting the unincorporated areas of Gadsden County or its jurisdictions that increased vulnerability to flooding, fires, evacuation routes or other potential hazardous risks.

Gadsden County Road Network: The major highway system serving Gadsden County is Interstate 10, the main west-to-east interstate highway in the county. It contains four interchanges: CR 270A, SR12, SR267, and US 90. US 27 is the sole south-to-north US highway and runs through the northeastern part of the county. Other state roads include SR65 and SR159. Figure A below provides a glimpse of Gadsden County’s roads (Map Source: <http://fcit.usf.edu/florida/maps/pages/12200/f12266/f12266.htm>)

Figure 3.A: Gadsden County Roads



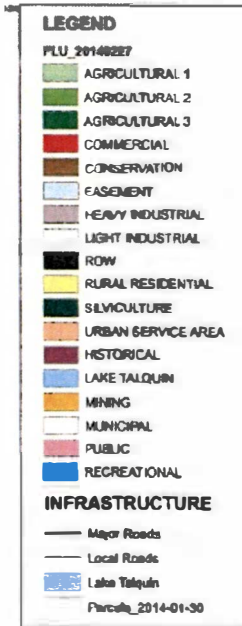
Current Land Use: As stated earlier, the primary land uses in the county are agricultural, forestry, and conservation, which are subject to natural disasters caused by weather phenomenon or wildfires, and consist of wildlife and water management areas, which are ecologically sensitive. Approximately 65% (213,379 acres) of the land use in Gadsden County is agriculture 1, 2, and 3, and 5% (16,867 acres) is conservation.

Future Land Use and Trends: The Future Land Use Plan Map (FLUM), see Figure C below, identifies the classification areas for Gadsden County. They are as follows; agriculture, commercial, conservation, easement, heavy industrial, light industrial, row, rural residential, silviculture, urban service area, historical, Lake Talquin, mining, municipal, public, and recreational. The map reveals that the land use is predominately agricultural (forest/timberland and pasture area – approximately 70%).

With an overall population growth expected to increase at a very slow rate, 0.9%, during the period 2021 - 2025, and then for the period 2025-2030, 0.5%, and in evaluating the data on Gadsden County's population, the projected land use for the county will remain predominately agricultural and forested area.

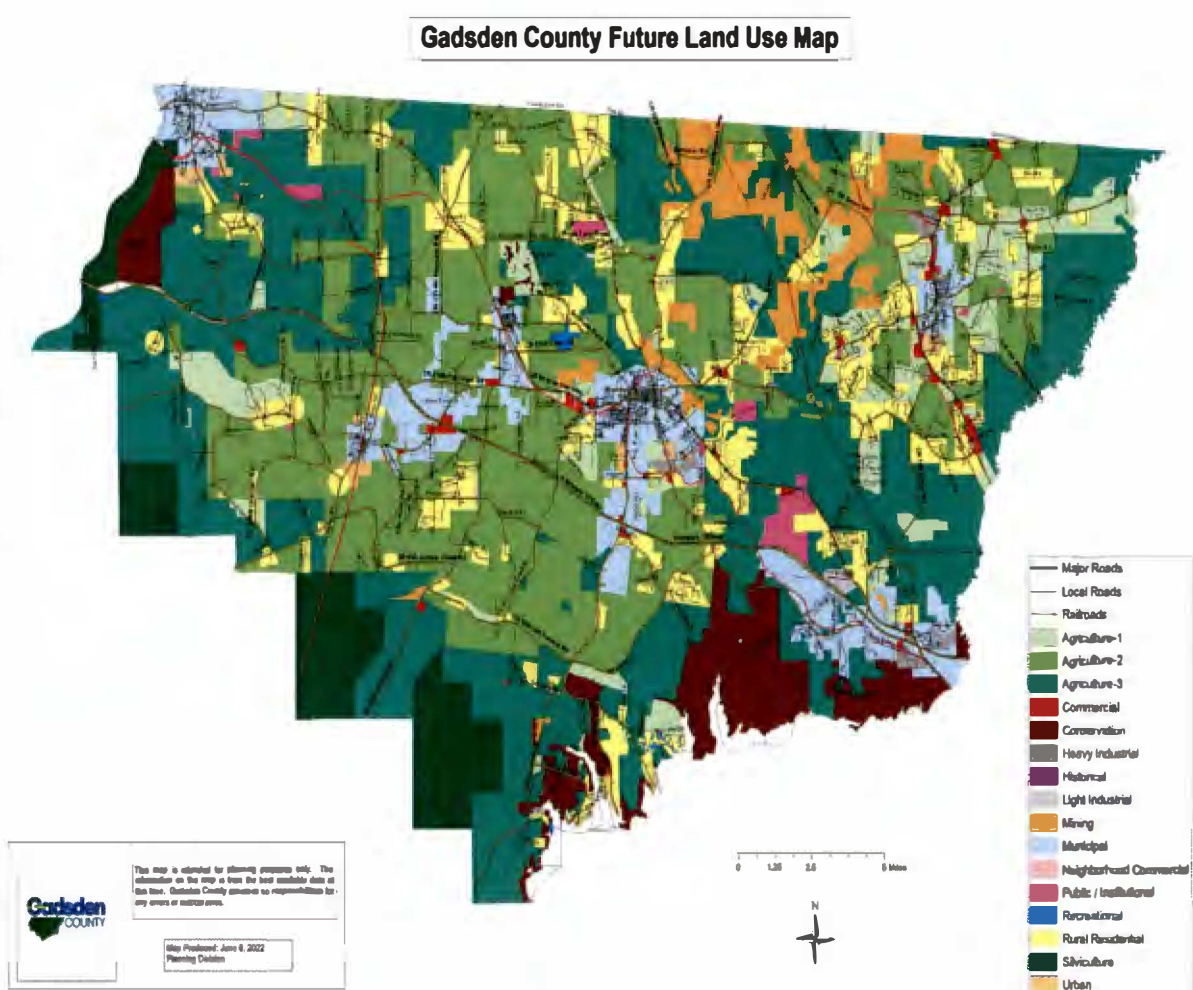
Gadsden County LMS Plan Update 2022

Figure B – Map Legend for the Future Land Use (Figure C)



ZONE	ACREAGE	PERCENT
AGRICULTURE 1	18,574	5.61
AGRICULTURE 2	92,720	28.01
AGRICULTURE 3	102,085	30.84
COMMERCIAL	1,535	0.48
CONSERVATION	16,867	5.10
EASEMENT	510	0.15
HEAVY INDUSTRIAL	1,227	0.37
HISTORICAL	22	0.01
LAKE	5,876	1.77
LIGHT INDUSTRIAL	298	0.09
MINING	11,779	3.56
MUNICIPAL	22,912	6.92
PUBLIC	2,759	0.83
RECREATIONAL	412	0.12
RIGHT-OF-WAY	274	0.08
RURAL RESIDENTIAL	33,262	10.05
SILVICULTURE	18,449	5.57
USA	1,407	0.43
TOTAL	331,025	99.99

Figure 3.C– Future Land Use Map



Summary of Changes:

1. Demographics data in Table 3.1 and associate narrative were updated to reflect most current available data.
2. Agricultural data were updated per most recent Census of Agriculture (2017)
3. Land Use was updated to reflect the most current land uses and future trends.
4. Added subsection "Changes in Development" under Land Use.
5. Non-substantive editing and formatting for clarity and cohesiveness with the Plan sections.
6. Replaced 2014 Gadsden County Future Land Use Map (FLUM) with FLUM, dated 2022.
7. Updated Just Value data per most recent DOR dataset on 6/14/22.

End of Section 3 Geography, Demographics and Land Use

#####

Section 4 – Hazards, Risk, and Vulnerability Assessment

Requirements:

§201.6 (c) (2) (i) - A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan must include information on previous occurrences of hazard events and on the probability of future hazard events.

§201.6 (c) (2) (ii) - A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description must include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:

(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate;

(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

§201.6 (c) (2)(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

Section 4 of the Gadsden County Local Mitigation Strategy summarizes the results of the hazard identification and vulnerability assessment processes undertaken by the LMS Committee/Workgroup members.

The intent of this section is to provide a summary compilation of the information gathered and the judgments made about the hazards threatening Gadsden County, and the potential vulnerability to those hazards. This assessment will allow county officials and residents to make fully informed decisions as to the scope of the natural hazards, how severe the threat can be, and the priority to which they should mitigate those threats.

While many of the hazards discussed in this section are relevant to Gadsden County and the participating jurisdictions, selected however, natural hazards (earthquake, coastal erosion, and tsunami) will not be profiled due to the low probability of occurrence, based upon there being no historical record of such occurrence within Gadsden County and the geographic location and unique characteristics of the planning area, including not being located on the coast.

Many of the hazards discussed in this section typically occur together or follow one another in sequence, for example, lightning and high wind hazards are typically associated with thunderstorms and flooding often occurs as the result of hurricanes. Due to the relationship of these hazards with one another, their combination or separation in the following discussion is based solely on local preference and is not intended to ignore these relationships.

Hazards Profiled

The Hazards profiled and considered a threat to Gadsden County and discussed in Section 4 are as follows:

Table 4.1 –Hazards Profiled for Gadsden County

Flooding
Dam/Levee Failure
Sinkholes
Hurricanes/Tropical Storms
Tornadoes
Thunderstorms/High Winds/ Lightning and Hailstorms
Landslide
Wildfires
Drought/Heat Wave
Winter Storms/Freezing Temperatures
Infection Disease/Pandemic
Terrorism/Cyber Attacks
Hazardous Materials
Radiological Events

Approach to Profiling Each Hazard

Vulnerability Assessments: The LMS plan assesses the community’s vulnerability of the hazard’s impact on the community and its vulnerable structures by providing the following:

- Description of all types of natural hazards that can affect the community.
- Description of the probability, location, vulnerability, extent, and impact of each identified hazard that can affect the jurisdiction.
- An assessment of each jurisdictions risk where they vary from the risks facing the entire community for each hazard identified.
- An estimate of the potential dollar losses to vulnerable structures, if available.
- POLICY: As additional data becomes available, Gadsden County will update the vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Modifications were made to each 2016 profiled hazard to reflect current information and data, and for clarity. Three new hazards were profiled and addressed to reflect current threats: Infectious Disease/Pandemic; Terrorism/Cyber Attacks; Hazardous Material; and Radiological Events.

Probability Assessments: Throughout the hazard section, the probability of future events will be determined for the natural hazards. The probability or “chance of occurrence” is defined using an ordinal scale. The scale is as follows:

Gadsden County LMS Plan Update 2022

Low = At least 1 occurrence every 10 years

Medium = At least 1 occurrence every 3 years

High = At least 1 occurrence every year

Extent Assessment: Throughout the hazard section the extent statements will be determined for the hazards. The statements will be based on the range of magnitude or severity that the county could experience using a scientific scale or a quantitative measurement. Types of scientific scales:

- Enhanced Fujita Scale for tornadoes
- Saffir-Simpson Hurricane Wind Scale for hurricanes/tropical storms
- Palmer Drought Severity Index for droughts

Quantitative measurements were based on historical occurrences recorded:

- Flood depth for floods
- Length, width, and depth for sinkhole measurement (if available)
- Acres burned for wildfires
- Heat index for heat wave
- High, medium, or low based on the previous event occurrence

Data from the following sources were used in the profiling of each hazard identified:

- 1) Gadsden County Emergency Management Department Office;
- 2) Gadsden County Planning & Development Department;
- 3) Gadsden County Building Inspection Department;
- 4) Gadsden County Property Appraiser's Office;
- 5) Gadsden County Health Department;
- 6) National Oceanic and Atmospheric Administration (NOAA);
- 7) National Climatic Data Center (NCDC);
- 8) National Weather Service (NWS);
- 9) Florida Forest Service;
- 10) United States Geological Survey (USGS);
- 11) United States Department of Agriculture;
- 12) National Integrated Drought Information System (NIDIS);
- 13) Federal Emergency Management Agency (FEMA);
- 14) Florida Department of Environmental Protection (DEP);
- 15) Apalachee Regional Planning Council;
- 16) Florida Division of Emergency Management
- 17) Florida Climate Center;
- 18) U.S. Bureau of the Census
- 19) Florida Bureau of Economic and Business Research, and the
- 20) Northwest Florida Water Management District (NFWFMD).

Impact Assessment: The impact is the consequence or effect of the hazard on the community and its assets. In evaluating the "impact" for Gadsden County, historical detail impacts and/or an estimate of potential losses were noted within the hazards identified. If a momentous and devastating storm decimated the entire county, then potential dollar costs would probably be based on the "just value figure" discussed in Section 3.

Gadsden County LMS Plan Update 2022

The hazards that are profiled are based on previous occurrence data. The aftermath from each hazard event can bring different results to Gadsden County, its structures, infrastructure and utilities, transportation networks, its economy, and its environment. Details are analyzed and reported as to the “impact” for each hazard identified. See Table 4.2 for the impact summary on the various structures and infrastructure for the county.

Table 4.2- Impacts on Structures and Infrastructure from the Identified Hazards in Gadsden County

Impacts on Structures and Infrastructure from Identified Hazards	All Structures	Mobile Homes	Poorly Constructed Homes	Non-Elevated Homes	Telecommunications	Electrical Utilities	Water / Sewer Utilities	Roadways	Waterways	Agriculture	Economic Disruption	Environmental Damage
Flooding	X	X	X	X	X	X	X	X	X	X	X	X
Dam/Levee Failure		X	X	X				X		X	X	X
Sinkholes		X	X				X	X		X	X	X
Hurricanes/Tropical Storms	X	X	X	X	X	X	X	X	X	X	X	X
Tornadoes	X	X	X	X	X	X		X		X	X	X

Table 4.2- cont'd

Impacts on Structures and Infrastructure from Identified Hazards	All Structures	Mobile Homes	Poorly Constructed Homes	Non-Elevated Homes	Telecommunications	Electrical Utilities	Water / Sewer Utilities	Roadways	Waterways	Agriculture	Economic Disruption	Environmental Damage
Thunderstorm/ Wind		X	X		X	X				X		
Lightning		X	X			X				X		
Hailstorms		X	X							X		
Landslide		X	X	X				X	X	X		X
Wildfires	X	X	X	X	X	X		X		X	X	X
Drought							X		X	X	X	X
Heat Wave							X			X		X
Winter Storm		X	X			X		X	X	X	X	X
Freeze		X	X		X	X		X	X	X	X	X
Infection Disease/Pandemic											X	
Terrorism/Cyber Attacks											X	
Hazardous Materials	X									X		X
Radiological Event	X						X		X	X	X	X

Disaster Declarations History – past events

When a disaster strikes that overwhelms the ability of local communities to respond, the President's action authorizes the Department of Homeland Security, Federal Emergency Management Agency (FEMA), to coordinate all disaster relief efforts which have the purpose of alleviating the hardship and suffering caused by the emergency on the local population, and to provide appropriate assistance for required emergency measures, authorized under Title V of the Stafford Act, to save lives and to protect property and public health and safety and to lessen or avert the threat of a catastrophe in the county. Table 4.3 lists the disaster declarations from September 2004 – June 2022, that have occurred in Gadsden County.

Gadsden County LMS Plan Update 2022

Table 4.3 - Disaster Declarations for Gadsden County (September 2004 – June 2022)

Declaration #/ Date	Incident Date Range	Hazard Event	Individual Assistance	Public Assistance
#1545 / 9/4/2004	9/3/2004 – 10/8/2004	Hurricane Frances		X
#1551/ 9/16/2004	9/13/2004 – 11/17/2004	Hurricane Ivan		X
#3220/ 9/5/2005	8/29/2005 – 10/1/2005	Hurricane Katrina Evacuation		X
#3288/ 8/21/2008	8/18/2008 – 9/12/2008	Tropical Storm Fay	X	X
#1785/ 8/24/2008	8/18/2008 – 9/12/2008	Tropical Storm Fay -	X	X
#1831/ 4/21/2009	3/26/2009 – 5/5/2009	Severe Storms, Flooding and Tornadoes		X
#DR-4280, 9/28/16 2nd amendment	8/31/2016 - 9/11-2016	Hurricane Hermine		X
#EM-3385, 9/5/17	9/4/17 - 10/18/17	Hurricane Irma		X
#DR-4337 9/10/17 Amdt # 12	9/4/17 - 10/18/17	Hurricane Irma		X
#EM3405 10/9/18	10/7/18 - 10/19/18	Hurricane Michael		X
#DR-4399 10/11/18	10/7/18 - 10/19/18	Hurricane Michael	X	X
#EM-3419 8/30/19	8/28/19 - 9/9/19	Hurricane Dorian		X
#EM-3546 9/15/20	9/14/20 - 9/28/20	Hurricane Sally		X
#DR-4564 9/23/20	9/14/20 - 9/28/20	Hurricane Sally		X
#EM-3432 3/13/20	1/20/20 - continuing	Covid-19		X
#DR-4486 3/25/20	1/20/20 - continuing	Covid-19 Pandemic	X	X
#EM-3562 8/16/21	8/13/21-8/19/21	Tropical Storm Fred		X

Source: FEMA - www.fema.gov/disasters

Profiles of Each Disaster

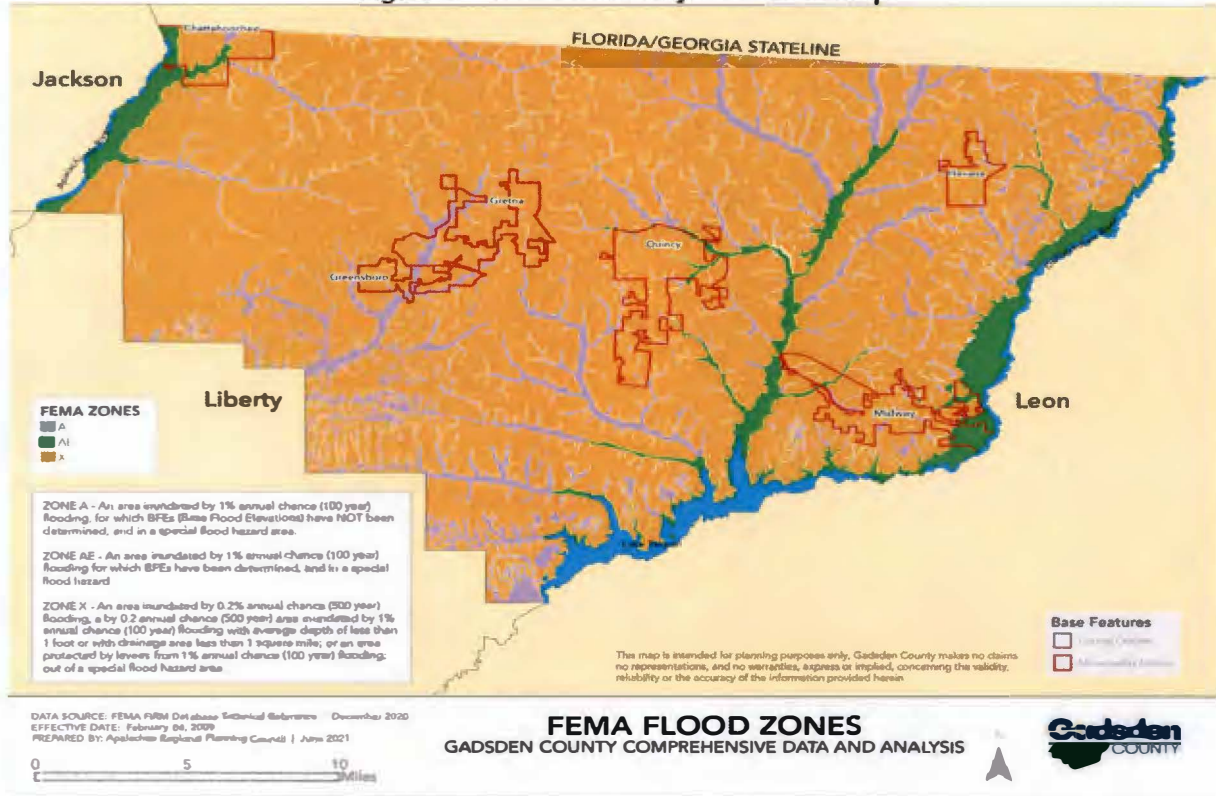
This portion of Section 4 provides a profile of each disaster event, as shown in Table 4.1, considered a risk to Gadsden County using the approach as discussed above.

FLOODING PROFILE

A flood is an overflow of water onto normally dry land and the inundation of a normally dry area

caused by rising water in an existing waterway, such as a river, stream, or drainage ditch, or the ponding of water at or near the point where the rain fell. Flooding is a longer-term event than flash flooding as it may last for days or even weeks. Several factors determine the severity of floods, including rainfall intensity, rainfall duration, topography, ground cover, and frequency of inundation, and the effectiveness of flood mitigation strategies. Floods are the most common hazard in the United States and the effects can be local, impacting a neighborhood or community, or regional, affecting entire river basins and multiple states. Some of the most significant flood losses are due to the failure of dams and levees.

Figure D – Gadsden County Flood Zone Map



Map Source: Gadsden County Planning Department; Apalachee Regional Planning Council

Some areas of Gadsden County are more flood-prone than others. The flood zone map, Figure D, above, shows those areas of Gadsden County and its municipalities, which are within the 100-year and 500-year floodplain as delineated by the FEMA as part of the National Flood Insurance Program (NFIP). These are areas that have a probability of flooding once every 100-years or 500-years respectively during any given year.

The classification of floodplains is due in part to the probability or return rate of a level of water; for instance, 100-year floods are calculated to be the level of flood water expected to be equal or exceeded every 100 years on average. This means a level of flooding has a 1% chance of being equaled or exceeded in magnitude in any single year; a 500-year floodplain has a 0.2% chance. Figure D, above, identifies the Zone AE flood zones in the county. The FEMA FIRM (Flood Insurance Rate Map) classifies the other flood zones within the county (X, A and AE) as defined in Table 4.4. below.

Table 4.4 – Flood Zone Definitions

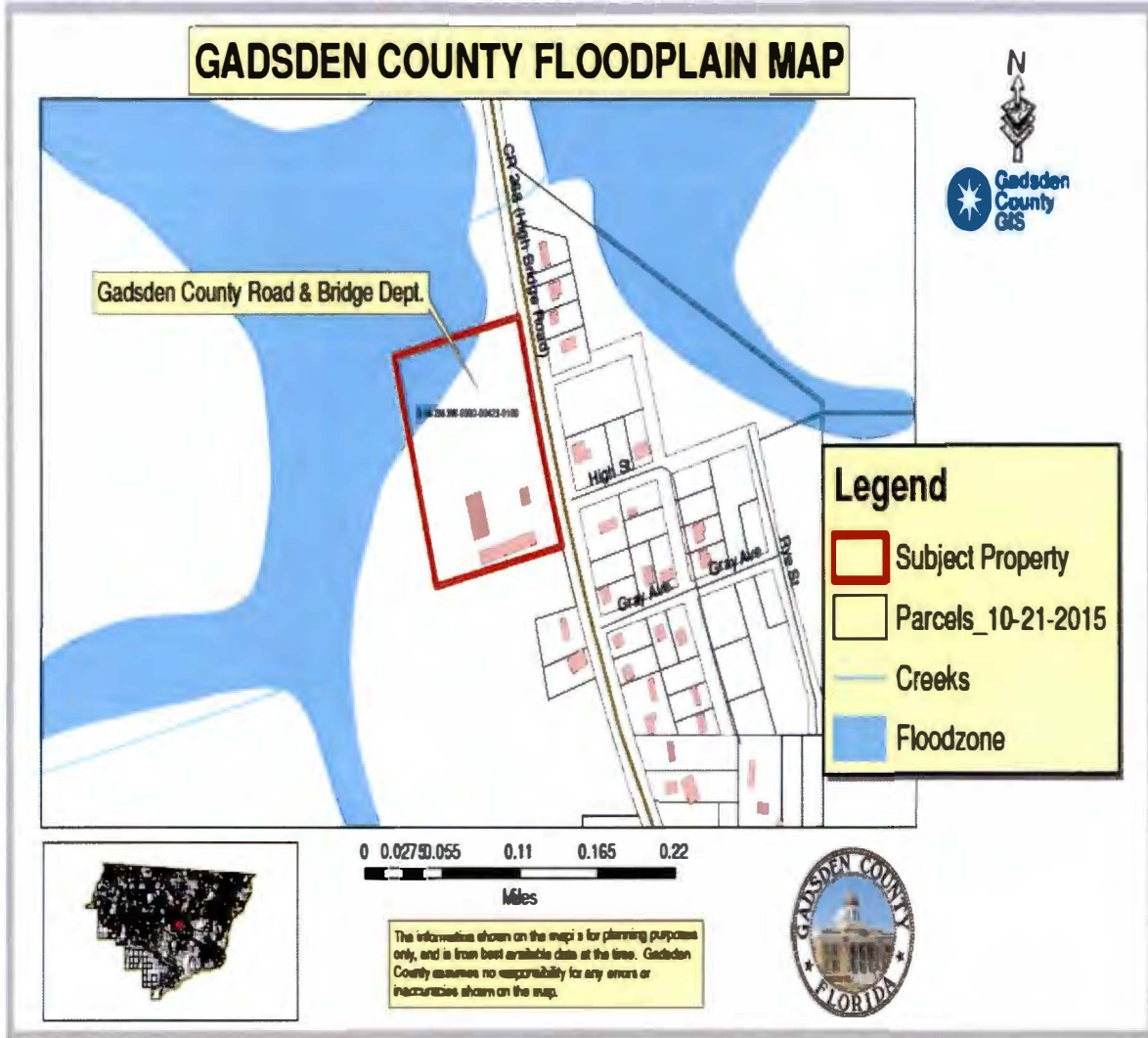
Zones	FEMA Flood Zone Definitions
Zone A	Areas subject to inundation by the 1-percent-annual-chance flood event (i.e., 100-year flood) generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.
Zone AE	Areas subject to inundation by the 1-percent-annual-chance flood event (i.e., 100-year flood event) determined by detailed methods. Base Flood Elevations (BFEs) are shown on the FEMA map products. Mandatory flood insurance purchase requirements and floodplain management standards apply.
Zone X Shaded	Areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood; 0.2% annual chance flood hazard; and, areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile.
Zone X Unshaded	Area that corresponds to areas outside the 1- percent annual chance floodplain, areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1- percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent annual chance flood by levees. No base flood elevations or depths are shown within this zone.

Special Flood Hazard Areas (SFHA) for Gadsden County: The county has three identified zones that are categorized in the Special Flood Hazard Areas (SFHA): AE, A, and X-shaded. The FEMA category of X-unshaded is the area with less than 1-Percent annual chance of flooding.

The SFHA is the land area covered by the floodwaters of the base flood on the NFIP map. The SFHA is the area where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The SFHAs in Gadsden County are land areas that are at high risk for flooding and can be identified by AE and A zones areas within the county. See Figures H and I for specifics on the zoned area locations.

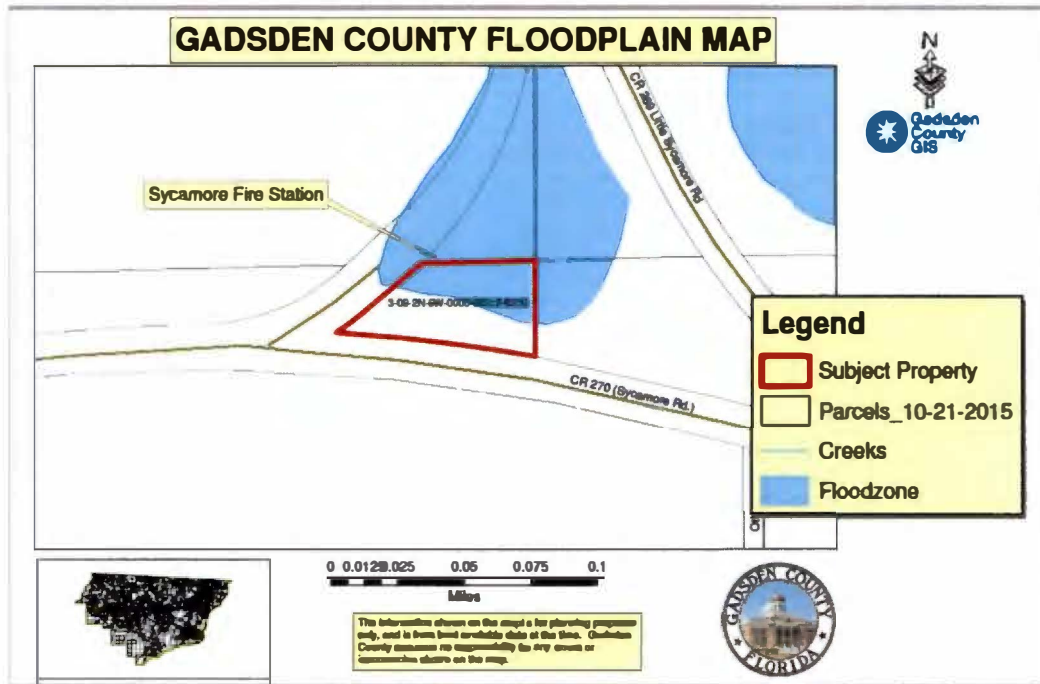
In addition, as stated by the County's Growth Management Department, there are two county buildings within Gadsden County that are located in special flood hazard areas that provide essential and important services for the community citizens before, during or after a hazard event and on a daily basis, as shown below in Figure E – The Gadsden County Road & Bridge Department and Figure F – The Sycamore Fire Station.

Figure E – Gadsden County Floodplain Map 1



Map Source: Gadsden County Planning Department

Figure F – Gadsden County Floodplain Map 2



Map Source: Gadsden County Planning Department.

Details from the FEMA Flood Insurance Study (FIS): The FIS covered the geographic area of Gadsden County, Florida. Flooding caused by overflow of the Little River, the Ochlockonee River, Attapulugus Creek, Swamp Creek, Quincy Creek, Richlander Creek, Bear Creek, Ocklawaha Creek, and the Apalachicola River was studied in detail.

Historical Flood Problems: In March 1929, the gaging station at Chattahoochee on the Apalachicola River recorded a stream flow of 293,000 cubic feet per second (cfs), which is the greatest observed flood at this station (USGS, 1985). The previous record was a flow of 246,000 cfs recorded in 1925.

Rainfall associated with a tropical disturbance exceeded 20 inches over a part of the county during September 20 through 23, 1969, and a maximum rainfall of record at Quincy-Havana area exceeded the 1 in 199-year probability (USGS, 1972). The Florida Department of Transportation noted 51 sites where the roads were closed due to high water or to the washout of bridges or culverts in the Gadsden County area. Many flood-measurement sites had peak discharges in excess of that of a 50-year flood.

Examples of the most severe floods affecting the study area are as follows:

1924 (September 14-15) - rainfall of record was more than 12 inches at Quincy (USGS, 1972).

1957 (October 1) - Heavy rains caused two breaks in the Jackson Bluff earthen dam on Lake Talquin, and released waters from the 6,800-acre lake in the Ochlockonee River Valley (the *Gadsden County Times*, January, 1958).

Gadsden County LMS Plan Update 2022

1969 (September 20-23) - Maximum rainfall of record occurred at Quincy with 10.87 inches during a 6-hour period on September 21. The 48-hour maximum rainfall of record was 17.71 inches (USGS, 1972).

1969 (September 20-23) - Flood flows were over the road at State Routes 12, 65, and 267 on Quincy Creek. Culvert at County Route 268 on Quincy Creek was washed out (USGS, 1972).

1986 (February 12) - The Ochlockonee River near Havana crested at flood stage of 33.5 feet. It was the second worst flooding since 1948, when the river reached 35.1 feet (The Post, February 1986).

Flood Occurrences: According to the National Climate Data Center (NCDC) there were flood, flash flood and heavy rain occurrences reported in Gadsden County over the last 72 years as shown below in Table 4.5.

Table 4.5 – Flood and Flash Flood Occurrences in Gadsden County – (2/1/1950 – 6/20/2022)

Location	Date	Time	Type	Dth	Inj	PrD	CrD
Gadsden (Zone)	3/10/1998	00:00	Flood	0	0	25K	0.00K
East Portion	9/14/2002	11:00	Flash Flood	0	0	10K	0.00K
Midway	8/23/2008	12:00	Flash Flood	0	0	100K	0.00K
Quincy	4/2/2009	11:00	Flash Flood	0	0	0.00K	0.00K
Midway	12/2/2009	12:35	Flood	0	0	0.00K	0.00K
Gretna	2/26/2013	5:28	Flash Flood	0	0	0.00K	0.00K
Douglas City	12/23/2014	19:53	Flash Flood	0	0	0.00K	0.00K
River Junction	12/01/18	17:56 - 21:00	Flood	0	0	0.00K	0.00K
Mount Pleasant	12/02/18 - 12/03/18	19:00 - 07:00	Flood	0	0	0.00K	0.00K
Quincy	8/18/19	14:25	Flash Flood	0	0	0.00K	0.00K
Sawdust	9/16/20	15:53	Flash Flood	0	0	0.00K	0.00K
Sycamore	3/18/22	22:00	Flash Flood	0	0	0.00K	0.00K
Juniper	3/18/22	22:24	Flash Flood	0	0	0.00K	0.00K
Totals:	Property Damage: \$135,000						

Source: <http://www.ncdc.noaa.gov/stormevents/listevents>

Key Code for Table 4.5: Dth: Deaths; Inj: Injuries; PdD: Property Damage; CrD: Crop Damage

Hazard Event Narrative

3/10/1998 – Gadsden Zone – Gadsden County was declared a federal disaster area. Floodwaters in the county closed SR 12 near Concord. The estimated property damage figure was \$25,000.

8/23/2008 – Midway – Tropical Storm Fay made its fourth landfall on Saturday, 8/23 near Carrabelle, Florida. That morning, Fay had tapped into the Gulf of Mexico’s moisture. A large feeder band began affecting areas east of the Apalachicola River during the morning, followed by more intense bands, which trained over the same locations during the afternoon and evening hours, producing extremely high rainfall

rates and subsequent flash flooding. Many roads and low-lying areas in the eastern portion of Gadsden County were flooded. The estimated property damage figure was \$100,000.

12/01/18 — River Junction — A significant flooding and severe weather event unfolded over the tri-state area during early December as showers and thunderstorms spread northward across the area for multiple days. Minor flooding was reported on a few roads in Gadsden County.

12/02/18 - 12/03/18 — Mount Pleasant — A significant flooding and severe weather event unfolded over the tri-state area during early December as showers and thunderstorms spread northward across the area for multiple days. A bridge washed out on Peck Betts Road due to a long duration of rainfall.

8/18/19 — Quincy — A multi-day, significant flooding event occurred, caused in part by a slow moving, weak area of low pressure in the northeast Gulf combined with a tropical airmass. Multiple rounds of thunderstorms trained over the same area, resulting in both flash flooding and areal flooding. As the low drifted slowly westward, some flash flooding occurred in and near a small area of Gadsden County. Flooding on West Flagler Street resulted in water affecting a few homes.

9/16/20 — Sawdust — Hurricane Sally made landfall early on the morning of September 16 across Gulf Shores Alabama. The greatest impacts to the tri-state area came in the form of very heavy rain and significant flooding on and away from area rivers. A portion of Cane Creek Road was washed out due to flooding.

Historical Flood

There was an additional flooding event that occurred December 28-29, 2015, however, specific details "if" there was any property damage in the county was not noted in the local media. The Tallahassee Democrat ran an article in three parts, that reveal that in Chattahoochee, the scenic River Landing Park, located on the Apalachicola River just south of the dam, was mostly underwater Tuesday. Locals said it was the worst flooding seen since 1998.

Edward McLeroy, who lives along near the Florida/Georgia border, went down to the park on Tuesday

"It's been 17 to 18 years since it got this high here," he said. "Every year when it floods, water comes up. But not like this."

The flooding is the result of as much as a foot and a half of rain in parts of Alabama and Georgia, Wool said. The water made its way down from the Flint and Chattahoochee rivers, which empty into Lake Seminole and flow into the Apalachicola River at the Woodruff Dam.

The U.S. Army Corps of Engineers at Lake Seminole have kept all gates on the dam open over the past few days, releasing more than a million gallons of water a second downstream.

River flooding submerges park



Buy Photo
Photo: Joe Rabinowitz/Democrat

River flooding continued Tuesday in parts of North Florida, the result of torrential rainfall last week in Georgia and Alabama. But conditions were expected to gradually improve over coming days, despite more rain in the forecast, said Mark Wool, meteorologist with the National

Weather Service in Tallahassee

Floodwaters submerged parks, boat landings and other recreational areas in Gadsden and Jackson counties but left homes mostly unscathed. Flood warnings were in effect for numerous spots along the Apalachicola River, including Blountstown and the Jim Woodruff Lock and Dam near Chattahoochee.

"Things are either improving or they're not likely to get much worse," he said. "We are expecting more rain this week, unfortunately. But it doesn't look like it's going to be enough to reverse the decreases we're beginning to see."

In Chattahoochee, the scenic River Landing Park, located on the Apalachicola River just south of the dam, was mostly underwater Tuesday. Locals said it was the worst flooding they've seen since 1998.

Floodwaters over-topped bathroom facilities, an outdoor stage, boat landings and trails at the park, said Chattahoochee City Manager Lee Garner. People were angling for catfish off their pickup tailgates in areas normally reserved for campers and RVs.

"If it recedes this afternoon, we'll be OK," Garner said Tuesday. "If it comes up, we may have two or three houses we may have to evacuate."

Vulnerability

Vulnerability to flooding events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. As noted earlier, flooding in Gadsden County results from periods of intense rainfall causing ponding and sheet runoff in the low, poorly drained areas. The floodplains of the Apalachicola and Ochlockonee Rivers are also subject to flooding during high river stages. The jurisdictions of Chattahoochee, Havana, Quincy, and selected areas of the unincorporated area of the county are most vulnerable.

As of the latest data (2016) available, there are approximately 4,000 to 5,000 mobile homes, which represents an estimated 15,705 persons, or approximately 36% of the total county population that resides in mobile homes in the county. In addition, the number of mobile homes, the older homes, the poorly constructed homes, and the state of infrastructure, property damage could be extensive.

Vulnerability for the Gadsden County's Population: In 2018, the Florida Division of Emergency Management estimated the flooding vulnerability for the Gadsden County's population based upon the 2010 County population of 46,389 persons. The number of persons estimated to be residing in areas subject to the 100-year and the 500-year flood is reported in Table 4.6, below. It should be noted that it is possible that the actual number of persons located in these vulnerable areas may now actually be less as the most recent estimate of the County's population, as of April, 2021, from the State of Florida Bureau of Economic and Business Research, had declined to 43,813 persons.

Table 4.6 – Flood Vulnerability for Gadsden County's Population

County	Persons Residing in Areas subject to 100-Year Flood	Persons Residing in Areas subject to 500-Year Flood
Gadsden	392	467

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018 Update
https://www.floridadisaster.org/contentassets/c6a7ead876b1439caad3b38f7122d334/appendix-e_risk_assessment_data.pdf [APPENDIX E FESHMP 2018 UPDATE]

Vulnerability for Gadsden County's Structures and Facilities (Inland Flooding): Table's 4.7 – 4.11 below summarize the following details for the Floodplain Area (100-year and 500-year) in Gadsden County on:

- the types of structures located by occupancy type in the floodplain area;
- the value of the structures;
- the county facilities within the floodplain area (100-year and 500-year);
- the direct economic loss of buildings by floodplain (100-year and 500-year); and
- the value of the county facilities (100-year and 500-year).

Table 4.7 – Structures Located in the Floodplain Area in Gadsden County

Floodplain	Residential	Commercial	Medical	Industrial	Ag.	Education	Gov't	Total
100-year	2343	96	0	78	941	27	145	3726
500-year	80	9	0	41	46	0	7	192

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018 Update
https://www.floridadisaster.org/contentassets/c6a7ead876b1439caad3b38f7122d334/appendix-e_risk_assessment_data.pdf [APPENDIX E FESHMP 2018 UPDATE]

Table 4.8 – Value of Structures in the Floodplain Area in Gadsden County (in \$ Millions)

Floodplain	Resid.	Comm.	Med.	Indus.	Agric.	Educ.	Govt.	Total
100-year	253,735	29,139	0	19,003	613,009	21,384	121,253	1,086,663
500-year	9610	8026	0	10,072	45,207	0	4376	85,316

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018 Update
https://www.floridadisaster.org/contentassets/c6a7ead876b1439caad3b38f7122d334/appendix-e_risk_assessment_data.pdf [APPENDIX E FESHMP 2018 UPDATE]

Table 4.9 – Gadsden County Facilities in the Floodplain Area

Floodplain	Hospitals	Fire Stations	Police Stations	Schools	Other	Total Facilities
100-year	0	1	0	7	81	89

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018 Update
https://www.floridadisaster.org/contentassets/c6a7ead876b1439caad3b38f7122d334/appendix-e_risk_assessment_data.pdf [APPENDIX E FESHMP 2018 UPDATE]

Table 4.10 – Direct Economic Loss For Buildings, Gadsden County, by Floodplain

Floodplain	Economic Loss For Buildings
100-year	\$1,655,000
500-year	\$5,452,000

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018 Update
https://www.floridadisaster.org/contentassets/c6a7ead876b1439caad3b38f7122d334/appendix-e_risk_assessment_data.pdf [APPENDIX E FESHMP 2018 UPDATE]

Table 4.11 – Value of Gadsden County Facilities in the Floodplain Area (in millions)

Floodplain	Hospitals	Fire Stations	Police Stations	Schools	Other	Total Facilities
100-year	0	41,944	0	17,601,889	1,882,569	19,526,402
500-year	0	41,944	0	17,601,889	1,973,304	19,617,137

https://www.floridadisaster.org/contentassets/c6a7ead876b1439caad3b38f7122d334/appendix-e_risk_assessment_data.pdf [APPENDIX E FESHMP 2018 UPDATE]

Problem Areas for Gadsden County

The low, poorly drained areas throughout the county and the floodplains of the Apalachicola and Ochlockonee Rivers are problem areas and subject to flooding during high river stages. The jurisdictions of Chattahoochee, Havana, Quincy, and selected areas of the unincorporated area of the county are most vulnerable.

Probability
The probability for flooding is high for the entire county (at least one occurrence every year).
Location
Previous flooding events have occurred in the unincorporated area of the county and in the cities of Chattahoochee, Havana, and Quincy. And, more frequent flooding has developed in the low, poorly drained areas. In addition, the floodplains of the Apalachicola and Ochlockonee Rivers are also subject to flooding during high river stages.
Extent
<p>The worst-case scenario for flooding in Gadsden County was the March 1929 Flood. The gaging station at Chattahoochee on the Apalachicola River recorded a stream flow of 293,000 cubic feet per second (cfs), which is the greatest observed flood at this station (USGS, 1985). The previous record was a flow of 246,000 cfs recorded in 1925.</p> <p>Also, rainfall associated with the tropical disturbance exceeded 20 inches over a part of the county during September 20 through 23, 1969, and a maximum rainfall of record at Quincy- Havana area exceeded the 1 in 199-year probability (USGS, 1972). The Florida Department of Transportation noted 51 sites where the roads were closed due to high water or to the washout of bridges or culverts in the Gadsden County area. Many flood-measurement sites had peak discharges in excess of that of a 50-year flood.</p> <p>Other noted flooding events reported:</p> <p>1924 (September 14-15) - rainfall of record was more than 12 inches at Quincy (USGS, 1972).</p> <p>1957 (October 1) - Heavy rains caused two breaks in the Jackson Bluff earthen dam on Lake Talquin, and released waters from the 6,800-acre lake in the Ochlockonee River Valley (Gadsden County Times, January 1958).</p> <p>1969 (September 20-23) - Maximum rainfall of record occurred at Quincy with 10.87 inches during a 6-hour period on September 21. The 48-hour maximum rainfall of record was 17.71 inches (USGS, 1972).</p> <p>1969 (September 20-23) - Flood flows were over the road at State Routes 12, 65, and 267 on Quincy Creek. Culvert at County Route 268 on Quincy Creek was washed out (USGS, 1972).</p> <p>1986 (February 12) - The Ochlockonee River near Havana crested at flood stage of 33.5 feet. It was the second worst flooding since 1948, when the river reached 35.1 feet (The Post, February 1986).</p> <p>1998 (March 10) - Gadsden County was declared a federal disaster area. Floodwaters in the</p>

Gadsden County LMS Plan Update 2022

county closed SR 12 near Concord. The estimated property damage figure was \$25,000.

2008 (August 23) – Tropical Storm Fay made its fourth landfall on Saturday, 8/23 near Carrabelle, Florida. That morning, Fay had tapped into the Gulf of Mexico’s moisture. A large feeder band began affecting areas east of the Apalachicola River during the morning, followed by more intense bands, which trained over the same locations during the afternoon and evening hours, producing extremely high rainfall rates and subsequent flash flooding. Many roads and low-lying areas in Midway and the eastern portion of Gadsden County were flooded. The estimated property damage figure was \$100,000.

2018 (December 1) - A significant flooding and severe weather event unfolded over the tri-state area during early December as showers and thunderstorms spread northward across the area for multiple days. Minor flooding was reported on a few roads in Gadsden County in the River Junction area.

2018 (December 2-3) – A significant flooding and severe weather event unfolded over the tri-state area during early December as showers and thunderstorms spread northward across the area for multiple days. A bridge washed out on Peck Betts Road in the Mount Pleasant area due to a long duration of rainfall.

2019 (August 18) - A multi-day, significant flooding event occurred, caused in part by a slow moving, weak area of low pressure in the northeast Gulf combined with a tropical airmass. Multiple rounds of thunderstorms trained over the same area, resulting in both flash flooding and areal flooding. As the low drifted slowly westward, some flash flooding occurred in and near a small area of Gadsden County. Flooding on West Flagler Street in Quincy resulted in water affecting a few homes.

2020 (September 16) - Hurricane Sally made landfall early on the morning of September 16 across Gulf Shores Alabama. The greatest impacts to the tri-state area came in the form of very heavy rain and significant flooding on and away from area rivers. A portion of Cane Creek Road in Sawdust was washed out due to flooding.

Impact – see next page

The Gadsden County community, the residents, the structures, and the infrastructure suffered from the March 1929 and September 1969 flooding events. As noted above, the extent of flooding for the Gadsden County area is not documented. However, judging from the magnitude of the peak discharge from March 1929 flood, it is expected that the boundary of flooding would be quite extensive in Gadsden County with a historical crest level for the Apalachicola River. The impact would have been considerable to the homes located near the river and flooding would have occurred on the roads.

Also, rainfall that occurred in September 1969 exceeded 20 inches over a part of the county with a maximum rainfall of record at Quincy-Havana area exceeding the 1 in 199-year probability (USGS, 1972). The Florida Department of Transportation noted 51 sites where the roads were closed due to high water or to the washout of bridges or culverts in the Gadsden County area. Many flood-measurement sites had peak discharges in excess of that of a 50-year flood.

The flooding events impacting Gadsden County, and the damages they have caused suggest that the future impacts could include:

- ▶ Road closures from culvert wash outs and water over the road occurred;
- ▶ Damage to buildings due to water remaining for a period of time;
- ▶ Significant culvert damage;
- ▶ Possible power outages; and
- ▶ Damage to the mobile homes, poorly constructed and non-elevated homes.

In addition, there could be an economic or financial impact with results that would be devastating from a large-scale flood event not only during the crisis phase, which immediately follows the event, yet through the recovery and rebuilding stages.

End of Flooding Profile

###

DAM/LEEVE FAILURE PROFILE

A dam or levee is an embankment constructed to prevent the overflow of a body of water. A well-constructed and properly maintained dam can save lives by preventing or reducing floods. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and considerable property damage if there are people downstream of the dam.

Some of the benefits of a dam or levee are the following:

- ✓ supply the water for drinking,
- ✓ provide hydroelectric power and create lakes for fishing and recreation, and
- ✓ support agricultural irrigation.

The failure of a dam or levee can be defined as an uncontrolled release of the reservoir. The causes of dam failures can be divided into three groups; dam overtopping, excessive seepage, and structural failure of a component. Despite efforts to provide sufficient structural integrity and to perform inspection and maintenance, problems can develop that can lead to failure. The failures can result any one or a combination of the following causes such as prolonged periods of rainfall or flooding, inadequate spillway capacity, which can result in excess overtopping flows, internal erosion, improper maintenance or design, and negligent operation. While most dams have storage volumes small enough that failures have little or no repercussions, dams with large storage amounts can cause significant flooding downstream.

The federally-owned Jim Woodruff Dam on the Apalachicola River is located in the northwest portion of the county in NE Chattahoochee. The dam was dedicated in 1957, and was constructed for hydroelectric power, flood control, and navigation. According to the National Inventory of Dams (NID), the dam is 92 feet high and has a storage capacity of 406,200 acre-feet of water.

According to the FIS... "Discharge data at stream flow gaging station (No. 02358000) on the Apalachicola River at Chattahoochee have been collected since 1920. The 1-percent annual chance peak discharge was analyzed using log-Pearson Type III distribution as outlined in Bulletin No. 17B (USGS, September 1981, revised March 1982). The USGS and COE recommended using the entire period of record (Jim Woodruff Dam has no flood control storage and the gates are opened during floods to pass the incoming peak flow). The station record period includes the highest observed floods (245,000 cfs in 1925 and 292,000 cfs in 1929)."

Continual and on-going improvements to the Jim Woodruff Dam are being made, and in 2007, the Army Corps of Engineers retrofitted the dam with new generators.

There are 31 dams located throughout Gadsden County, including the Jim Woodruff Lock and Dam, located on the Apalachicola River, adjacent to Gadsden and Jackson Counties in Florida and Seminole County in Georgia. The dams are located in unincorporated areas, but several municipalities may be affected by a dam failure. Chattahoochee,

Gadsden County LMS Plan Update 2022

Midway, and Quincy all have streams running through them with dams upstream from the municipal boundaries. Table 4.12, below, provides a list of the dams identified by the Army Corp of Engineers.

The National Inventory of Dams (NID) was updated in 2022 and includes those dams that meet the following criteria: 1) high hazard classification – loss of one human life is likely if the dam fails; 2) significant hazard classification – no probable loss of human life but can cause economic loss; environmental damage, disruption of lifeline facilities, or impact other concerns; 3) equal or exceed 25 feet in height and exceed 15 acre-feet in storage; or 4) equal or exceed 50 acre-feet in storage and exceed 6 feet in height (NID, 2022).

The “Hazard” field identified in Table 4.12 refers to the NID hazard classification., and the dams are categorized by these four classifications: 1) “High Hazard” as defined above; 2) “Significant Hazard” as defined above; 3) “Low Hazard” for other dams listed in the inventory, where the height of the dam is equal or exceed 25 feet in height and exceeds 15 acre-feet in storage or the storage capacity of the dam equals or exceeds 50 acre-feet in storage and the dam exceeds 6 feet in height dams ; and 4) “Undetermined” for dams where data is not provided.

Table 4.12 – Dams in Gadsden County

Dam Name and (Owner Type)	NIDID	River	NID Height (in feet)	NID Storage (acre-feet)	Primary Purpose	Hazard (Extent of Flooding Potential Based on the Storage Capacity of the Dam)
Suber Cattle Co. Dam (private)	FL000104	Tributary – Telogia Creek	24	680	Irrigation	Moderate
Imperial Nursery (private)	FL000106	Vote Creek	18	143	Irrigation	Moderate
Tallavana Dam (private)	FL00109	Hurricane Creek	25	1250	Recreation	Moderate
Lake Yvette Dam (private)	FL00110	Little Monroe Creek	28	233	Recreation	Moderate
Peavy Dam (private)	FL00111	Tributary – Mill Creek	21	70	Recreation	Low
Butler Dam No. 1 (private)	FI00112	Tributary – Attapulcus Swamp	27	89	Fire protection, stock, or small fish pond	Low
Butler Dam No. 2 (private)	FL00113	Tributary – Ochlockonee River	24	238	Irrigation	Moderate

Gadsden County LMS Plan Update 2022

Table 4.12 – Dams in Gadsden County, Continued

Dam Name and (Owner Type)	NIDID	River	NID Height (in feet)	NID Storage (acre-feet)	Primary Purpose	Hazard (Extent of Flooding Potential Based on the Storage Capacity of the Dam)
Jim Woodruff Dam (federal)	FL00435	Apalachicola River	92	406,200	Navigation, hydroelectric, flood control	Severe
Monroe Estates Dam (private)	FL00502	Tributary – Double Branch	18	90	Fire protection, stock, or small fish pond	Low
Suber Dam (private)	FL00507	Telogia Creek	13	64	Recreation	Low
White Farm Pond (private)	FL509	Tributary – Richlander Creek	22	51	Fish and wildlife pond	Low
Maxwell Dam (private)	FL00510	Cox Creek	16	122	Flood control	Moderate
F. Smith Dam (private)	FL00511	Tributary – Attapulgus	17	113	Recreation	Moderate
Timber Dam (private)	FL00512	Unnamed	20	66	Recreation	Low
Delancy Pond Dam (private)	FL00513	Tributary – Mill Creek	15	65	Recreation	Low
Dover Dam (private)	FL00514	Holley Branch	15	69	Flood Control	Low
Williams & Shelt (private)	FL00517	Tributary – Little River	21	69	Irrigation	Low
Touchton Dam (private)	FL00519	Hurricane Creek	20	80	Irrigation	Low
DNR Dam (state)	FL00520	Tributary – Little River	35	196	Recreation	Moderate
Anderson Dam	FL00521		30	12,000	Recreation	High
Coastal Lumber Dam (private)	FL00524	Tributary – Little River	18	59	Recreation	Low

Table 4.12 – Dams in Gadsden County, Continued

F. Butler Dam (private)	FL00525	Long Branch	15	60	Flood control	Low
Womac Dam (private)	FL00527	Quincy Creek	15	460	Recreation	Moderate
King Edward Dam (private)	FL00528	Rocky Comfort Creek	20	53	Fish and wildlife pond	Low
Hospital Pond Dam	FL00543	North Mosquito Creek	10	132	Water supply	Moderate
No name 1	FL00587	Tributary – Little River	30	149	Fire protection, stock, or small fish pond	Moderate
Fryer Dam (private)	FL011003	Vote Creek	13	128	Irrigation	Moderate
None	FL01004	Tributary – Rocky Comfort Creek	18	54	Irrigation	Low
Mrg1 (private)	FL47003		27	5427	Recreation	Undetermined
C W Thomas Lake Dam (private)	FL47000		17	2703	Recreation	Undetermined
Gq1	FL47002		11	429	Recreation	Undetermined

Source: National Inventory of Dams <https://nid.sec.usace.army.mil/#/>

Dam/Levee Failure Occurrences: There have been no recorded dam failures within the county. However, the Gadsden County Flood Insurance Study (FIS) notes details on the Jackson Bluff earthen dam on Lake Talquin. The FIS provides examples of the most severe floods that affect the study area within the county, therefore this earthen dam failure occurrence is noted.

9/30/1957 - Heavy rains caused two breaks in the Jackson Bluff earthen dam on Lake Talquin, and released waters from the 6,800-acre lake in the Ochlockonee River Valley according to the Gadsden County Times, January 1958. A portion of the earth embankment of Jackson Bluff Dam failed releasing much of the water stored in Lake Talquin. Although the peak discharge was not determined, the flood crest at the gaging station at State Highway 20 was 3.44 feet higher than that of the more recent September 23, 1969 flood. Specifics on property damage were not available.

Most of the dams in Gadsden County are privately owned earthen dams that serve for

irrigation or recreation purposes that store small volumes of water and could fail without widespread impact or knowledge of the occurrence.

Vulnerability

Vulnerability to dam/levee failure events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard.

The greatest concern lies with the dams that hold back significant amounts of water. Eleven dams are ranked in the “High” or “Significant” hazard category. Anderson Dam, east of Havana, holds about 12,000 acre-feet of water and would likely flood Concord Road CR 157 if it were to fail. It would flow toward the Ochlocknee River and may impact Iron Bridge Road CR 153.

The largest dam is the Jim Woodruff Dam located northeast of Chattahoochee on the Apalachicola River. The Jim Woodruff Dam creates Lake Seminole at the confluence of the Chattahoochee and Flint Rivers. Federally owned, this dam provides hydroelectric power, navigation, and flood control. Failure of this dam, ranked in the “High” hazard category, would have a significant impact in Gadsden County as well as all locations along the Apalachicola River to the Gulf of Mexico.

With the expertise and knowledge that major dams are properly engineered and maintained, the vulnerability for the residents, structures, and infrastructure within the county for a dam failure is low.

Problem Areas for Gadsden County

<i>Probability</i>
The probability for flooding resulting from Dam/Levee failure is very low for the entire county (a possibility for at least one occurrence every 10 years).
<i>Location</i>
The location of all dams profiled in Table 4.12 in Gadsden County are in the unincorporated areas of the County.
<i>Extent</i>
The worst-case scenario for Gadsden County would be a dam failure event that occurs at the Jim Woodruff Dam in NE Chattahoochee on the Apalachicola River. As stated earlier, discharge data at stream flow gaging station (No. 02358000) on the Apalachicola River at Chattahoochee have been collected since 1920. The 1-percent annual chance peak discharge was analyzed using log-Pearson Type III distribution as outlined in Bulletin No. 17B (USGS, September 1981, revised March 1982). The USGS and COE recommended using the entire period of record (Jim Woodruff Dam has no flood control storage and the gates are opened during floods to pass the incoming peak flow). The station record period includes the highest observed floods (245,000 cfs in 1925 and 292,000 cfs in 1929).” Failure of this dam could be catastrophic for the entire county resulting in considerable property damage and even possible loss of life for the residents that live downstream.

In addition, the Gadsden County Flood Insurance Study (FIS) notes details on the Jackson Bluff earthen dam on Lake Talquin. The FIS provides examples of the most severe floods that affect the study area within the county, therefore this earthen dam failure occurrence is noted. A portion of the earth embankment of Jackson Bluff Dam failed releasing much of the water stored in Lake Talquin. Although the peak discharge was not determined, the flood crest on the 9/30/1957 dam failure at the gaging station at State Highway 20 was 3.44 feet higher than that of the more recent 9/23/1969 flood.

Impact

Failure of the largest dam in the county, the Jim Woodruff Dam which has a NID Storage capacity of (acre- feet) that could be catastrophic and have a significant impact for the entire county resulting in considerable property and infrastructure damage and even possible loss of life for the residents that live downstream.

The dam/levee failure event impacting Gadsden County, and the damages the failure might cause suggest that the future impacts could include:

- ▶ Drainage of the creeks or lakes;
- ▶ Flooding in the unincorporated and incorporated areas near the dams;
- ▶ Possible road closures due to the roads remaining under water for a period of time;
- ▶ Significant culvert damage;
- ▶ Possible power outages;
- ▶ Damage to the homes, mobile homes, poorly constructed and non-elevated homes located near the dams;
- ▶ Environmental damage from large amounts of sediment from erosion, which could alter the landscape resulting in changes to the ecosystem. Hazardous materials could be carried away polluting the environment and contaminating everything they come in contact with, including the community's water supply.

In addition, there could be an economic or financial impact with results that would be devastating from a large-scale dam/levee failure event not only during the crisis phase, which immediately follows the event, yet through the recovery and rebuilding stages.

End of Dam/Levee Occurrences Profile

SINKHOLES PROFILE

A sinkhole is a natural depression or hole in the Earth's surface caused by karst processes, i.e., the chemical dissolution of carbonate rocks or suffosion processes for example in sandstone. Sinkholes may vary in size from less than 1 to 600 meters (3.3 to 2,000 ft.) both in diameter and depth, and vary in form from soil-lined bowls to bedrock-edged chasms. They may be formed gradually or suddenly and are found worldwide.

Sinkholes are a common feature of Florida's landscape. They are only one of many kinds of karst landforms, which include caves, disappearing streams, springs, and underground drainage systems, all of which occur in Florida. Dissolution of carbonate rocks begins when they are exposed to acidic water. Most rainwater is slightly acidic and usually becomes more acidic as it moves through decaying plant debris.

Limestone in Florida is porous, allowing the acidic water to percolate through their strata, dissolving some limestone and carrying it away in solution. Over time, this persistent erosion process has created extensive underground voids and drainage systems in much of the carbonate rocks throughout the state. Collapse of overlying sediments into the underground cavities produces sinkholes.

Although a sinkhole can form without warning, specific signs can signal potential development:

- ▶ Slumping or falling fence posts, trees, or foundations;
- ▶ Sudden formation of small ponds;
- ▶ Wilting vegetation;
- ▶ Discolored well water, and/or
- ▶ Structural cracks in walls, floors.

Details reveal from the U.S. Geological Survey, there are many types of sinkholes, but the two occurring most often are collapse and solution sinkholes.

A **collapse sinkhole** forms suddenly as the weight of the overlying soil suddenly becomes too great, and the earth collapses until it fills the limestone cavity. At land surface, a circular hole appears, which may or may not contain water. Factors that may contribute to the collapse include:

- Large changes in the water table caused by too much or little rain
- Drilling a well into the cavity
- Pumping groundwater from near the cavity
- Constructing buildings above the cavity
- Diverting drainage to the areas where a cavity exists.

A **solution sinkhole**, on the other hand, develops slowly and continuously. It forms where sand or other relatively thin materials slowly and steadily sprinkle downward to fill the cracks and joints that occur in the underground limestone layers. As a sinkhole gets bigger, it collects more surface water and runoff, which commonly carries sand, silt, and clay particles. This material can sometimes plug the sinkhole, thereby creating a lake or pond.

Lakes that once were collapse sinkholes can sometimes unplug and drain into the underground aquifer. If the lake becomes polluted, this can be a health hazard to the people whose drinking water wells tap into the connected aquifer.

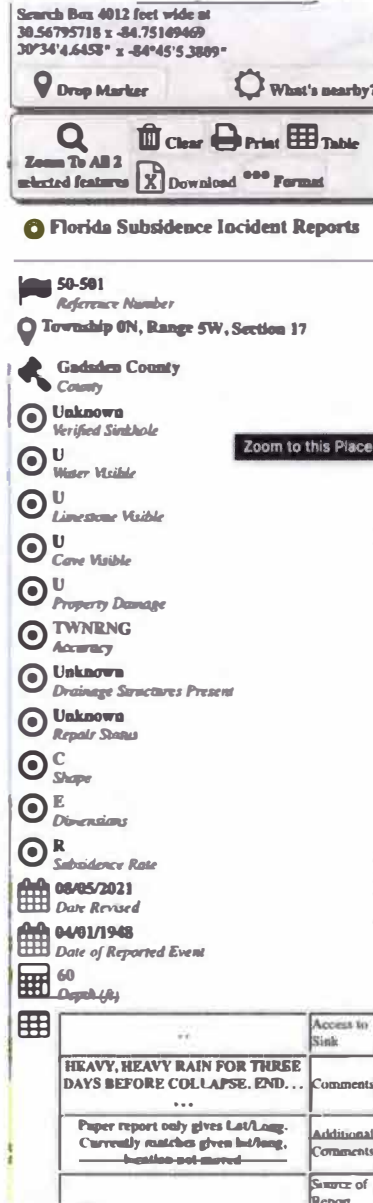
Sinkhole Study: In August 2013, the Florida Geological Survey, in conjunction with the Florida Division of Emergency Management (FDEM), a federal grant to conduct a statewide assessment of sinkhole vulnerability over a three-year period with geologists conducting a one-year pilot study. The results of the pilot study will culminate in the production of a model that will generate a map showing the relative vulnerability of these counties to potential sinkhole formation, and then will be used to produce a statewide map. Ultimately, the assessment will assist planners, builders, and environmental regulators for the improvement of health and safety for the populated areas as well as economic benefits.

Although the initial study is for the three counties, the vulnerability for all the counties in Florida will be available after a statewide map is produced. This will then be an additional resource for Gadsden County.

Sinkhole Occurrences: According to the Department of Environmental Protection, there have been three sinkhole occurrences in Gadsden County from the 1948 – 2022, and in northwest Leon County, bordering northeast Gadsden County. Figure G1, below, details the subsidence incident on 4/1/48, and figure G2, below, details the subsidence incident on 10/28/1981/Leon/Gadsden border, and Figure G3, below, details the subsidence incident on 4/21/21. Figure G4 details a swallet, a type of karst feature that includes sinkholes, typically having inflowing or outflowing water, or both. This swallet is located in the far northeastern corner of Gadsden County near the Ochlockonee River.

SEE NEXT PAGE

Figure G1 – Sinkhole Occurrence in Gadsden County



Source: Florida Department of Environmental Protection

Figure G2 – Sinkhole Occurrence in Gadsden County



Source: Florida Department of Environmental Protection

Figure G3 – Sinkhole Occurrence in Gadsden County

Search Box 2 miles wide at
 30.52364351 x -84.79685211
 30°31'25.1166" x -84°47'48.6676"

Drop Marker What's nearby?

Zoom To All 2 selected features Clear Print Table Download Format

Florida Subidence Incident Reports

50-502
Reference Number

Mr. Painter
Report Name

Quincy, FL
O Address

Gadsden County
County

Unknown
Verified Sinkhole

U
Water Visible

U
Limestone Visible

U
Cave Visible

U
Property Damage

UNKWN
Accuracy

Unknown
Drainage Structures Present

Unknown
Repair Status

U
Shape

E
Dimensions

S
Subsidence Rate

07/19/2021
Date Revised

04/21/2021
Date of Reported Event

	Access to Sink
A report of rushing water under the area of the incident address and observing the trailer on the property sink a few inches. He states that this underground water has been ongoing for about a week. Caller requests a callback.	Current

Source: Florida Department of Environmental Protection

Figure G4 – Swallet Occurrence in Gadsden County

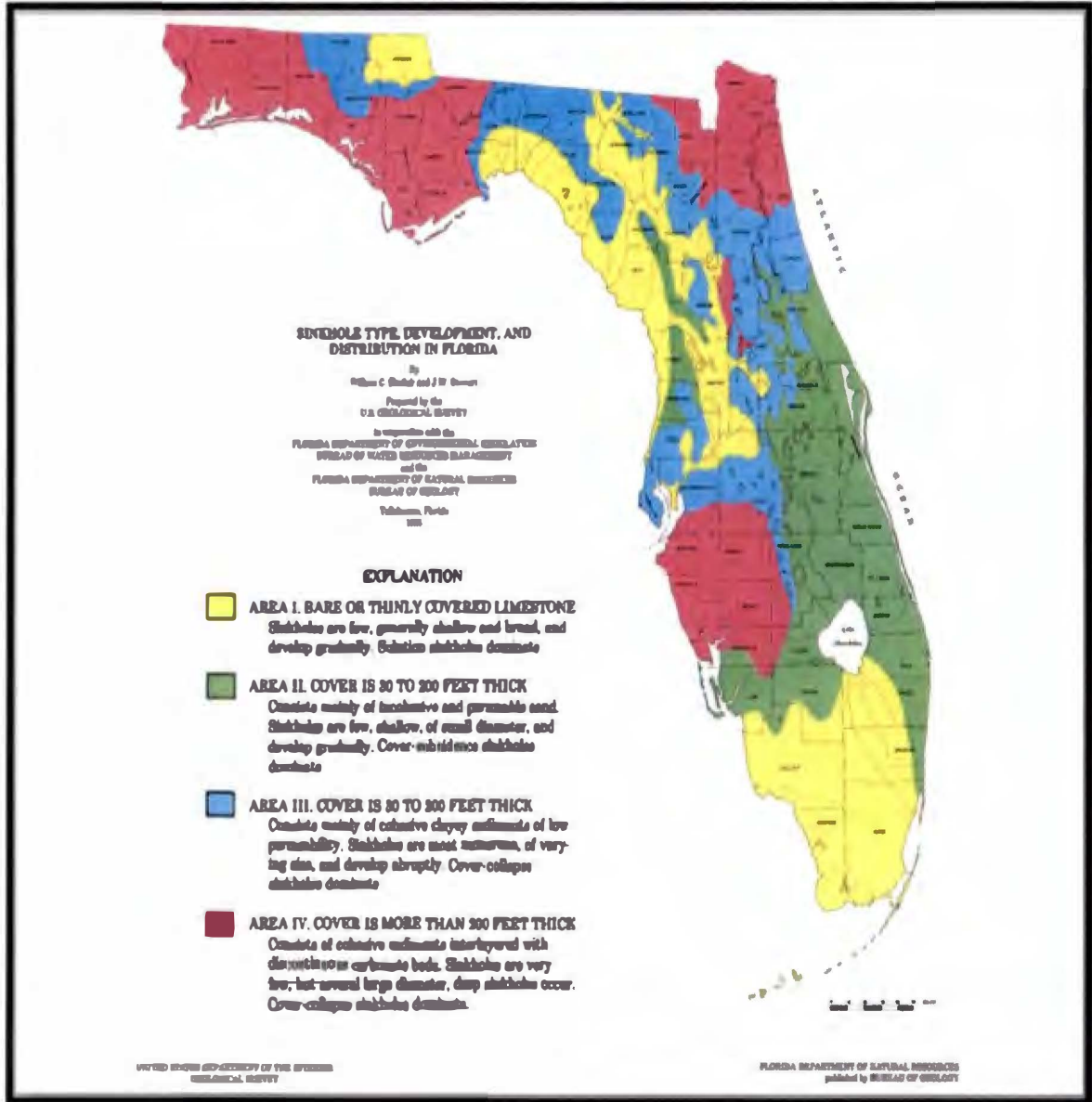


Source: Florida Department of Environmental Protection

In terms of the type of sinkholes that develop in Gadsden County, the Map in Figure H, below, identifies Gadsden County as located in Area IV. Sinkhole types located in Gadsden County mainly consists of cohesive sediments interlayered with discontinuous

carbonate beds. Sinkholes are very few, but several large diameter, deep sinkholes do occur, and cover-collapse sinkholes dominate.

Figure H – Sinkhole Type Development and Distribution in Florida



Vulnerability

Figure I – Florida Geological Survey Comment on Sinkholes in Gadsden County

Sinkholes typically occur in areas underlain by karstic limestone with a thin, porous sediment veneer. Slightly acidic ground waters slowly dissolve subsurface caverns in the limestone, which may ultimately collapse under the weight of the surficial sediments, forming sinkholes. Limestone underlies much of Gadsden County, but is protected by variable thicknesses of low-permeability clays and clayey sands of the Citronelle and Miccosukee Formations. These clays retard downward percolation of water, and reduce the dissolution of the underlying limestone. The probability of sinkhole formation is therefore low for most of northern and central Gadsden County. Areas of the county with the highest probabilities of sinkholes are characterized by shallow-lying limestone or thin or absent clayey overburden sediments. These areas include northwestern Gadsden County, where the Chattahoochee Formation nears the surface, and at the southern tip of the county, south of the Cody Scarp, where the low permeability clays are thin or absent.

Vulnerability to sinkhole events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. Gadsden County has a low vulnerability for most of the northern and central areas of the county. The areas of the northwestern portion of the county and the southern tip would potentially have a medium vulnerability as sinkholes have been noted in the county, and large diameter, deep sinkholes could potentially occur, and cover-collapse sinkholes would dominate.

Source: Florida Geological Survey

As noted above in the Sinkhole Study, analysis will generate a map showing the relative vulnerability of the potential sinkhole formation and mitigation measures will need to be studied. A statewide map will be available to assist in creating more efficient hazard mitigation strategies. Dr. Jon Arthur, Director of Florida Geological Survey stated: "It is important to understand the geological character of the ground below us and this project will provide a map of the relative vulnerability to sinkhole formation in Florida as an important hazard mitigation planning tool. There is a national interest in our innovative approach to this project, and we are excited to begin the work of developing input data layers for the model."

Vulnerability for the Gadsden County's Population: As noted by the sinkholes profiled in the occurrence section, it is estimated that a small population of the Gadsden County residents would be affected by a sinkhole.

Vulnerability for Gadsden County's Structures and Facilities: The county's infrastructure and structures have not been affected by sinkhole occurrences. There is no noted data on the vulnerability to the structures and facilities at this time.

Problem Areas

<i>Probability</i>
The probability for sinkhole is low for most of the northern and central areas of the county (at least one occurrence every 10 years). The probability is potentially medium for areas of the northwestern portion of the county and the southern tip (at least one occurrence every 3 years).
<i>Location</i>
The northwestern portion of the county and the southern tip of Gadsden County are potentially at a medium risk to sinkhole events.
<i>Extent</i>
The worst-case scenario was the sinkhole that occurred in April 1948 with a depth measurement of approximately 60 feet. "If" another sinkhole were to possibly open in Gadsden County, it would be in the northwestern or southern tip areas of the county, and the county could expect in future events, a large cover-collapse sinkhole based on the analysis provided in Figure I.
<i>Impact</i>
<p>If a sinkhole were to open in the northwestern or southern tip areas of the county, it could possibly be a cover-collapse sinkhole, and as noted in the extent area, the magnitude could present disastrous affects for the community, the residents, structures, and the infrastructure.</p> <p>Details from the April 1948 sinkhole note that there were no impacts to any structures or roads, however, impact could occur to the homes, structures, as well as environmental impacts by providing direct access to the aquifer system for pollutants like gasoline and oil, fertilizers, pesticides, and herbicides.</p> <p>Long periods of drought (especially in the month of October) followed by heavy rains can exacerbate the formation of sinkholes. Their formation can also be aggravated and accelerated by humans through urbanization. Development increases the use of water, altering drainage pathways, redistributing ground soil, and overloading the surface. Urbanizing areas also increases the potential for sinkholes.</p> <p>Although sinkholes can have very localized structural impacts, the destruction they cause can have far reaching effects on ground water resources and can change the water chemistry and rates of recharge or run-off in the county.</p>

End of Sinkhole Profile
####

HURRICANES/TROPICAL STORMS PROFILE

Tropical storms and tropical cyclones will be profiled within this section. A tropical storm is a tropical cyclone with maximum sustained winds of at least 39 mph. Tropical storms are given official names once they reach these wind speeds. When the wind speeds reach 74 mph or greater, a tropical storm is called a hurricane, typhoon, or cyclone based on the storm location.

In meteorological terms, a hurricane is defined as a tropical cyclone which has a central barometric pressure of 29 inches or less of mercury, and wind velocities of 75 miles per hour or more. The low barometric pressures and high winds combine to produce abnormally high tides and accompanying tidal flooding. The high winds can generate large waves, provided there are no obstructions or barrier beaches to dissipate wave momentum. The winds of a hurricane in the Northern Hemisphere spiral inward in counterclockwise direction towards the "eye" or center of low pressure. The eye of the hurricane (where winds are subdued) can vary in diameter. Normally, the "eye" can extend for 15 miles, although the eye of a mature hurricane can reach diameters of 20 to 30 miles or even greater.

Most hurricanes develop as a tropical storm either near the Cape Verde Islands off the African coast or in the western Caribbean Sea. Hurricanes that reach northwestern Florida approach from a southerly direction after crossing the Florida peninsula, the island of Cuba, or the western Gulf of Mexico. These hurricanes start their journey northward with a forward speed of about 10 miles per hour. The most destructive winds in a hurricane usually occur east of the eye, where the spiral wind movement and forward motion of the storm combine. When a hurricane nears land, it may cause torrential rain, high wind, storm surge, coastal flooding, inland flooding, and sometimes tornadoes.

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures. See Figure J, the Saffir-Simpson Hurricane Wind Scale for specifics on a hurricane's sustained wind speed.

SEE NEXT PAGE

Figure J: Saffir-Simpson Hurricane Wind Scale

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Source: <http://www.nhc.noaa.gov/aboutsshws.php>

Hurricanes are a seasonal occurrence, with the Atlantic Coast/Gulf of Mexico hurricane season ranging from June 1 to November 30. Hurricanes pose a significant threat to Florida, particularly those residents living along the coast. Gadsden County is not a coastal county but is still subject to the wind and water damage that hurricanes can bring, although to a lesser extent than a coastal Florida county. Details in Figure K show that several hurricanes, tropical storms, and tropical depressions that have tracked through Gadsden County.

Gadsden County LMS Plan Update 2022

- ✓ Reduced vertical wind shear (changes of wind direction and/or speed with height) within the main development region, among other features.

Tropical Depression to a Tropical Storm: After a group of thunderstorms for a period of time have come together under the right atmospheric conditions, they organize into a tropical depression. The wind speed near the center is between 20 -34 knots (23 to 39 mph).

After a tropical depression has intensified to the point where its maximum sustained winds are between 35-64 knots (39- 73 mph), it then becomes a tropical storm. It is at this time that it is assigned a name. During this time, the storm itself becomes more organized and begins to become more circular in shape -- resembling a hurricane.

Hurricane and Tropical Storm Occurrences: According to the data from the NCDC, there have been 19 hurricane and tropical storm events reported in Gadsden County. Some of the tropical storm events resulted when stronger hurricanes weakened to tropical storm status as they moved inland to Gadsden County. These hurricane and tropical storm events are listed in Table 4.13.

Table 4.13 – Hurricane and Tropical Storm Occurrences in Gadsden County (2/1/1950 – 6/20/22)

Location or County	Date	Time	Type	Dth	Inj	PrD	CrD
Gadsden (Zone)	10/7/1996	12:00	Tropical Storm	0	0	0.00K	0.00K
Gadsden (Zone)	9/2/1998	12:00	Hurricane	0	0	10K	0.00K
Gadsden (Zone)	9/28/1998	00:00	Hurricane	0	0	150K	0.00K
Gadsden (Zone)	9/17/2000	08:00	Hurricane	0	0	0.00K	0.00K
Gadsden (Zone)	9/21/2000	18:00	Tropical Storm	0	0	0.00K	0.00K
Gadsden (Zone)	8/4/2001	15:00	Tropical Storm	0	0	0.00K	0.00K
Gadsden (Zone)	9/14/2002	00:00	Tropical Storm	0	0	10K	0.00K
Gadsden (Zone)	8/12/2004	00:00	Tropical Storm	0	0	0.00K	0.00K
Gadsden (Zone)	9/5/2004	14:00	Tropical Storm	0	0	10K	0.00K
Gadsden (Zone)	9/15/2004	00:00	Hurricane	0	0	50K	0.00K
Gadsden (Zone)	6/10/2005	18:00	Tropical Storm	0	0	0.00K	0.00K
Gadsden (Zone)	7/9/2005	18:00	Hurricane	0	0	250K	0.00K
Gadsden (Zone)	6/12/2006	12:00	Tropical Storm	0	0	0.00K	0.00K
Gadsden (Zone)	8/22/2008	12:00	Tropical Storm	1	0	3M	0.00K
Gadsden (Zone)	9/01/2016	19:00	Tropical Storm	0	0	0.00K	0.00K

Gadsden County LMS Plan Update 2022

Gadsden (Zone)	09/10/2017	22:00	Tropical Storm	0	0	50K	0.00K
Gadsden (Zone)	10/10/2018	5:00	Hurricane	1	0	300M	150M
Gadsden (Zone)	10/19/2019	05:00	Tropical Storm	0	0	0.00K	0.00K
Gadsden (Zone)	8/16/2021	10:00	Tropical Storm	0	0	50K	0.00K
Totals:	Property Damage: \$303,580,000; Crop Damage: \$150,000,000; 2 Deaths						

<http://www.ncdc.noaa.gov/stormevents/listevents>

Key Code: Dth: Deaths; Inj: injuries; PdD: Property Damage; CrD: Crop Damage

Hazard Event Narrative:

9/28/1998 – Gadsden (Zone) – Hurricane Georges, a Category 2 storm, made landfall near Biloxi, MS early Monday, September 28, 1998. Torrential rainfall amounts of 12 to 24 inches were common over Southeast Alabama and the Florida Panhandle with 5 to 10 inches over Southwest Georgia and the Big Bend. These rains swelled the area rivers, creeks, and streams well above flood stage. As a result of the runoff from Georges' torrential rains, the Ochlockonee River at Havana, FL (FS 25 ft), crested to 28.8 ft on 10/3/98. A few roads were closed to flooding, scattered trees and power lines were down, and six homes were damaged in Gadsden County. The estimated property damage was \$150,000.

7/9/2005 – Gadsden (Zone) - Hurricane Dennis, a Category 3 hurricane, moved inland just east of Gulf Breeze, FL, early Sunday afternoon, July 10. Rainfall totals ranged from 3 to 4 inches in the eastern Florida Panhandle to 6 to 10 inches in the Florida Big Bend. Dennis' deluge caused several rivers and creeks in the Florida Panhandle and Big Bend to exceed their flood stages, including the Ocklockonee, Aucilla, St. Marks rivers, and Spring Creek. An interesting aspect to the flooding is the remarkable surge up to 8 feet that propagated up the rivers. Also, there were numerous reports of downed trees and power lines across the Florida Panhandle and Big Bend, leaving about 75,000 customers without power. The estimated property damage was \$250,000.

8/22/2008 – Gadsden (Zone) – Tropical Storm Fay emerged into Apalachee Bay late on the 22nd, and made its fourth Florida landfall on the 23rd near Carrabelle. By that morning, Fay had tapped into Gulf of Mexico moisture. Intense rainbands developed and trained over the same locations in the Florida Big Bend for several hours on the 23rd producing rainfall totals exceeding 20 inches in some locations. There were numerous homes damaged by fallen trees as well as the tropical storm force wind gusts. A Talquin Electric linesman was electrocuted while working to restore power in Quincy when a tree fell across a nearby power line. Rainfall from Fay varied between six and 14 inches. There were numerous downed trees and power lines throughout the county. Fifteen single-family homes and six mobile homes were damaged by fallen trees and flooding. Several county roads were impassable due to debris, with some dirt roads undermined by floodwaters. U.S. Highway 90 at the Little River and U.S. Highway 27 at Interstate 10 were closed due to flooding. The estimated property damage was \$3,000,000. (Flooded roadways on the Ochlockonee River near Concord, photo above from USGS.)

10/10/2018 - Catastrophic Hurricane Michael made landfall in the Florida Panhandle in the afternoon of Wednesday, October 10. The storm brought widespread surge and wind damage to the coast with the wind damage extending well inland into southwest Georgia. In Gadsden County, an estimated 100% of utility customers lost power as a result of the storm. According to the Florida Forest Service, the hurricane caused moderate damage to 184,888 acres or 73.2% of the County's forest land area and severe damage to 59,000 acres or 15% of the County's forest land area. One person died due to direct impacts of this event and one person died as a result of indirect impacts. Three shelters were opened however the number of people sheltered is unknown.

Vulnerability

Vulnerability to hurricane and tropical storm events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. Previous hurricane and tropical storm events have occurred countywide, and the county is very vulnerable to hurricane and tropical storm force winds and heavy rains are compounded by the high concentration of mobile home residents.

There are approximately 4,000 to 5,000 mobile homes, which represents an estimated of 15,705 residents, or approximately 36% of the total county population. In addition, due to the number of mobile homes, older homes, and poorly constructed homes, and the vulnerable infrastructure, property damage could be extensive.

Since September, 2004, Gadsden County has had 17 disaster declarations that have required individual assistance, public assistance, or both. 15 of the disaster declarations were issued due to hurricanes and tropical storms.

Vulnerability for the Gadsden County's Population: In 2021, Gadsden County had an estimated population of 43,813, as of April, 2021, according to the State of Florida Bureau of Economic and Business Research. A hurricane or tropical storm occurrence could affect the entire population, especially the mobile home residents, which consist of approximately 36% of the County's total population, and poor residents, representing 25.6% of the County's population; these two population groups are considered very vulnerable to this natural hazard.

Vulnerability for Gadsden County's Structures and Facilities: Tables 4.14 – 4.23 summarize the following details for Gadsden County on potential impacts from hurricane winds, including:

- the number of structures in Gadsden County that would be affected by a hurricane based on return period and probability of occurrence;
- the value of the structures in Gadsden County resulting from a hurricane based on return period and probability of occurrence;
- the direct economic loss for buildings in Gadsden County resulting from a hurricane based on return period and probability of occurrence.

Table 4.14 -- Probabilistic Hurricane Wind Count of # of Structures within Return Period Areas

10-Year	20-Year	50-Year	100-Year	200-Year	500-Year	1000-Year
8	17	129	537	1,416	3385	5,022

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.15 -- Probabilistic Hurricane Wind Value of Structures Damaged within Return Period Areas (in dollars)

10-Year	20-Year	50-Year	100-Year	200-Year	500-Year	1000-Year
151,000	1,872,000	10,365,000	22,022,000	39,433,000	73,613,000	116,254,000

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.16 -- Probabilistic Hurricane Wind 10-Year Total Economic Value by Storm Intensity (in dollars)

Tropical Storm	Category 1	Category 2	Category 3	Category 4	Category 5
2,293,173,394	0	0	0	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.17 -- Probabilistic Hurricane Wind 20-Year Total Economic Value by Storm Intensity (in dollars)

Tropical Storm	Category 1	Category 2	Category 3	Category 4	Category 5
2,293,173,394	0	0	0	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.18 -- Probabilistic Hurricane Wind 50-Year Total Economic Value by Storm Intensity (in dollars)

Tropical Storm	Category 1	Category 2	Category 3	Category 4	Category 5
0	2,293,173,394	0	0	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.19 -- Probabilistic Hurricane Wind 100-Year Total Economic Value by Storm Intensity (in dollars)

Tropical Storm	Category 1	Category 2	Category 3	Category 4	Category 5
0	2,293,173,394	0	0	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.20 -- Probabilistic Hurricane Wind 200-Year Total Economic Value by Storm Intensity (in dollars)

Tropical Storm	Category 1	Category 2	Category 3	Category 4	Category 5
0	817,231,651	1,475,941,743	0	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.21 – Probabilistic Hurricane Wind 500-Year Total Economic Value by Storm Intensity (in dollars)

Tropical Storm	Category 1	Category 2	Category 3	Category 4	Category 5
0	0	2,293,173,394	0	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.22 – Probabilistic Hurricane Wind 1000-Year Total Economic Value by Storm Intensity (in dollars)

Tropical Storm	Category 1	Category 2	Category 3	Category 4	Category 5
0	0	554,046,264	1,739,127,130	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

Table 4.23 – Direct Economic Loss for Buildings by Return Period (in dollars)

10-Year	20-Year	50-Year	100-Year	200-Year	500-Year	1000-Year
151,000	1,874,000	10,671,000	23,239,000	42,338,000	81,308,000	131,619,00

Source: State of Florida Enhanced Hazard Mitigation Plan, 2018, Appendix E

The data tables 4.14 – 4.23, provided above, update and replace information regarding the potential impact of hurricanes and tropical storms to the County provided in the Gadsden County Local Mitigation Strategy Plan 2016. The new data are published by the Florida Division of Emergency Management and are available at the following website: https://portal.floridadisaster.org/mitigation/MitigateFL/External/2018%20Enhanced%20State%20Hazard%20Mitigation%20Plan/Appendices/Appendix%20E_Risk_Assessment_Data.pdf

Problem Area

The entire county, i.e., both the incorporated and unincorporated areas, are at high risk and very vulnerable to hurricane and/or tropical storm events and is subject to violent winds, heavy and widespread torrential rains, flooding, tornadoes, and lightning strikes, which can come from hurricanes and tropical storm events.

Extensive problems can occur to the mobile homes, which accounts for approximately 26% + of the total residential structures in the county, and the poorly constructed houses, as this group of homes vulnerability are considered very high. Gadsden County is in a location that has been previously impacted by several tropical storms and hurricane occurrences.

Probability
The probability for hurricanes and tropical storms is considered high (at least 1 occurrence every year).
Location

The entire planning area (the incorporated, the City of Quincy and unincorporated areas of Gadsden County) are at high risk and very vulnerable to hurricane and/or tropical storm events with violent winds, heavy and widespread torrential rains, flooding, tornadoes, and lightning strikes, which can come from these types of events.

Extent

The worst-case scenario from a hurricane or tropical storm event would be a category 5 hurricane with winds of over 157 mph or higher, which could potentially cause catastrophic damage throughout the entire county. Mobile homes and a high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months. Although rare, a category 5 hurricane could prove to be even more devastating to the county residents, structures, and infrastructure.

The county has experienced several hurricanes and tropical storm events over the last 20 years producing flooding from heavy rains and downed trees and power lines from violent winds.

The NCDC details reveal that the county has experienced a category 3 hurricane that resulted in devastating damage for the county with downed trees and power outages.

Tropical Storm Fay Florida produced rainfall totals exceeding 20 inches in some locations. There were numerous homes damaged by fallen trees as well as the tropical storm force wind gusts. A Talquin Electric linesman was electrocuted while working to restore power in Quincy when a tree fell across a nearby power line. Rainfall from Fay varied between six and 14 inches. There were numerous downed trees and power lines throughout the county. Fifteen single-family homes and six mobile homes were damaged by fallen trees and flooding. Several county roads were impassable due to debris, with some dirt roads undermined by floodwaters. U.S. Highway 90 at the Little River and U.S. Highway 27 at Interstate 10 were closed due to flooding. The estimated property damage in Gadsden County was \$3,000,000.

Hurricane Michael had devastating impacts upon the county. As noted in FEMA's January 9, 2019, press release, since the federal disaster declaration for Hurricane Michael, Gadsden County residents received more than \$11.4 million in total federal funds, including more than \$3.4 million in federal grants to 1,299 homeowners and renters and nearly \$8 million in U.S. Small Business Administration low-interest disaster loans for 296 homeowners and renters and 17 businesses.

Through Disaster Survivor Assistance outreach, more than 10,500 survivors were connected with disaster resources and recovery partners for needs beyond what FEMA can assist with. 595 homeowners and renters were approved for rental assistance. The U.S. Army Corps of Engineers installed 253 blue roofs in Gadsden County enabling residents to live in their homes while they make permanent repairs. As a result of the destruction wrought by the storm, more than 1.4 million cubic yards of debris was removed in Gadsden County.

Impact

Gadsden County LMS Plan Update 2022

The Gadsden County community, the residents, the structures, the infrastructure can be severely impacted from hurricane or tropical storm event that can bring high winds, substantial rains, destructive flood levels and possibly a tornado. Details from the FEMA declarations state that Gadsden County has been impacted from the storm events receiving individual and public assistance or both.

The hurricane and storm events impacting Gadsden County, and the damages they have caused suggest that the future impacts could include:

- Possible death or injury from the storm.
- Substantial flooding throughout the entire county.
- Road closures in the unincorporated and certain incorporated areas of the county.
- Power lines, downed trees, and infrastructure damages.
- Damage to the homes, especially the mobile homes and the poorly constructed homes; and destruction for the agricultural and forestry/timberland industries – as stated by the 2017 Census of Agriculture, there were 522 farms, accounting for 66,243 acres of farmland, or approximately 20% of the total acreage area. In 2017, the market value of products sold for Gadsden County was \$90,491,000.
- A destructive hurricane or storm damaging crops or livestock in Gadsden County could have a serious economic impact resulting in millions of dollars in lost revenue.

In addition, there could be an economic or financial impact with results that would be devastating from a large-scale hurricane event not only during the crisis phase, which immediately follows the event, yet through the recovery and rebuilding stages.

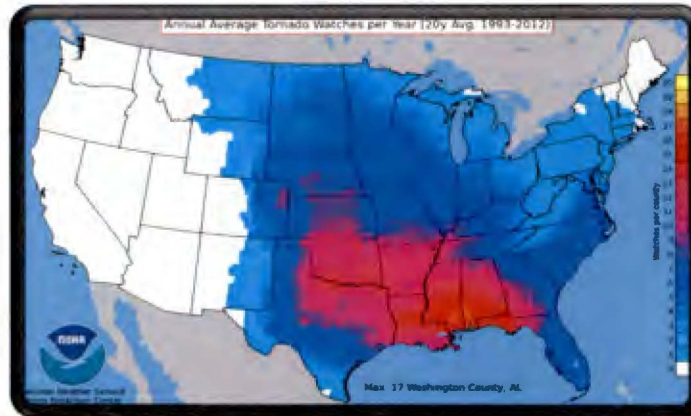
End of Hurricanes/Tropical Storms Profile

####

TORNADOES PROFILE

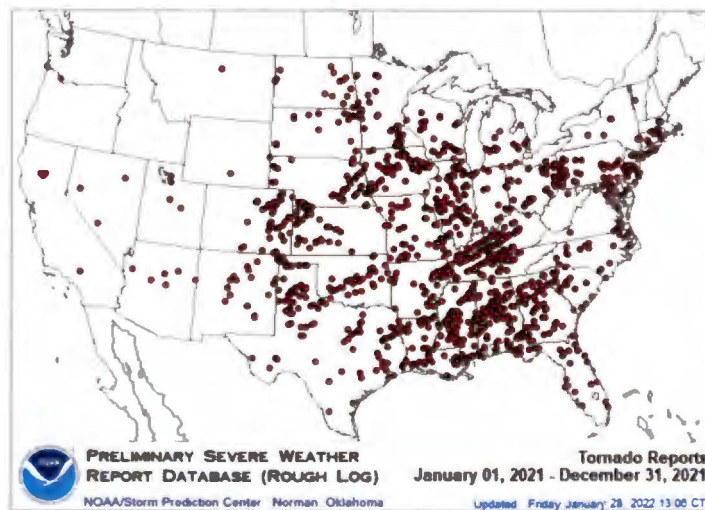
Tornadoes are nature's most violent storms. Spawned from powerful thunderstorms, tornadoes can cause fatalities and devastate a neighborhood in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with whirling winds that can reach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long. Every state is at some risk from this hazard.

Figure L – Map of Number of Average Annual Tornado Watches, US, 1993 – 2012



Source: <http://www.spc.noaa.gov/wcm/20ytora.png>

Figure M – Tornado Reports, US, 2021



Source: NWS Storm Prediction Center, Annual Severe Weather Report Summary, 2021

Some tornadoes are clearly visible, while rain or nearby low-hanging clouds obscure others. Some tornadoes develop rapidly with little advance warning and then may dissipate just as quickly. Most tornadoes are on the ground for less than 15 minutes. Before a tornado hits, the wind may die down and the air may become very still. A cloud

of debris can mark the location of a tornado even if a funnel is not visible. It is not uncommon to see clear, sunlit skies behind a tornado.

Facts about tornadoes according to FEMA's website:

- They may strike quickly, with little or no warning.
- They may appear nearly transparent until dust and debris are picked up or a cloud forms in the funnel.
- The average tornado moves southwest to northeast, but tornadoes have been known to move in any direction.
- The average forward speed of a tornado is 30 MPH, but may vary from stationary to 70 MPH.
- Tornadoes can accompany tropical storms and hurricanes as they move onto land.
- Waterspouts are tornadoes that form over water.
- Tornadoes are most frequently reported east of the Rocky Mountains during spring and summer months.
- Peak tornado season in the southern states is March through May.
- Tornadoes are most likely to occur between 3 p.m. and 9 p.m. but can occur at any time.

Source: <http://www.fema.gov/hazard/tornado/index.shtm>

The most common, least destructive tornadoes are warm weather tornadoes that occur between May and August. Cool season tornadoes are the most destructive, occurring between December and April.

Gadsden County is vulnerable to these wind disasters due to a high concentration of the population residing in manufactured or mobile homes, approximately 26% of the residential structures. A tornado or a series of tornadoes could affect the population if it should occur in a highly populated area. Damage has occurred from tornadoes in the county.

The possible consequences of tornadoes include: power outages, infrastructure damage (road/culvert washout), erosion, property damage/loss from wind, water, and fires, freshwater flooding, evacuations (day/night, road congestion), agricultural damage/loss, economic loss, and debris.

A Funnel Cloud, as defined by FEMA, is a condensation funnel extending from the base of a towering cumulus cloud, associated with a rotating column of air that is not in contact with the ground (and hence different from a tornado). A condensation funnel is a tornado, not a funnel cloud, if either: a) it is in contact with the ground; or, b) a debris cloud or dust whirl is visible beneath it. Source: <http://www.crh.noaa.gov/glossary.php?word=FUNNEL%20CLOUD>

Enhanced Fujita Scale: According to NOAA's National Weather Service, Storm Prediction Center, the Enhanced Fujita Scale was implemented February 2007. The storm events database documentation notes that the Tornado EF Scale was based on the enhanced F-Scale. Details from NOAA's National Weather Service Storm Prediction Center on the Enhanced Fujita scale states it must continue to support and maintain the original tornado database and there must be some conformity to that of the F-Scale that is listed in the database. When using the EF-Scale to determine the tornado's EF-rating,

begin with the 28 Damage Indicators.

- ✓ Each one of these indicators has a description of the typical construction for that category of indicator.
- ✓ Then the next step is to find the Degree of Damage (DOD).
- ✓ Each DOD in each category is given and expected estimate of wind speed, a lower bound of wind speed and an upper bound of wind speed.

The Enhanced Fujita (EF) Scale is a set of wind estimates (not measurements) based on damage. It uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to 28 indicators listed below, such as structural damage caused. These estimates vary with height and exposure. The *3-second gust* is not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured, and “one minute mile” speed. See Figure N, the Enhanced F-Scale for specifics on tornado damage.

Figure N. Enhanced Fujita (EF) Scale

EF-scale	Class	Wind speed		Description
		mph	km/h	
EF-0	weak	65-85	105-137	Gale
EF-1	weak	86-110	138-177	Moderate
EF-2	strong	111-135	178-217	Significant
EF-3	strong	136-165	218-266	Severe
EF-4	violent	166-200	267-322	Devastating
EF-5	violent	> 200	> 322	Incredible

Tornado Occurrences: Details from the NCDC reveal there have been 30 tornado occurrences over the last 65 years in Gadsden County. Table 4.24 below provides details on these events.

Gadsden County LMS Plan Update 2022

Table 4.24 – Tornado or Funnel Cloud Occurrences, Gadsden County (3/1/1950 – 6/20/2022)

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Gadsden County	11/14/1957	07:30	Tornado	F2	0	0	2.5K	0.00K
Gadsden County	6/20/1961	12:00	Tornado	F2	0	0	250K	0.00K
Gadsden County	11/23/1961	04:10	Tornado	F2	0	0	250K	0.00K
Gadsden County	6/1/1967	17:00	Tornado	F2	0	0	25K	0.00K
Gadsden County	6/12/1968	14:30	Tornado	F1	0	0	250K	0.00K
Gadsden County	2/15/1969	10:45	Tornado	F1	0	0	25K	0.00K
Gadsden County	12/25/1969	15:15	Tornado	F2	0	0	250K	0.00K
Gadsden County	6/27/1970	18:30	Tornado	F2	0	0	2.5K	0.00K
Gadsden County	6/25/1972	15:45	Tornado	F1	0	0	2.5K	0.00K
Gadsden County	6/25/1972	16:55	Tornado	F1	0	0	2.5K	0.00K
Gadsden County	10/27/1972	11:30	Tornado	F2	0	0	25K	0.00K
Gadsden County	10/27/1972	11:30	Tornado	F2	0	0	25K	0.00K
Gadsden County	4/25/1973	17:23	Tornado	F1	0	0	25K	0.00K
Gadsden County	1/30/1974	00:01	Tornado	F2	1	4	250K	0.00K
Gadsden County	5/11/1974	15:00	Tornado	F1	0	0	25K	0.00K
Gadsden County	2/17/1975	14:00	Tornado	F0	0	0	2.5K	0.00K
Gadsden County	7/2/1976	13:00	Tornado	F1	0	0	25K	0.00K
Gadsden County	4/4/1979	09:15	Tornado	F1	0	0	250K	0.00K
Wetumpka	11/11/1995	11:27	Tornado	F1	0	0	0.00K	0.00K
Mt. Pleasant	12/19/1995	03:15	Tornado	F2	1	1	30K	0.00K
Hinson	12/19/1995	03:25	Tornado	F1	0	0	20K	0.00K
Greensboro	1/16/1997	01:20	Tornado	F1	0	0	0.50K	0.00K
Midway	10/24/1997	13:40	Tornado	F1	0	0	200K	0.00K
Quincy	3/11/2000	20:45	Tornado	F0	0	0	0.00K	0.00K
Mt. Pleasant	2/18/2008	01:08	Tornado	EF1	0	1	200K	0.00K
River Junction	4/2/2009	16:25	Tornado	EF0	0	0	0.00K	0.00K
Quincy	4/8/2010	13:38	Tornado	EF0	0	0	0.00K	0.00K
Wetumpka	3/3/2012	09:25	Tornado	EF0	0	0	0.00K	0.00K
Sycamore	11/17/2014	05:38	Tornado	EF1	0	0	50K	0.00K
Gretna	11/18/2015	18:05	Tornado	EF0	0	0	0.00K	0.00K
Greensboro	3/3/2019	19:41	Tornado	EF1	0	0	50K	0.00K
Gretna	4/29/2020	18:34	Tornado	EF1	0	0	50K	0.00K
Totals:	Property Damage: \$2,288,000; Deaths 2; Injuries 6							

Source: <http://www.ncdc.noaa.gov/stormevents/listevents>

Key Code: Mag: Magnitude; Dth: Deaths; Inj: Injuries; PdD: Property Damage; CrD: Crop Damage

Hazard Event Narrative:

12/19/1995 – Mt. Pleasant - A tornado destroyed a mobile home carrying the two residents over 125 yards. The men were found four hours later, one man (50) was dead, the other, his brother, (49) was severely injured. Items from the dwelling were found three miles away. The estimated property damage was \$30,000.

10/24/1997 – Midway – There were four F1 tornado touchdowns. Numerous 12-24" diameter trees were uprooted on Gadsden County Road 159. There was considerable debris on Florida Highway 27 five miles NE of Midway. Also, power outages occurred in Midway. The estimated property damage was \$200,000.

2/18/2008 – Mt. Pleasant - The tornado touched down just south of Interstate 10 at Mile Marker 168, tractor trailer was blown over on the interstate with only minor injuries to the driver. The next area of damage was just east of the community of Hardaway, or three miles north of the interstate. At this location numerous trees were snapped or uprooted with minor damage to two mobile homes. A 19-foot boat was flipped over, and a shed was destroyed on Finnuff Road. More significant damage was observed in the community of Mt Pleasant where a few homes were damaged. A home on B.W. Martin Road sustained complete roof failure and a loss of a free-standing carport. The metal sheeting was scattered through the neighboring field and twisted like rope. About a mile north of U.S. Highway 90 on Mt Pleasant Road, two homes sustained severe roof damage with large oak trees uprooted around the homes. At this location, the tornado reached its peak intensity of EF1 with a path width of 150 yards prior to lifting as the parent supercell storm traveled northeast. The estimated property damage was \$200,000.

03/03/2019 — Greensboro -This EF-1 tornado touched down just west of Pat Thomas Highway, FL Route 267, and just north of Cox Lane. The tornado flipped a single-wide mobile home upside down. On the opposite side of the highway, a couple of large pine trees snapped, one of which crashed through the roof of a home narrowly crushing a couple that were in bed at the time. Fortunately, no one was injured. The tornado continued east southeast roughly paralleling the CSX tracks. An aerial survey showed trees snapped along the route. Ground surveys showed damage to homes along Jim Williams road. The tornado reached its greatest strength at this point, snapping a few small utility poles, removing about half the roof of one home and damaging a couple of others. The tornado lifted just beyond the end of this road. The estimated property damage was \$50,000.

04/29/20 — Gretna - The tornado touched down northeast of Gretna, FL in a field south of M&M Lane and moved northeast through a community with the final piece of damage being seen on Bainbridge highway. The majority of the damage was uprooted and snapped trees as well as some siding, roof, and undercarriage damage on manufactured homes. The areas to the northeast and southwest

were extensively surveyed but no additional damage was found.

Vulnerability

The vulnerability to tornado events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. Gadsden County is vulnerable to these wind disasters due to a high concentration, approximately 36% of the population housed in mobile homes. Also, the poorly constructed homes and the infrastructure property damage could be extensive. *Out of the 67 Counties in Florida, Gadsden County is ranked 37 from tornado occurrences over the last 63 years (1950 - 2013).*

Vulnerability for the Gadsden County's Population: Gadsden County had a growth rate of 4.2% from 2010 to 2015 from 46,389 residents in 2010 to an estimated figure of 48,315 residents in 2015. Since 2015, Gadsden County's estimated population has decreased to 43,813, as of April, 2021, according to the State of Florida Bureau of Economic and Business Research. Depending on the path of the tornado it could affect the entire residential area and especially impact the mobile home residents, approximately 15,705 residents or 36% of the County's population, as well as poorly constructed homes, which are considered very vulnerable to this natural hazard.

Vulnerability for Gadsden County's Structures and Facilities: In the event of a tornado, the potential for damage to mobile homes is significant. This potential increases with various factors, such as the proximity of the storm event to the structure, the age, and the construction quality.

The NCDC details reveal that Gadsden County has been very vulnerable to tornadoes historically, with property damage totaling \$2,188,000 from 1950 to 2016. This includes destruction of homes, mobile homes, barns, sheds, roofs, boats, crops and trees, and power lines downed. Details are limited as to exactly what property was damaged through the years.

The most damaging tornadoes that affected the structures and infrastructure in Gadsden were on the following dates 6/21/1961; 11/23/1961; 6/12/1968; 12/25/1969; 1/30/1974; 4/4/1979; 10/24/1997; 2/18/2008, and each occurrence had an estimated property damage figure of \$200,000 - \$250,000.

There were two recorded tornado occurrences that had a significant effect on the county population, as follows: 1/30/1974, with 1 death and 4 injured; and 12/19/1995 with 1 death and 1 injured

Tables 4.25 and 4.26 identify the structures by occupancy type and value of the structures that are vulnerable to severe thunderstorm (including tornado) events.

Table 4.25 – Annual Average Number of Structures by Occupancy Type that are Vulnerable to Severe

Thunderstorms (including Tornadoes) Hazard in Gadsden County

Thunderstorms Tornadoes	Residential	Commercial	Medica I	Industrial	Agriculture	Education	Government
2 – 3.5	906	21	15	12	66	1	11
3.5 – 9.5	13,228	428	214	116	1,225	17	100

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C.93

Table 4.26 – Annual Average Value of Structures by Occupancy Type that are Vulnerable to Severe Thunderstorms (including Tornadoes) Hazard in Gadsden County

Thunderstorms Tornadoes	Resid. (\$million)	Comm. (\$million)	Med. (\$million)	Indus. (\$million)	Agric. (\$million)	Educ. (\$million)	Govern. (\$million)
2 – 3.5	135.06	15.96	17.63	15.19	16.45	6.23	29.89
3.5 -9.5	2,141.14	288.49	159.32	126.15	330.01	103.27	230.68

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C.97

Problem Areas: *The entire county is vulnerable to* tornadoes especially the unincorporated areas with a high concentration of mobile homes, which accounts for approximately 26% of the County’s housing stock.

Probability

The probability for a tomado high for the entire county (at least one occurrence every year).

Location

The NCDC data reveals that the tomado events that have occurred in the incorporated and unincorporated areas within the county.

Extent

The worst-case scenario would be an F5 tornado with destructive winds of 261 – 318 miles per hour, complete devastation of homes leveled off foundations and swept away, businesses, churches, schools, and government buildings and other structures demolished, trees and power lines downed, the infrastructure destroyed resulting in a catastrophic storm event. Such an event could very likely result in multiple deaths and injuries.

The NCDC data on tornado occurrences reveal:

- ✓ There were several powerful F2 tornadoes recorded by NCDC (ten times out of 30 occurrences). There were eight tornado occurrences that had an estimated \$200,000 to \$250,000 in property damage.

- ✓ On 2/18/2008 – Mt. Pleasant - The tornado touched down just south of Interstate 10 at Mile Marker 168. A tractor trailer was blown over on the interstate with only minor injuries to the driver. The next area of damage was just east of the community of Hardaway, or three miles north of the interstate. At this location numerous trees were snapped or uprooted with minor damage to two mobile homes. A 19-foot boat was flipped over and a shed was destroyed on Finnuff Road. More significant damage was observed in the community of Mt Pleasant where a few homes were damaged. A home on B.W. Martin Road sustained complete roof failure and a loss of a freestanding carport. The metal sheeting was scattered through the neighboring field and twisted like rope. About a mile north of U.S. Highway 90 on Mt Pleasant Road, two homes sustained severe roof damage with large oak trees uprooted around the homes. At this location, the tornado reached its peak intensity of EF1 with a path width of 150 yards prior to lifting as the parent supercell storm traveled northeast. The estimated property damage was \$200,000.

- ✓ However, although there was limited information in the NCDC narrative on these two events, these occurrences were the worst-case scenario for the county:
 - ▶ 1/30/1974 - there was 1 death and 4 injured, and
 - ▶ 12/19/1995 - there was 1 death and 1 injury

Impact

The Gadsden County community, the residents, the structures, the infrastructure can be severely impacted tornado events that can bring powerful and destructive winds. Details from the NCDRC narratives state that Gadsden County has been impacted from the tornado events:

The tornado events impacting Gadsden County, and the damages they have caused suggest that the future impacts could include:

- ▶ destruction and/or damage to homes, mobile homes, barns, boats, roofs, sheds, crops, and trees;
- ▶ power lines and infrastructure damages;
- ▶ possible damage for the agricultural and forestry/timberland industries; and
- ▶ injury and/or death (a catastrophic loss).

The impacts associated with tornadoes can be very destructive or catastrophic on the county residential land use (especially the residents of mobile homes which account for 36% of the County's population), commercial, and public buildings, as well as the critical infrastructure such as transportation, water, energy, and communication systems.

In addition, the economic effect or financial impact could be devastating from a strong tornado event not only during the crisis phase, which immediately follows the event, through the recovery and rebuilding stages.

End of Tornado Profile

####

THUNDERSTORMS PROFILE, which includes High Winds, Lightning, and Hailstorms

Thunderstorms/Wind Events: A thunderstorm is a rain shower during which you hear thunder, and since thunder comes from lightning, all thunderstorms have lightning. A thunderstorm is the result of convection which is created by surface heating and is an upward atmospheric motion that transports whatever is in the air, especially moisture.

A thunderstorm that produces a tornado, winds of at least 58 mph or 50 knots, and/or hail of at least 1 inch in diameter. Structural wind damage may imply the occurrence of a severe thunderstorm. According to data from the National Weather Service, Gadsden County experiences thunderstorms on about 80 or more days per year (80 or more thunderstorm-days per year).

These storms have the potential of causing power outages and destruction or damage to buildings and can result in loss of life. The precipitation from a thunderstorm can result in flash flooding, and flooding can result from long-duration rainfall from repeated thunderstorms moving over the area ("training"). The lightning from thunderstorms can strike and kill or injure people and livestock, and cause structure fires and forest fires. Thunderstorms also have the capacity to produce strong straight-line winds that can knock down trees, and mobile homes. Tornadoes are typically spawned from thunderstorm systems and can be very destructive.

Thunderstorms facts according to NOAA's website (<http://www.spc.noaa.gov/wcm/2013/WIND.png>)

- They may occur singly, in clusters, or in lines.
- Some of the most severe occur when a single thunderstorm affects one location for an extended time.
- Thunderstorms typically produce heavy rain for a brief period, anywhere from 30 minutes to an hour.
- Warm, humid conditions are highly favorable for thunderstorm development.
- About 10 percent of thunderstorms are classified as severe—one that produces hail at least one inch in diameter, has winds of 58 miles per hour or higher, or produces a tornado.

High Winds: High winds are very strong winds with air moving from an area of high pressure to an area of low pressure. A high wind warning is defined as 1-minute average surface winds of 35 kt (40 mph or 64 km/hr) or greater lasting for 1 hour or longer, or winds gusting to 50 kt (58 mph or 93 km/hr) or greater regardless of duration that are either expected or observed over land.

Thunderstorm/Wind Occurrences: According to the NCDC, there have been 135 thunderstorms/wind events with a total property damage figure of \$346,500 over the last 72 years documented in Gadsden County. These thunderstorm/wind events are documented in Table 4.27, below, and on the following pages.

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022)

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Gadsden County	2/27/1958	03:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Gadsden County	8/16/1958	15:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Gadsden County	4/1/1959	22:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Gadsden County	6/20/1961	20:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Gadsden County	8/16/1965	15:00	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Gadsden County	7/12/1968	11:00	Thunderstorm Wind	60 kts.	0	0	0.00K	0.00K
Gadsden County	11/11/1968	10:05	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K
Gadsden County	12/28/1968	00:50	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K
Gadsden County	7/3/1970	17:45	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K
Gadsden County	7/16/1970	17:17	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K
Gadsden County	2/8/1971	05:05	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K
Gadsden County	3/28/1972	09:15	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K
Gadsden County	5/15/1975	07:10	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K
Gadsden County	5/21/1985	17:15	Thunderstorm Wind	0 kts	0	0	0.00K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Gadsden County	4/19/1988	02:30	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
Gadsden County	1/13/1992	01:05	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
TLH	7/9/1995	19:30	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
TLH	7/13/1995	17:15	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Greensboro	4/12/1997	12:50	Thunderstorm Wind		0	0	5K	0.00K
Chattahoochee	5/3/1997	11:00	Thunderstorm Wind		0	0	7K	0.00K
Juniper	11/1/1997	21:25	Thunderstorm Wind	50 kts.	0	0	5K	0.00K
Countywide	7/28/1998	19:45	Thunderstorm Wind		0	0	5K	0.00K
Havana	8/14/1999	16:15	Thunderstorm Wind		0	0	2K	0.00K
Countywide	1/24/2000	06:15	Thunderstorm Wind		0	0	10K	0.00K
Central Portion	3/11/2000	20:25	Thunderstorm Wind		0	0	100K	0.00K
Countywide	8/25/2000	14:05	Thunderstorm Wind		0	0	1K	0.00K
NE Portion	3/15/2001	07:45	Thunderstorm Wind		0	0	10K	0.00K
Quincy	7/3/2001	16:00	Thunderstorm Wind		0	0	1K	0.00K
Countywide	6/2/2004	14:30	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Hardaway	6/27/2004	17:48	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
Countywide	5/10/2006	23:45	Thunderstorm Wind	55 kts. EG	0	0	0.50K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Havana	3/2/2007	01:00	Thunderstorm Wind	55 kts. EG	0	0	1K	0.00K
Chattahoo- chee	6/9/2008	17:15	Thunderstorm Wind	60 kts. EG	0	0	5K	0.00K
Quincy	7/13/2008	17:51	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Altschul	6/29/2009	14:25	Thunderstorm Wind	55 kts. EG	0	1	30K	0.00K
Hardaway	12/9/2009	11:30	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
Quincy	4/5/2011	02:10	Thunderstorm Wind	60 kts. EG	0	0	75K	0.00K
Gibson	4/3/2012	14:30	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Douglas City	5/6/2012	16:20	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Mt. Pleasant	5/6/2012	16:20	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Darsey	5/6/2012	16:20	Thunderstorm Wind	50 kts. EG	0	0	1.5K	0.00K
Douglas City	5/6/2012	16:20	Thunderstorm Wind	50 kts. EG	0	0	3K	0.00K
Magnet Cove	5/6/2012	16:24	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Juniper	5/6/2012	16:25	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Juniper	5/6/2012	16:30	Thunderstorm Wind	50 kts. EG	0	0	1.5K	0.00K
Concord	5/6/2012	16:30	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Quincy	5/6/2012	16:30	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Shady Rest	5/6/2012	16:30	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Hardaway	6/1/2012	15:13	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Santa Clara	6/11/2012	14:52	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Havana	6/14/2012	12:20	Thunderstorm Wind	50 kts. EG	0	0	1.5K	0.00K
Hardin Heights	7/17/2012	14:39	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Sycamore	7/17/2012	14:57	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Quincy	7/25/2012	15:30	Thunderstorm Wind	50 kts. EG	0	0	3K	0.00K
Quincy	12/17/2012	14:10	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Quincy	12/20/2012	15:48	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Chattahoochee	1/30/2013	17:50	Thunderstorm Wind	50 kts. E	0	0	4K	0.00K
Greensboro	6/28/2013	17:34	Thunderstorm Wind	50 kts. E	0	0	1K	0.00K
Havana	6/28/2013	17:53	Thunderstorm Wind	50 kts. E	0	0	2K	0.00K
Chattahoochee	7/23/2013	19:03	Thunderstorm Wind	50 kts. E	0	0	3K	0.00K
Lake Talquin	7/23/2013	19:33	Thunderstorm Wind	50 kts. E	0	0	2K	0.00K
Gretna	1/11/2014	13:00	Thunderstorm Wind	50 kts. E	0	0	1K	0.00K
Quincy	1/11/2014	13:07	Thunderstorm Wind	50 kts. E	0	0	1K	0.00K
Magnet Cove	1/11/2014	13:10	Thunderstorm Wind	50 kts. E	0	0	1K	0.00K
Douglas City	1/11/2014	13:11	Thunderstorm Wind	50 kts. E	0	0	1K	0.00K
Wetumpka	1/11/2014	13:12	Thunderstorm Wind	50 kts. E	0	0	1K	0.00K
Greensboro	1/11/2014	13:12	Thunderstorm Wind	50 kts. E	0	0	2K	0.00K
Havana	4/15/2014	03:15	Thunderstorm Wind	50 kts. E	0	0	3K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Indian Springs	5/25/2014	16:00	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Quincy	6/6/2014	22:24	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Quincy	6/8/2014	14:50	Thunderstorm Wind	50 kts. EG	0	0	3K	0.00K
Quincy Arpt	6/8/2014	18:49	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Littman	6/8/2014	18:54	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Freemont	6/21/2014	15:06	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Lake Talquin	7/15/2014	11:00	Thunderstorm Wind	50 kts. EG	0	0	.50K	0.00K
Gretna	7/28/2014	18:40	Thunderstorm Wind	50 kts. EG	0	0	.50K	0.00K
Sawdust	8/9/2014	14:48	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Lake Talquin	11/23/2014	15:30	Thunderstorm Wind	65 kts. EG	0	0	3K	0.00K
Lake Talquin	11/23/2014	15:30	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Wetumpka	4/20/2015	09:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Greensboro	4/20/2015	09:17	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Shady Rest	4/20/15	09:22	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Midway	4/20/2015	09:24	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Midway	4/20/2015	09:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Freemont	5/31/2015	12:35	Thunderstorm Wind	50 kts. EG	0	0	1K	0.00K
Mt. Pleasant	6/30/2015	12:31	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Quincy	6/30/2015	12:40	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Freemont	6/30/2015	13:04	Thunderstorm Wind	55 kts. EG	0	0	5K	0.00K
Lake Talquin	7/21/2015	17:40	Thunderstorm Wind	50 kts. EG	0	0	4K	0.00K
Quincy	7/21/2015	18:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Greensboro	7/21/2015	18:30	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Douglas City	7/21/2015	19:03	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Havana	7/22/2015	18:08	Thunderstorm Wind	50 kts. EG	0	0	4K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Hardaway	7/24/2015	17:00	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Quincy	7/24/2015	17:10	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Douglas City	7/29/2015	17:37	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Sycamore	8/4/2015	14:36	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Hardin Heights	8/7/2015	17:05	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Greensboro	8/7/2015	17:10	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Gretna	9/5/2015	18:40	Thunderstorm Wind	50 kts. EG	0	0	2K	0.00K
Mt. Pleasant	9/5/2015	19:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Oak Grove	05/20/2016	6:33	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Wetumpka	06/16/2016	14:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Scotland	07/31/2016	16:05	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Magnet Cove	01/22/2017	6:05	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Jamieson	01/22/2017	6:13	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Concord	01/22/2017	6:15	Thunderstorm Wind	50 KTS EG	0	0	3000	0
Littman	01/22/2017	7:15	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Hinson	01/22/2017	7:15	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Sawdust	01/22/2017	14:39	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Darsey	01/22/2017	14:42	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Gretna	01/22/2017	14:42	Thunderstorm Wind	50 KTS EG	0	0	2000K	0.00K
Sycamore	02/07/2017	18:08	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Rosedale	02/07/2017	18:10	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Branchville	02/07/2017	18:30	Thunderstorm Wind	50 KTS EG	0	0	3000	0.00K
Scotland	07/13/2017	17:42	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Dogtown	07/13/2017	17:47	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Branchville	07/13/2017	17:47	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Havana	07/13/2017	17:47	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Mount Pleasant	08/30/2017	15:40	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Quincy	03/19/2018	3:00	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Quincy	07/21/2018	12:06	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Douglas City	08/31/2018	15:20	Thunderstorm Wind	50 KTS EG	0	0	1000	0.00K
Gretna	09/03/2018	16:05	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Mount Pleasant	09/03/2018	16:05	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Mount Pleasant	09/03/2018	16:06	Thunderstorm Wind	50 KTS EG	0	0	1000	0.00K
Quincy	01/19/2019	20:30	Thunderstorm Wind	50 KTS EG	0	0	5000	0.00K
Sycamore	05/12/2019	11:52	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Hardin Heights	07/07/2019	19:45	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Wetumpka	09/18/2019	16:30	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Quincy	02/06/2020	16:50	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Juniper	04/23/2020	16:45	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Gretna	04/23/2020	16:50	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Sycamore	05/22/2020	14:55	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K

Gadsden County LMS Plan Update 2022

Table 4.27 – Thunderstorm/Wind Occurrences, Gadsden County (3/1/1950 – 6/20/2022), Continued

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Hardaway	05/22/2020	14:55	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Shady Rest	06/23/2020	11:30	Thunderstorm Wind	50 KTS EG	0	0	1000	0.00K
Hinson	06/23/2020	11:39	Thunderstorm Wind	50 KTS EG	0	0	2000	0.00K
Littman	07/10/2020	17:55	Thunderstorm Wind	50 KTS EG	0	0	2000	0.00K
Sawdust	07/22/2020	16:15	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Oak Grove	07/22/2020	16:26	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Rosedale	07/22/2020	16:32	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Chattahoo- chee	07/22/2020	16:32	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Oak Grove	08/11/2020	12:38	Thunderstorm Wind	50 KTS EG	0	0	2000	0.00K
River Junction	08/11/2020	12:45	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Quincy Municipal Arpt	12/24/2020	13:33	Thunderstorm Wind	50 KTS EG	0	0	0.00K	0.00K
Gretna	01/02/2022	20:00	Thunderstorm Wind	50 KTS EG	0	0	1000	0.00K
Total	Property Damage: \$372,500; Injury: 1							

Source: <http://www.ncdc.noaa.gov/stormevents/listevents>

Key Code: Mag: Magnitude; Dth: Deaths; Inj: Injuries; PdD: Property Damage; CrD: Crop Damage

Hazard Event Narrative - Thunderstorm/Wind

The highest estimated magnitude extent was 65 kts (approximately 74.8007 75 miles per hour), which occurred on 11/23/2014 at Lake Talquin.

The highest property damage figure was \$100,000, which occurred on 3/11/2000 in the Central Portion of the County. There were numerous downed trees and power poles. Downed trees littered Interstate 10 at the Greensboro exit causing a series of minor traffic

accidents. Several road signs were blown over. High winds forced a semi-truck onto an embankment.

The 2nd highest property damage figure was \$75,000 on 4/5/2011 in Quincy. Trees were blown down across the county with 58 homes with minor to major damage in Quincy. Downed trees blocked numerous roads. The monetary damage figure provided was a rough estimate.

The magnitude was not identified on approximately 19% of the thunderstorm/wind occurrences; however, the events that did have the magnitude, over 75% (or 76 events) were 50 kts. magnitude or more, which would categorize them as severe thunderstorms.

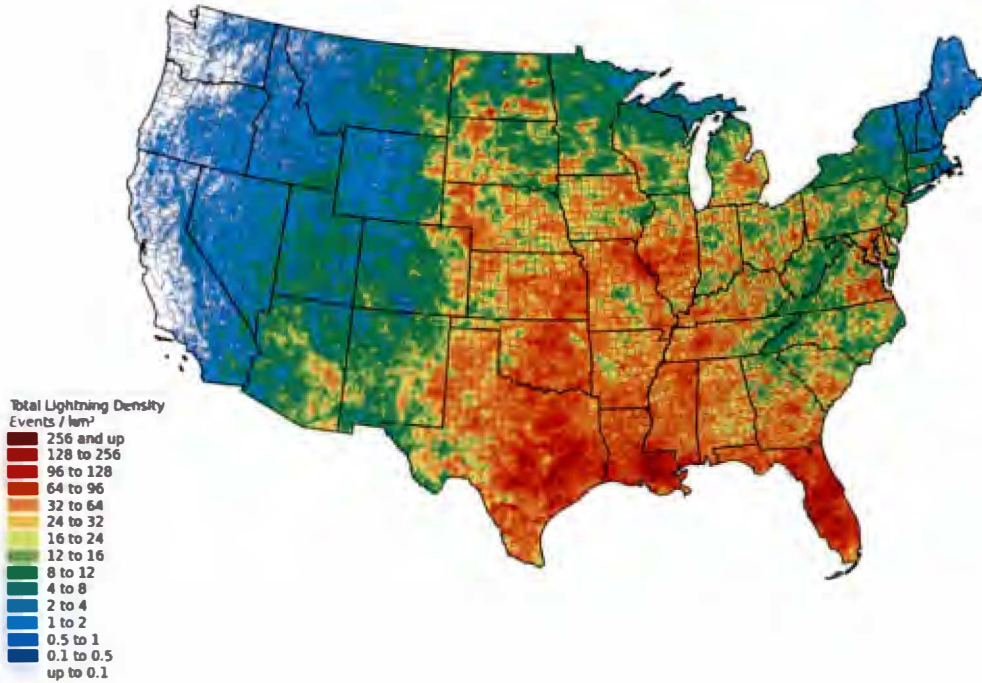
Summary of several events – Trees and power lines were downed in various thunderstorm/wind events. In addition, on 6/29/2009 in Altschul, a roof was blown off a house and several trees were down along Rich Bay Road. A downed tree fell through a mobile home and injured the lone occupant.

Lightning

Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt." This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches a temperature approaching 50,000 degrees Fahrenheit in a split second.

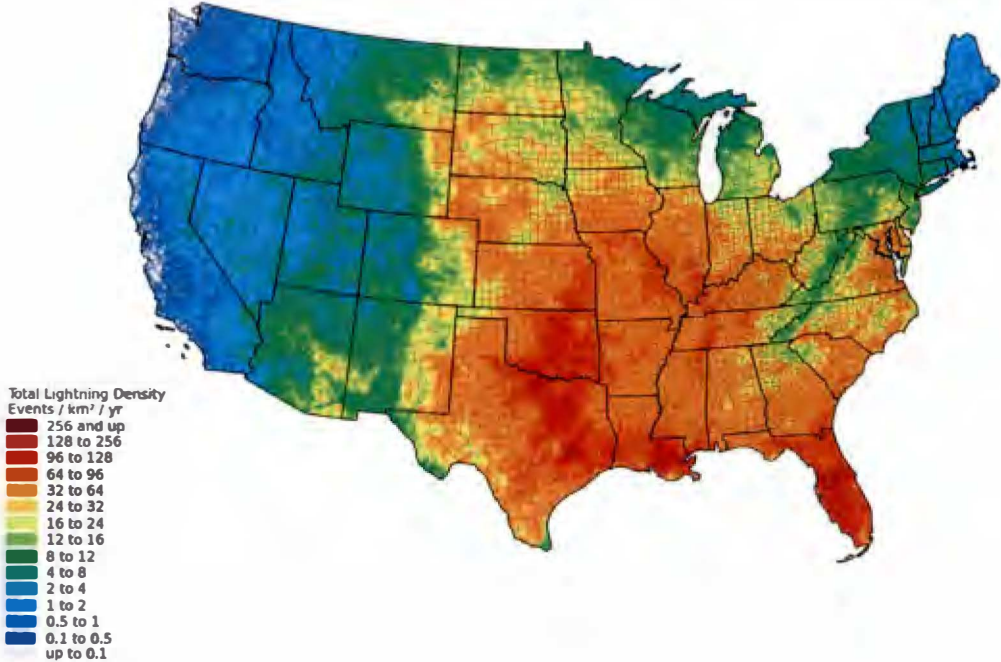
Lightning is the second most common storm-related killer in the United States. It causes several billion dollars in property damage each year and kills several dozen people. It is a frequent cause of wildfires and costs airlines billions of dollars per year in extra operating expenses. The State of Florida has the highest number of deaths from lightning strikes, and the highest frequency of lightning in the United States.

**Figure N.1. Total lightning density gridded map 2021
Cloud-to-ground strokes plus cloud pulses**



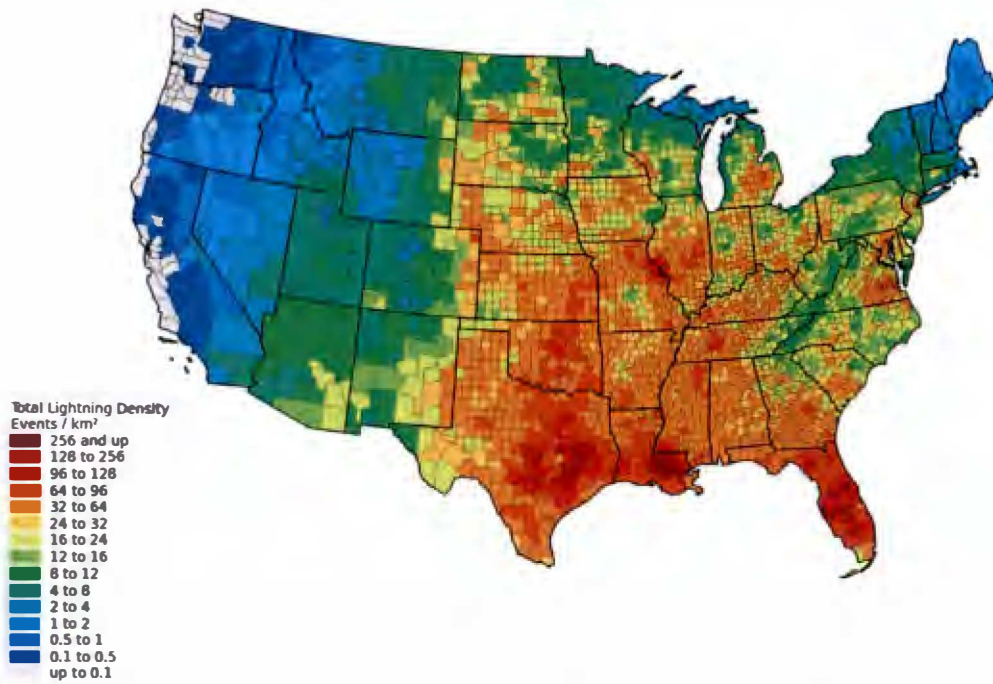
Vaisala 2021, ANNUAL LIGHTNING REPORT © Vaisala 2022

**Figure N.2. Total lightning density gridded map 2015–2020
Cloud-to-ground strokes plus cloud pulses**



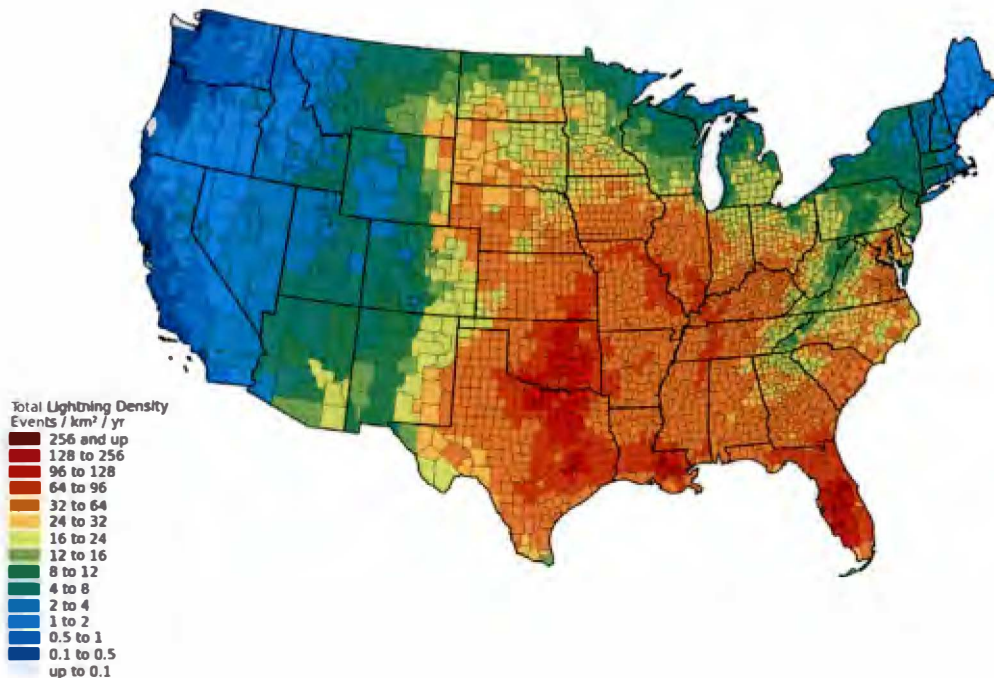
Vaisala 2021, ANNUAL LIGHTNING REPORT © Vaisala 2022

Figure N.3. Total lightning density 2021, per county



Vaisala 2021, ANNUAL LIGHTNING REPORT © Vaisala 2022

Figure N.4. Total lightning density 2015-2020, per county



Vaisala 2021, ANNUAL LIGHTNING REPORT © Vaisala 2022

Facts about lightning:

- Lightning's unpredictability increases the risk to individuals and property.
- Lightning often strikes outside of heavy rain and may occur as far as 10 miles away from any rainfall.
- "Heat lightning" is actually lightning from a thunderstorm too far away for thunder to be heard, however, the storm may be moving in your direction.
- Most lightning deaths and injuries occur when people are caught outdoors in the summer months during the afternoon and evening.
- Your chances of being struck by lightning are estimated to be 1 in 600,000, but could be reduced even further by following safety precautions.
- Lightning strike victims carry no electrical charge and should be attended to immediately.

Lightning Occurrences: As recorded by the NCDC, there was 2 lightning events in Gadsden over the last 65 years.

Table 4.28 – Lightning Occurrences, Gadsden County (3/1/1950 – 5/10/2022)

Location	Date	Time	Type	Dth	Inj	PrD	CrD
Havana	6/29/1997	14:05	Lightning	1	2	0.00K	0.00K
Chattahoochee	6/27/2004	17:45	Lightning	0	0	10K	0.00K
Total	Property Damage: \$10,000; Deaths: 1; Injuries: 2						

Key Code: Dth: Deaths; Inj: Injuries; PdD: Property Damage; CrD: Crop Damage

Source: <http://www.ncdc.noaa.gov/stormevents/listevents>

Hazard Event Narrative:

6/29/1997 – Havana -Three people working on a farm were headed for the shelter of their truck when a lightning bolt struck. The two survivors were knocked unconscious but recovered. Their friend and coworker were apparently killed instantly by the strike.

6/27/2004 – Chattahoochee - Lightning damaged a communications tower.

Fires caused by Lightning: Information concerning fires caused by lightening is included in the “Wildfires Profile” below.

Hailstorms

Hail is precipitation in the form of lumps of ice produced by convective clouds and typically accompanies thunderstorms. They can grow by colliding with supercooled water drops, which will freeze on contact with ice crystals, frozen raindrops, dust, or some other nuclei. Thunderstorms that have a strong updraft keep lifting the hailstones up to the top of the cloud where they encounter more supercooled water and continue to grow. The hail falls when the thunderstorm's updraft cannot support the weight of the ice, or the updraft weakens and the stronger the updraft the larger the hailstone can grow. Hail can damage aircraft, homes, and cars, and can be deadly to livestock and people.

Gadsden County LMS Plan Update 2022

Hailstorm Occurrences: According to the NCDC, over the 65 years, there have been 24 hailstorm events documented in Gadsden County. These events are documented in Table 4.29, below.

Table 4.29– Hailstorm Occurrences in Gadsden County (3/1/1950 – 3/30/2022)

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Gadsden County	5/27/1968	17:20	Hail	1.75 in.	0	0	0.00K	0.00K
Gadsden County	6/12/1968	14:30	Hail	1.00 in.	0	0	0.00K	0.00K
Gadsden County	12/29/1983	00:00	Hail	1.75 in.	0	0	0.00K	0.00K
Gadsden County	5/10/1985	13:30	Hail	1.75 in.	0	0	0.00K	0.00K
Gadsden County	5/21/1985	17:15	Hail	1.75 in.	0	0	0.00K	0.00K
Gadsden County	6/8/1985	12:30	Hail	1.75 in.	0	0	0.00K	0.00K
Gadsden County	3/26/1987	10:20	Hail	1.25 in.	0	0	0.00K	0.00K
Gretna	3/18/1995	16:05	Hail	1.50 in.	0	0	0.00K	0.00K
Havana	5/15/1997	17:00	Hail	0.75 in.	0	0	0.00K	0.00K
Chattahoochee	3/8/1998	18:30	Hail	1.00 in.	0	0	0.00K	0.00K
Quincy	3/11/2000	20:25	Hail	1.75 in.	0	0	0.00K	0.00K
Quincy	7/3/2001	16:00	Hail	1.50 in.	0	0	0.00K	0.00K
Greensboro	4/3/2002	17:40	Hail	2.75 in.	0	0	0.00K	0.00K
Quincy	6/4/2002	15:00	Hail	1.00 in.	0	0	0.00K	0.00K
Greensboro	5/8/2006	16:04	Hail	0.75 in.	0	0	0.00K	0.00K
Concord	6/27/2006	15:15	Hail	1.00 in.	0	0	0.00K	0.00K
Midway	2/13/2007	15:40	Hail	0.88 in.	0	0	0.00K	0.00K
Midway	8/24/2007	15:12	Hail	0.75 in.	0	0	0.00K	0.00K
Juniper	4/13/2009	14:00	Hail	0.88 in.	0	0	0.00K	0.00K
Quincy	4/13/2009	14:30	Hail	1.75 in.	0	0	0.00K	0.00K
Midway	4/28/2011	07:20	Hail	1.50 in.	0	0	0.00K	0.00K
Hardaway	5/22/2012	15:00	Hail	1.75 in.	0	0	0.00K	0.00K
Chattahoochee	3/23/2013	08:22	Hail	0.88 in.	0	0	0.00K	0.00K
Havana	6/21/2014	15:00	Hail	0.88 in.	0	0	0.00K	0.00K
Magnet Cove	4/21/2021	12:5	Hail	1.00 in.	0	0	0.00K	0.00K
Total	Property Damage: N/A							

Source: <http://www.ncdc.noaa.gov/stormevents/listevents>

Key Code: Mag: Magnitude; Dth: Deaths; Inj: Injuries; PdD: Property Damage; CrD: Crop Damage

Hazard Event Narrative:

- ✓ The magnitude extent was 2.75 inches (the dimension is up to a baseball size), which occurred on 4/3/2002. Narrative details state that golf ball to baseball size hail was reported by the Gadsden County Sheriff.
- ✓ Quarter size hail, 1.0 inches +, occurred 17 times or approximately 68% throughout the entire county.

Vulnerability

The vulnerability to thunderstorm/wind, lightning and hailstorm events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. The entire county, the population, the structures, and facilities are at risk and vulnerable to thunderstorm/wind, lightning, and hailstorm events, especially the manufactured and mobile homes, which accounts for approximately 33% of the residential inventory, to wind and possibly hailstorm disasters.

A severe thunderstorm contains either hail one inch or greater and winds gusts in excess of 50 knots (57.5 mph). The thunderstorm/winds have the potential of causing power outages and destruction or damage to buildings and can result in loss of life. Flash flooding from rainfall and strong straight-line winds can knock down trees, and damage mobile homes and roofs. According to the NCDC, there were 146 thunderstorm/wind events over the last 72 years. The magnitude was not identified on approximately 19% of the thunderstorm/wind events, however, the occurrences that did have the magnitude, over 85% were 50 kts. magnitude or more, which would categorize them as severe thunderstorms.

The vulnerability from a lightning occurrence can be disastrous for the county's population, the agricultural and timberland, and the structures. Fires can spark and ignite from lightning and data from the Florida Forest Service over the last 22 years reveal that lightning has contributed to 19 fires that have burned 294.3 acres of land in the County. Note, in 1997, Gadsden County had a very unfortunate lightning event with three farm workers (two were injured and one died) from a lightning strike.

The county should anticipate at least one major thunderstorm every year, and at least one hailstorm occurrence every three years every year, and at least one lightning event every that 10 years that might have the potential for property damage.

Vulnerability for the Gadsden County's Population: Since 2015, Gadsden County's estimated population has decreased to 43,813, as of April, 2021, according to the State of Florida Bureau of Economic and Business Research. All jurisdictions within the county have been affected by thunderstorm/wind and hailstorm occurrences. Data reveals that the unincorporated areas in the county, the town of Havana and the city of Chattahoochee have experienced lightning events. The entire unincorporated and incorporated area residents of Gadsden County especially the mobile home residents, which consist of 36% of the county's population, and are the most vulnerable to severe thunderstorms, high winds, and hailstorms.

Vulnerability for Gadsden County's Structures and Facilities: In the event of a strong wind and rain event, the potential for damage to mobile homes is significant. This potential increases with various factors, such as the proximity of the storm event to the structure, the age, and the construction quality. And as noted, the entire planning community has been affected by thunderstorm, strong winds and hailstorm events.

The NCDC details reveal that Gadsden County has had vulnerability over the last 72 years with 146 thunderstorm/wind occurrences and an estimated property damage figure with over \$372,500. This figure consists of all types of property including homes, roofs,

mobile homes, trees, road signs, and other structures. Details were limited as to exactly what property was damaged through the years.

The most damaging thunderstorm/wind occurrence that affected the population and structures in Gadsden was on 3/11/2000 in Lake Talquin with an estimated property damage figure of \$100,000.

Tables 4.30 and 4.31, below, identify the structures by occupancy type and value of the structures that are vulnerable to severe thunderstorm (hail and wind events).

Table 4.30 – Annual Average Number of Structures by Occupancy Type that are Vulnerable to Severe Thunderstorms (including Hail and Wind) Hazard in Gadsden County

Thunderstorms Hail and Wind	Residential	Commercial	Medical	Industrial	Agriculture	Education	Government
2 – 3.5	906	21	15	12	66	1	11
3.5 – 9.5	13,228	428	214	116	1,225	17	100

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C.93

Table 4.31 – Annual Average Value of Structures by Occupancy Type that are Vulnerable to Severe Thunderstorms (including Hail and Wind) Hazard in Gadsden County

Thunderstorms Hail and Wind	Resid. (\$million)	Comm. (\$million)	Med. (\$million)	Indus. (\$million)	Agric. (\$million)	Educ. (\$million)	Govern. (\$million)
2 – 3.5	135.06	15.96	17.63	15.19	16.45	6.23	29.89
3.5 -9.5	2,141.14	288.49	159.32	126.15	330.01	103.27	230.68

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C.97

Problem Areas: The entire planning community would be vulnerable to thunderstorm wind and hailstorm occurrences with a high concentration of mobile homes, housing approximately 36% of the County’s population. In addition, the unincorporated areas of the county are the most susceptible to lightning events due to the data revealed that approximately 3% of the wildfires in the past 25 years were caused by lightning. Data also affirm that the city of Chattahoochee and town of Havana have been affected by lightning strikes in the past.

Probability
The probability for thunderstorm/wind events is high for the entire county (at least one occurrence every year). The probability for hailstorms and lightning is considered medium (at least one occurrence every 3 years).
Location
The NCDC data reveals that the thunderstorm/wind and hailstorm events have occurred throughout the entire county and in each jurisdiction. The county had two lightning occurrences recorded from the NCDC database, however details reveal from the Florida Forest Service that fires that have started from a lightning event in the unincorporated areas of the county, approximately 3% of the fires identified by causes.

Extent

The worst-case scenario for the following storm events:

Thunderstorm/Wind

- ✓ The magnitude extent was 65 kts (approximately 75 miles per hour), which occurred on 11/23/2014 in Lake Talquin.
- ✓ The highest property damage figure was \$100,000, which occurred on 3/11/2000 in the Central Portion of the county. There were numerous downed trees and power poles. Downed trees littered Interstate 10 at the Greensboro exit causing a series of minor traffic accidents. Several road signs were blown over. High winds forced a semi-truck onto an embankment.
- ✓ The 2nd highest property damage figure was \$75,000 on 4/5/2011 in Quincy. Trees were blown down across the county with 58 homes with minor to major damage in Quincy. There were numerous roads blocked by downed trees. The property damage figure was a rough estimate and the total figure was probably much higher than \$75,000, and could possibly have been greater than the \$100,000 damage that occurred in March of 2000.

Lightning

- ✓ According to the lightning density maps, R1-R4, the extent would be 32 – 64 events/sq km/year for Gadsden County.
- ✓ Injury or death as noted on 6/29/1997 when three farm workers in Havana were hit by a lightning strike resulting in two injuries and one death.
- ✓ Also, lightning has contributed to damage to the acreage in the unincorporated area of the county noting 15 fires due to lightning and 205.7 acres have burned.

Hailstorms

The magnitude extent reflected by hail with a 2.75-inch diameter (the size of a baseball) on the following date:

- ✓ 4/3/2002 in Greensboro. There was no associated property damage data recorded.

Impact

The Gadsden County community, the residents, the structures, the infrastructure can be impacted by thunderstorm/wind, lightning, or hailstorm events.

The NCDC and Florida Forest Service details reveal:

Thunderstorm/Wind

- ✓ The magnitude extent was 65 kts (approximately 75 miles per hour), which occurred on 11/23/2014 in Lake Talquin.
- ✓ The highest property damage figure was \$100,000, which occurred on 3/11/2000 in the Central Portion of the county. There were numerous downed trees and power poles. Downed trees littered Interstate 10 at the Greensboro exit causing a series of minor traffic accidents. Several road signs were blown over. High winds forced a semi-truck onto an embankment.
- ✓ The 2nd highest property damage figure was \$75,000 on 4/5/2011 in Quincy. Trees were blown down across the county with 58 homes with minor to major damage in Quincy.
- ✓ There were numerous roads blocked by downed trees. The property damage figure was a rough estimate, and the total figure was probably much higher than \$75,000 and could possibly have been greater than the \$100,000 damage that occurred in March of 2000.
- ✓ The magnitude was not identified on approximately 19% of the thunderstorm/wind occurrences; however, the events that did have the magnitude, over 80% were 50 kts. magnitude or more, which would categorize them as severe thunderstorms.
- ✓ Summary of several events – Trees and power lines were downed in various thunderstorm/wind events. In addition, on 6/29/2009 in Altschul, a roof was blown off a house and several trees were down along Rich Bay Road. A downed tree fell through a mobile home and injured the lone occupant.

Impact, Continued

Lightning

- ✓ There were three farmworkers that were struck by a lightning bolt on 6/29/1997 in the town of Havana. Two of the workers were injured and one was killed instantly by the strike.
- ✓ Lightning damaged a communications tower in the city of Chattahoochee on 6/27/2004.
- ✓ 19 fires have been a direct result from lightning events that burned over 294.3 acres of the last 22 years.

Hailstorms

A previous hailstorm produced hail with a diameter of 2.75 inches (the size of a baseball) in Greensboro. There was no property damage recorded from this storm. It is noted that hailstorms can cause serious damage to crops (especially to wheat, corn (a top agricultural product for the county), and soybeans), livestock, automobiles, aircrafts, skylights, and other structures particularly if the hailstones exceed 0.5 inches in diameter.

The thunderstorm/wind, lightning or hailstorm events impacting Gadsden County, and the damages they have caused suggest that the future impacts could include:

- ✓ Damage to the residential inventory (homes and mobile homes), roofs, the trees, power outages, road signs, communications tower, the infrastructure, and acreage burned from wildfires.

The impacts associated with strong thunderstorm/winds can be very destructive on the county's housing stock, (especially the mobile homes, which account for 26% of the residential structures), older and weaker structures and buildings, as well as to critical infrastructure such as transportation, water, energy, and communication systems.

End of Occurrences Thunderstorms Profile

####

LANDSLIDE PROFILE

According to the Department of Environmental Protection (DEP)... "Landslides are very rare in Florida, a state generally known to be fairly flat (characterized by low topographic relief.) Gravity is the force that is responsible for landslides. In areas where there are steep slopes, unconsolidated soils and sediments may move downward. This movement may be too slow to notice, in which case it is called soil creep. If the movement is sudden and catastrophic, it is referred to as a landslide or slump. Landslides may be associated with excessive amounts of rain that lead to saturation of earth materials by water. The steepening of slopes by erosion or construction may also be a factor in the development of landslides."

Landslide Occurrences: In addition, the DEP stated ... "the only documented landslide in Florida occurred in Gadsden County, which is located in the northern Florida panhandle, on April 1, 1948 on the farm of Mr. D. W. Pitt. The slide was located on an upland bounded by a very steep north-facing slope. That north-facing slope formed the south bank of Flat Creek. Soil and unconsolidated sediment flowed downhill in a northeasterly direction into the streambed of Flat Creek. Although the slide was not extensively investigated, it may have been triggered by the flow of flood swollen Flat Creek."

Details from this landslide occurrence in 1948 reveal that the area that was most affected was about three miles northwest of Greensboro with soil flow into the northeast into the Flat Creek stream. Further details on the landslide from the Florida Geological Survey in Gadsden County describe this event; the photo below of the scene is the southwest view of the scarp formed by the Pitt landslide:

Figure O – Florida Geological Survey, Landslide in Gadsden County

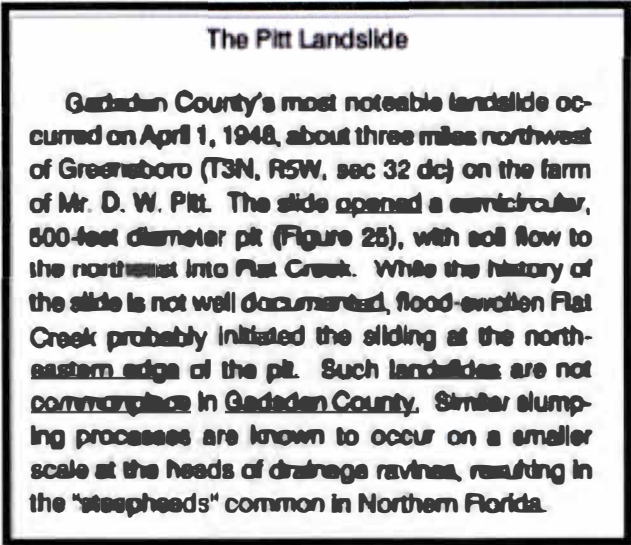


Source: Florida Geological Survey

Vulnerability

The vulnerability to landslide events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. The overall vulnerability for the county's population, the structures, buildings, facilities, and infrastructure from landslides is very low.

As recorded by the DEP, there has only been one landslide in the State of Florida, and it occurred in Gadsden County in 1948. There has not been another landslide occurrence in over 73 years in the county, or within the State. When this event occurred, the area most vulnerable was the farmland located three miles northwest of Greensboro.



There was very limited data recorded from this event in reference to extent or impact.

Problem Area:

Probability
The probability for landslide would be very low and the chances are minimal.
Location
The only area in the county that experienced a landslide was three miles NW of Greensboro.
Extent
The worst-case scenario for a landslide event occurred on April 1, 1948 three miles NW of Greensboro. Details reveal that the slide opened a semicircular, 500 feet diameter pit with soil flow to the NE into Flat Creek.
Impact
The history of the slide was not well documented therefore the impact details are limited. However, landslides can have an effect on the environment including the topography, the quality of rivers, streams, and groundwater flow, the forestland, and habitats of the natural wildlife. The impact from the historic landslide event would have possibly had an impact on the environment and the residents that lived close by.

End of Landslide Profile

####

WILDFIRES' PROFILE

A wildfire is any uncontrolled fire in combustible vegetation that occurs in the countryside or a wilderness area. Other names such as brush fire, bushfire, forest fire, grass fire, hill fire, peat fire, vegetation fire, veldfire and wildland fire may be used to describe the same phenomenon depending on the type of vegetation being burned.

Wildfires differ from other fires by its extensive size, the speed at which it can spread out from its original source, its potential to change direction unexpectedly, and its ability to jump gaps such as roads, rivers, and firebreaks. Wildfires are characterized in terms of the cause of ignition, their physical properties such as speed of propagation, the combustible material present, and the effect of weather on the fire.

Florida's ecosystems are dependent on natural fire. These low intensity fires re-nourish soil, thin abundant vegetation, and provide proper conditions for reproduction and forage. However, since the early 1950's when Floridians actively began to suppress all fires to protect newly planted forest areas and keep newly built dwellings safe, vegetative fuel has become dense and thick. Natural fires have given way to dangerous wildfires, which often damage rather than benefit natural surroundings.

The growing number of people relocating to Florida adds to the wildfire problem as nearly 1,000 people move to Florida each day. Additionally, Floridians who are tired of big-city life are moving to rural areas to "get back to nature." Many of them choose to live in areas where natural vegetation meets homes and communities. These areas are called the Wildland-Urban Interface, and many of these new residents are unaware of the natural role of fire in Florida and therefore are unprepared.

Wildland-Urban Interface fires are fast moving fires that often require many pieces of firefighting equipment, and suppression is a difficult and time-consuming operation. Wildfire suppression must also take on the challenge of home protection during almost every fire that is detected. The cost of these operations grows proportionally with their complexity.

Historical Data -- All Types of Fires in Gadsden County: Table 4.32 reports statistics from the Florida Forest Service, Fires by Cause, from 2000 to 2016; Table 4.33 reports statistics from the Florida Forest Service, Fires by Cause, from 2016 to 2022. Combining the data in these tables reveals that during the 22-year period, from 2000 to 2022, a total of 567 fires occurred burning over 3233.9 acres In Gadsden County.

Gadsden County LMS Plan Update 2022

Table 4.32 – Fires by Cause, Gadsden County, 1/1/2000–9/20/2016

Cause	Fires	Percent	Acres	Percent
Campfire	3	0.70	1.1	0.04
Children	11	2.58	66.0	2.42
Debris Burn *	60	14.05	285.8	10.50
Debris Burn – Authorized Broadcast/Acreage	24	5.62	442.6	16.25
Debris Burn – Authorized – Piles	4	0.94	141.0	5.18
Debris Burn – Authorized – Yard Trash	42	9.84	136.7	5.02
Debris Burn – NonAuthorized Broadcast/Acreage	7	1.64	144.0	5.29
Debris Burn – NonAuthorized – Piles	24	5.62	60.4	2.22
Debris Burn – NonAuthorized – Yard Trash	69	16.16	195.0	7.16
Equipment Use *	9	2.11	18.2	0.67
Equipment – Agriculture	5	1.17	22.1	0.81
Equipment – Logging	4	0.94	3.3	0.12
Equipment – Recreation	1	0.23	7.0	0.26
Equipment – Transportation	11	2.58	74.4	2.73
Incendiary	14	3.28	78.3	2.88
Lightning	15	3.51	205.7	7.55
Misc. – Breakout	2	0.47	3.0	0.11
Misc. – Electric Fence	4	0.94	13.5	0.50
Misc. – Fireworks	2	0.47	16.1	0.59
Misc. - Power Lines	10	2.34	133.7	4.91
Misc. – Structure	5	1.17	70.4	2.59
Misc. – Other	19	4.45	60.6	2.23
Railroad	13	3.04	128.9	4.73
Smoking	7	1.64	20.8	0.76
Unknown	62	14.52	394.5	14.49
Total	427	100	2,723.1	100

* Fire cause no longer used

Source Florida Forest Service: <http://tthforweb03.doacs.state.fl.us/PublicReports/FiresByCause.aspx>

Gadsden County LMS Plan Update 2022

Table 4.33 – Fires by Cause, Gadsden County, 9/21/2016– 4/22/2022

Case	Fires	Percent	Acres	Percent
Campfire	0	0	0.0	0
Children	2	0.43	0.6	0.12
Debris Burn*	0	0	0.0	0
Debris Burn--Auth--Broadcast/Acreage	66	11.43	160.5	31.42
Debris Burn--Auth--Piles	10	1.14	32.2	6.22
Debris Burn--Auth--Yard Trash	0	0	0.0	0
Debris Burn--Nonauth--Broadcast/Acreage	5	0.57	24.1	4.72
Debris Burn--Nonauth--Piles	12	1.57	6.7	1.90
Debris Burn--Nonauth--Yard Trash	34	4.29	61.8	12.10
Equipment use*	0	0	0.0	0
Equipment--Agriculture	2	0.43	6.5	1.27
Equipment--Logging	0	0	0.0	0
Equipment--Recreation	1	0.12	1.3	0.26
Equipment--Transportation	4	0.86	12.6	2.47
Incendiary	14	1.71	21.1	4.13
Lightning	4	0.86	88.6	17.35
Miscellaneous --Breakout	0	0	0.0	0
Miscellaneous --Electric Fence	0	0	0.0	0
Miscellaneous --Fireworks	0	0	0.0	0
Miscellaneous --Power Lines	2	0.43	0.4	0.08
Miscellaneous --Structure	1	0.12	0.1	0.02
Miscellaneous --Other	8	1.71	4.9	0.96
Railroad	6	0.86	3.8	0.74
Smoking	0	0	0.0	0
Unknown	16	2.14	59.5	11.65
Total	140	100	510.8	100

Source: FDACS, Florida Forest Service; <https://fireinfo.fdacs.gov/fmis.publicReports/FiresByCause.aspx>

According to the data provided by the Florida Forest Service over 53.8.7% of the fires during 2000 – 2016 were caused by debris burn – authorized and non-authorized; the remaining 46+% were caused by lightning, power lines, unknown, incendiary, miscellaneous, etc.

During the period 9/21/2016 to 4/22/2022, over 57.1% of fires were caused by debris burn and the remaining approximately 43% included approximately 10% caused by incendiary, 5.7% by miscellaneous - other, 4.3% by railroad, and 2.9% by lightning.

Data from another report by the Florida Forest Service, Fires Classified by Fire Size, are provided in two tables, Table 4.34., for the period January 1, 1980 to September 20, 2016, and Table 4.35., for the period September 21, 2016 to April 22, 2022. The table summarized the number of fires and acres burned in seven fire-size classifications. The classifications are as follows:

- A: 0.1- 0.2 acres; B: 0.3 – 9 acres; C: 10-99 acres; D: 100 – 299 acres;
- E: 300 – 999 acres; F: 1000 – 4999 acres; and, G: 5000 acres & greater.

The report is a partial summary of some of the counties for the Tallahassee Forestry Center District. Data provide reveal that from January 1980, to April 2022, a majority of the wildfires in Gadsden County were in classification B, 0.3 - 9 acres in size, representing 1055 fires on 2758.7 acres.

Gadsden County LMS Plan Update 2022

Table 4.34 - Fires by Fire Size, Gadsden County (1/1/1980 – 9/20/16)

Fires Classified by Fire Size														
Tallahassee Forestry Center 1/1/1980 to 9/20/2016														
Class	A 0.1 - 0.2 AC		B 0.3 - 9 AC		C 10 - 99 AC		D 100 - 299 AC		E 300 - 999 AC		F 1000 - 4999 AC		G 5000 & Up	
County	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres
All Counties	1,317	150.7	3,172	8,195.1	908	23,874.8	84	12,302.0	23	10,276.0	10	16,423.6	0	0.0
	0.2%	0.2%	0.6%	11.5%	0.2%	33.5%	0.0%	17.3%	0.0%	14.4%	0.0%	23.1%	0.0%	0.0%
Franklin	332	36.1	391	904.1	161	4,591.7	41	6,137.0	15	6,420.0	7	12,643.6	0	0.0
	0.4%	0.0%	0.4%	0.0%	0.2%	0.1%	0.0%	0.2%	0.0%	0.2%	0.0%	0.4%	0.0%	0.0%
Gadsden	254	29.9	955	2,582.6	246	6,076.6	8	1,283.0	1	384.0	0	0.0	0	0.0
	0.2%	0.0%	0.7%	0.2%	0.2%	0.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: FDACS, Florida Forest Service: <http://tlhfor013.doacs.state.fl.us/PublicReports/FiresByClass.aspx>

Table 4.35 - Fires by Fire Size, Gadsden County (9/21/16 - 4/22/22)



Florida Forest Service Reporting System

Fires Classified by Fire Size

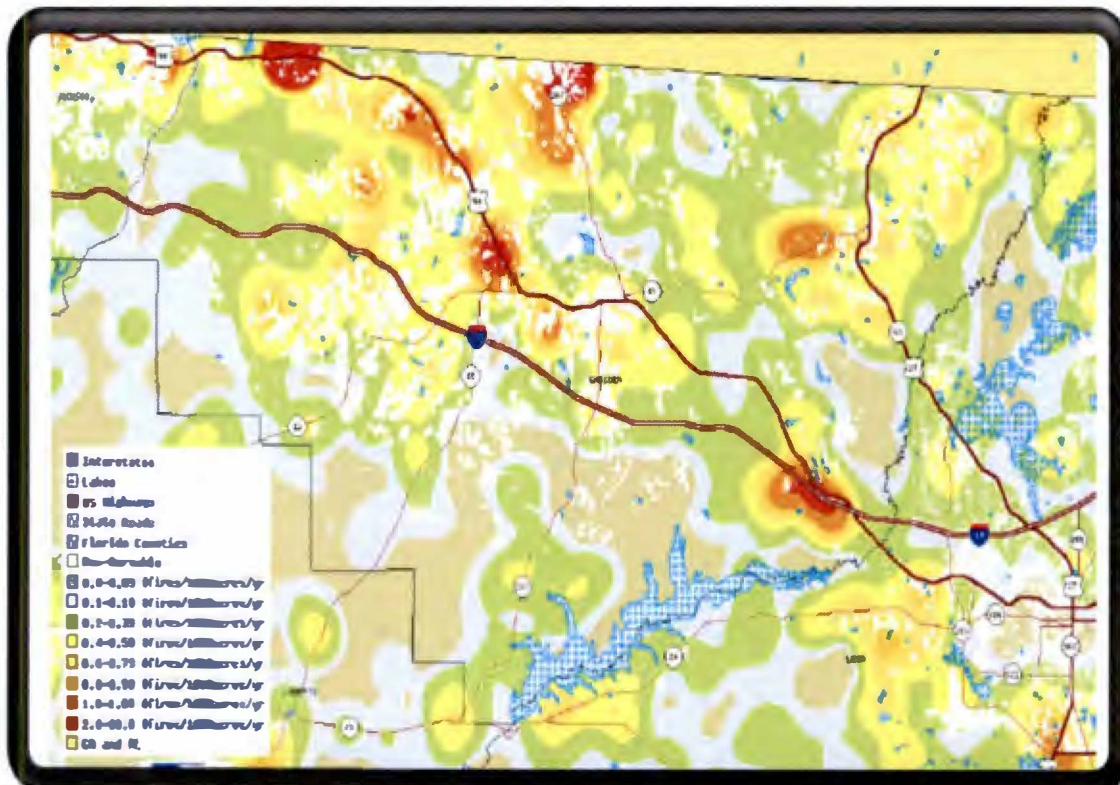
Tallahassee Forestry Center
9/21/2016 to 4/22/2022

Class	A 0.1 - 0.2 AC		B 0.3 - 9 AC		C 10 - 99 AC		D 100 - 299 AC		E 300 - 999 AC		F 1000 - 4999 AC		G 5000 & Up	
County	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres	# Fires	# Acres
All Counties	114	12.7	273	553.7	48	1,193.6	7	1,033.0	2	1,204.0	1	1,620.0	0	0.0
	0.3%	0.2%	0.6%	9.9%	0.1%	21.2%	0.0%	18.4%	0.0%	21.4%	0.0%	28.8%	0.0%	0.0%
Franklin	27	3.0	36	100.9	15	446.3	2	340.0	2	1,204.0	1	1,620.0	0	0.0
	0.3%	0.0%	0.4%	0.0%	0.2%	0.1%	0.0%	0.1%	0.0%	0.3%	0.0%	0.4%	0.0%	0.0%
Gadsden	26	2.7	100	176.1	14	332.0	0	0.0	0	0.0	0	0.0	0	0.0
	0.2%	0.0%	0.7%	0.3%	0.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: FDACS, Florida Forest Service

Wildfire Occurrences: There have been 1,604 wildfires documented in Gadsden County since 1980 (Florida Forest Service) totaling 10,866.9 acres. Based on the record, the most acreage burn has occurred from debris burning, 4362.7 acres or 40% of the total acreage burned over the last 41+ years. Figure P shows the frequency of fire ignitions based on historic data. Areas in red indicate areas of fire ignitions based on historic data. These areas of frequent fire occurrences tend to be concentrated along highways.

Figure P – Gadsden County Fire Occurrences



Source: FDACS, Florida Forest Service, Risk Assessment System

Consequences of a Wildfire: As noted earlier, in Tables 4.32 and Table 4.33, there are many different causes of wildfires, from lightning, to incendiary, to smoking in forested areas, to improperly extinguishing campfires, etc. Prevention efforts include educating people on forested areas, and working with the Florida Forest Service to become a firewise community for preventative measures in protection from a wildfire. Consequences for a wildfire can include the following, (see Table 4.36, below):

Table 4.36 - Consequences of Wildfire

Infrastructure	Environmental	Human	Vegetative	Economic
power outages	Erosion	smoke inhalation	crop damage	business disruption
water/gas/communication lines disrupted	wildlife destruction	personal injury	timber damage	property loss
road closures	habitat loss	human evacuation	species endangered	economic loss
roadway destruction	species endangered	animal evacuation	invasive species increased	suppression cost

Source: FDACS, Florida Forest Service

The Florida Forest Service encourages all Florida residents to become involved in their program areas of prevention addressing the wildfire issues in the state.

The Fire Prevention Program, may include but not be limited to the following:

- ▶ The Florida Forest Service conducts events at the Bear Creek Educational Facility.
- ▶ The Florida Forest Service brings Smokey Bear to the schools to educate the kids on wildfire safety tips and techniques.
- ▶ The Gadsden County Fire Rescue and the Gadsden County Sheriff participates in “show and tell” quarterly for all schools within the county.
- ▶ The Gadsden County Fire Rescue conducts community door to door events on installation of smoke detectors.
- ▶ Gadsden County Fire Rescue utilizes \$25,000 a year to install fire hydrants lowering the ISO rating.
- ▶ The Firewise Communities Program educates homeowners and community professionals about creating defensible space around their homes, helping to protect them from the dangers of wildfire.

The program is based upon two principles:

1. Homeowners must take responsibility for home fire safety and become “partners” with the fire protection agencies, and
 2. Homes (neighborhoods and communities) can be designed, built, and maintained to withstand a wildland fire without the intervention of a fire department.
- ▶ Prescribed Fire is a cost-effective tool to reduce fuel buildups, which can cause dangerous wildfire conditions. The use of prescribed fire provides increased protection to people, their homes, and the forest.

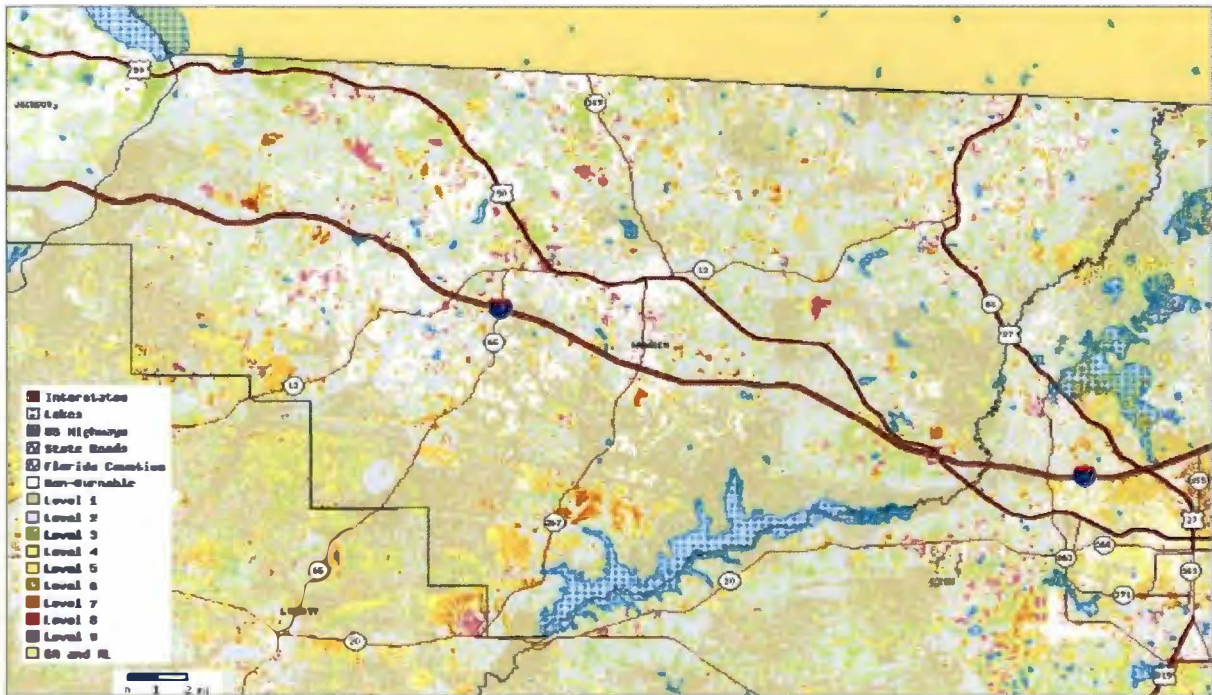
Community Wildfire Protection Plan (CWPP): As stated by the Forests and Rangelands... “The Healthy Forests Restoration Act (HFRA) provided communities with a tremendous opportunity to influence where and how federal agencies implement fuel reduction projects on federal lands. A Community Wildfire Protection Plan (CWPP) is the most effective way to take advantage of this opportunity. Additionally, communities with Community Wildfire Protection Plans in place will be given priority for funding of

hazardous fuels reduction projects carried out under the auspices of the HFRA.” The Gadsden County Emergency Management Department is currently working with the Florida Forest Service on the outreach program for the county citizens on Firewise; defensible space, hazardous fuel reduction and fire adaption, and the CWPP for the county.

Update for the CWPP – September 2016: The CWPP prepared by the Florida Forest Service has been submitted to the Gadsden County Emergency Management Department and is in the review, evaluation, and approval process. Although it had been estimated, in the Gadsden County 2016 LMS, that a new CWPP would be approved before the end of 2016, and available for use in development of this LMS, that document has not been produced at this time. In agreement with the LMS Project list, the goal is to have these programs, (i.e., Firewise and the CWPP) with the CWPP mitigation projects in place within a one to two-year timeframe.

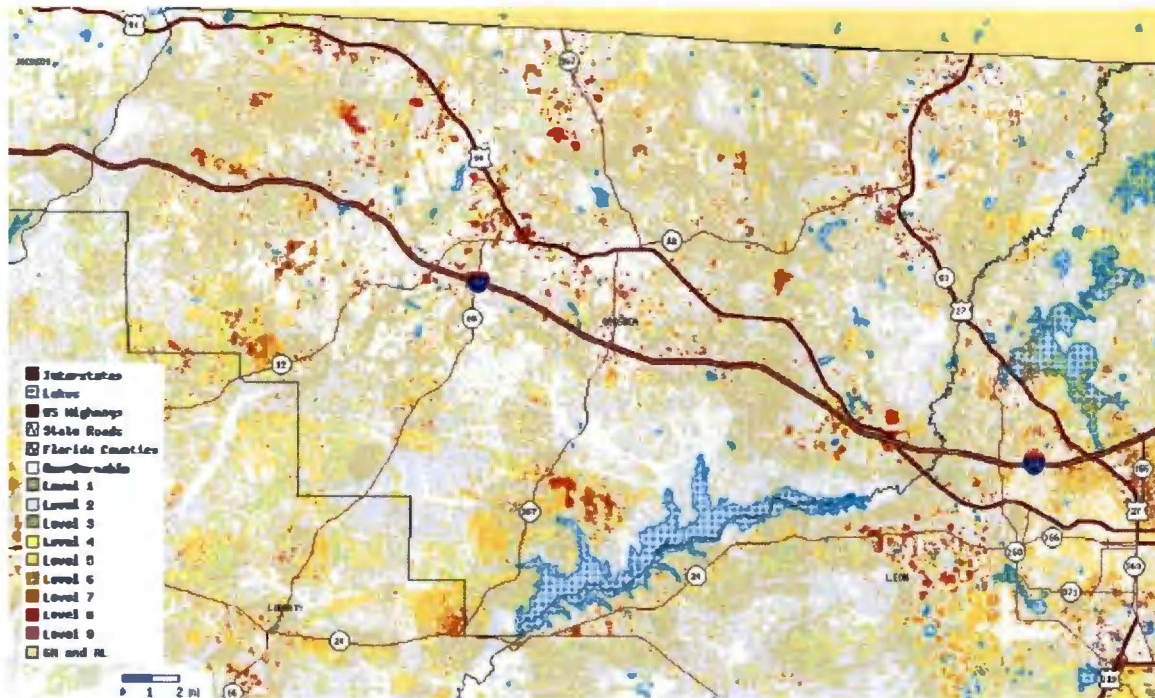
Figure Q shows the Wildland Fire Susceptibility Index for Gadsden County. The index integrates the probability of an acre igniting, wildland fire behavior, and historic fire suppression effectiveness (Florida Forest Service, previously Florida Division of Forestry, 2002). Level 1, in gray, represents a low probability and Level 9, in pink, represents a high probability. The Levels of Concern map, Figure V, assigns values by multiplying the Wildland Fire Susceptibility Index by the Fire Effects Index. Levels 8 and 9, in red and pink, show areas are both susceptible to wildfires and the risk for damage if a wildfire were to occur is high.

Figure Q – Gadsden County Wildland Fire Susceptibility Index



Source: FDACS, Florida Forest Service, Risk Assessment System

Figure R – Gadsden County Wildfire Levels of Concern



Source: Florida Forest Service Risk Assessment System

Vulnerability

Vulnerability to wildfire events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. With the fire awareness over the past several years within the state, the Florida Forest Service set forth measures, such as controlled burns, which decreases the threat of wildfires.

Details from the wildfires that swept throughout the state in 1998 burned many residences in areas where the urban environment intersected with large tracts of heavily wooded land. Some of the areas in Quincy have a similar urban wildland interface and are vulnerable to this hazard. Typically, the county sees the greatest number of wildfires occurring during the months of April, May, and June.

Vulnerability for the Gadsden County's Population: Gadsden County had a growth rate of 4.2% from 2010 to 2015 from 46,389 residents in 2010 to an estimated figure of 48,315 residents in 2015. Since 2015, Gadsden County's estimated population has decreased to 43,813, as of April, 2021, according to the State of Florida Bureau of Economic and Business Research. The population most vulnerable to wildfires would be the residents living in close proximity to Quincy, Gretna, Midway, Greensboro, and the unincorporated areas of the county.

Table 4.37 – Estimated Wildfire Population by Level of Concern (LOC) Category

County	LOC 1	LOC 2	LOC 3	LOC 4	LOC 5	LOC 6	LOC 7	LOC 8	LOC 9
Gadsden	1,810	2,245	10,833	2,590	1,910	2,045	2,356	860	1,159

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C 3.110

From the details above, the highest vulnerability for the population would be level of concern 3, with 10,833 residents at risk within the population. The topmost risk areas for the population are in the unincorporated areas of the county due to the concentration of residents in rural wooded areas, additional threats to life and property exist, therefore, requiring increased mitigation efforts. This segment of the population could include mobile home residents, the poor, the sick, the elderly, the children, and a segment of the single-family home population living in the unincorporated area of the county.

Vulnerability for Gadsden County’s Structures and Facilities: The Florida Forest Service GIS mapping Fire Risk Assessment System determines high-risk areas using wildfire fuel types and densities, environmental conditions, and fire history to produce a Level of Concern (LOC), which is a number on a scale that runs from 1 (low concern) to 9 (high concern).

Tables 4.38 – 4.41 on the following pages summarize the following details for Wildfires in Gadsden County on:

- the number of structures by occupancy type within each level of concern;
- the value of structures by occupancy type within each level of concern;
- the number of county facilities by their wildfire level of concern; and
- the value of county facilities within wildfire level of concern.

Gadsden County LMS Plan Update 2022

Table 4.38 – Structures -- Level of Concern for Wildfires in Gadsden County

Level of Concern	Single Family Res.	Multi-Family Res.	Mobile Home	Vacant Res.	Agric.	Comm.	Instit/ Gov.	Indust	Vacant Comm./ Indust/Inst	Misc/ Undef.
1	319	13	120	0	175	2	32	6	0	4
2	427	10	155	0	169	13	25	16	0	4
3	2,270	109	1,058	0	506	72	121	30	0	6
4	507	33	258	0	80	21	29	7	0	1
5	356	15	221	0	59	18	18	8	0	1
6	413	15	220	0	55	19	20	6	0	0
7	535	25	260	0	45	20	30	4	0	0
8	199	12	88	0	15	6	12	6	0	0
9	356	10	44	0	5	6	10	3	0	0

Source: State of Florida Enhanced Hazard Mitigation Plan, Pages C.106

Table 4.39 – Value of Structures Level of Concern for Wildfires in Gadsden County (in \$ millions)

Level of Concern	Single Family Res.	Multi-Family Res.	Mobile Home	Vacant Res.	Agric. - \$million	Comm. - \$million	Instit/ Gov.	Indust.	Vacant Comm./ Indust/Inst	Misc/ Undef.
1	34.13	2.50	6.68	3.21	167.69	0.12	17.27	1.09	0.56	4.33
2	48.39	3.13	8.89	5.24	137.61	5.76	9.99	6.64	3.74	4.37
3	232.74	10.80	53.85	21.19	310.67	8.08	41.01	8.71	4.47	9.07
4	45.70	4.66	11.68	3.98	44.18	3.03	10.25	1.98	0.56	1.75
5	33.20	2.75	9.86	3.91	35.37	3.55	5.85	3.04	0.41	1.49
6	43.38	2.47	10.48	5.17	29.38	5.47	8.04	2.44	1.04	1.47
7	59.96	2.09	12.66	7.52	20.39	7.00	12.65	1.22	1.37	1.29
8	22.37	0.79	4.01	1.84	6.03	2.58	3.48	3.29	0.53	0.45
9	41.43	0.57	1.72	2.74	4.04	2.46	1.58	1.72	1.56	1.40

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C.127

Table 4.40 – County Facilities by Level of Concern for Wildfires in Gadsden County

Facility	LOC 1	LOC 2	LOC 3	LOC 4	LOC 5	LOC 6	LOC 7	LOC 8	LOC 9	Total by Type
Other Facilities	39	114	49	7	6	0	3	0	0	218

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C.144

Table 4.41 – Value of County Facilities by Level of Concern for Wildfires in Gadsden County (in \$ thousands, except where noted)

Facility Type	LOC 1	LOC 2	LOC 3	LOC 4	LOC 5	LOC 6	LOC 7	LOC 8	LOC 9	Total Value of Facilities within Areas of Concern (\$ million)
Other Facilities	107,278	148,356	115,084	702	25,950	0	1	0	0	397.4

Source: State of Florida Enhanced Hazard Mitigation Plan, Page C.152

Problem Areas

Probability
The probability for wildfire occurrences is high for the entire county (at least one occurrence every year).
Location
The entire planning area could be risk to wildfire events, especially during drought cycle events, however, the residents living in close proximity to Gadsden County’s heavily wooded rural areas, and scattered portions of the incorporated areas; Quincy, Havana, Gretna, Greensboro, and unincorporated areas of the county, especially near Wetumpka are the most vulnerable to wildfire occurrences. See Figure V - Gadsden County Wildfire Levels of Concern.
Extent
The extent for wildfires could potentially be severe for the entire county. According to Tables 4.34 and 4.35, the Fires Classified by Fire Size, the majority of the wildfires in Gadsden County were in classification B, 0.3-0 acres, representing 1,055 fires and 2,758.7 acres.
Based on the Florida Forest Service Reporting System records, included in Tables 4.32 and 4.33, the most acreage burned has occurred from debris burning, 1717.9 acres or approximately 53% of the total acreage burned over the last 22+ years.
Gadsden County is predominately agricultural, conservation and environmentally sensitive areas, and forested timberland. A prolonged drought could result in a deadly wildfire season that could potentially burn hundreds to thousands of acres.

Impact

According to the Wildfire Mitigation Specialist and the National Centers for Environmental Information, for the county, there have not been any significant wildfire events within the county.

In addition, data from the Florida Forest reports that over the past 42 years there have been several significant wildfires in the State especially when the conditions were in the severe drought phase as in 1998, however, Gadsden County was not affected.

The impact from a wildfire event could potentially affect the community, the residents, the structures, and the infrastructure. The estimation of impact of future wildfire occurrences can be evaluated as to “what the county could expect in in the future.”

The impact from a momentous wildfire could be significant to the agricultural and timberland products.

Gadsden County is potentially very vulnerable to wildfires due to the extent of forested timberland, agricultural, conservation and environmentally sensitive areas. According to the 2017 Census of Agriculture, there were 522 farms, accounting for 66,243 acres of farmland, or approximately 20% of the total acreage area. In 2017, the market value of the products sold for Gadsden County was \$90,491,000.00 and a significant wildfire could have a serious economic impact resulting in millions of dollars in lost revenue.

The consequences of wildfire can range from the environmental to the economic, creating water and air pollution, habitat loss, quickening erosion, as well as costs associated with suppression, property loss, and business disruption. Other potential damage would be on the endangered plant species with an increasing chance for invasive species to take root. In addition, the impact could be on the infrastructure impairment of power, water, gas, or communication lines, road closures or destruction, and also harm to humans through smoke inhalation, injury, or loss of life.

Gadsden County can anticipate significant wildfire events in the future and all mitigation efforts in prevention are essential in planning for the county residents and surrounding communities.

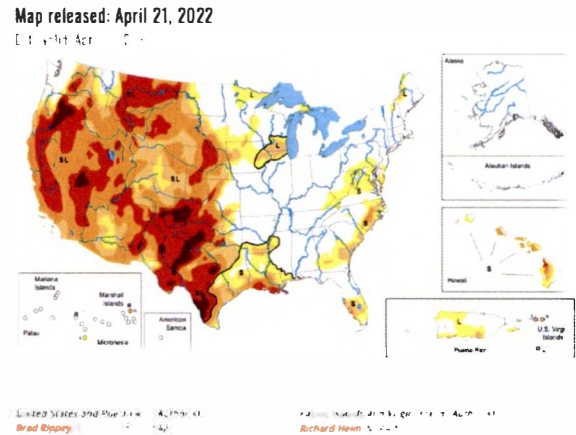
End of Wildfires Profile

###

DROUGHT AND HEAT WAVE PROFILE

Drought Events

Drought can be defined based on rainfall amount over some period of time, vegetation conditions, agricultural productivity, soil moisture, levels in reservoirs and stream flow, or economic impacts. In basic terms, a drought is a significant deficit in moisture availability due to lower-than-normal rainfall. This deficiency results in a water shortage for some activity, group, or environmental sector. Excessively dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation.



↑ **Figure S – US Drought Monitor Map**

The drought data is derived from the Palmer Drought Severity Index from the National Weather Service, Climate Prediction Center. The Palmer Drought Severity Index (PDSI) is an indicator of the relative dryness or wetness effecting water sensitive economies. The PDSI indicates the prolonged and abnormal moisture deficiency or excess. This indicator is of general conditions and not local variations caused by isolated rain. Calculation of the PDSI is made for 350 climatic divisions in the United States and Puerto Rico. The data collected for the calculations include the weekly precipitation total and average temperature, division constants (water capacity of the soil, etc.) and previous history of the indices.

The PDSI is an important climatological tool for evaluating the scope, severity, and frequency of prolonged periods of abnormally dry or wet weather. It can be used to help delineate disaster areas and indicate the availability of irrigation water supplies, reservoir levels, range conditions, amount of stock water, and potential intensity of forest fires.

Data on drought occurrences will also come from the PSDI data and will be used to analyze and report statistical moderate, severe, and extreme drought data for Gadsden County.

According to the Florida Climate Center on Historic Drought statistics "...Because drought is defined on so many different levels, has differing impacts, and can happen on short or long-time scales, it is hard to compare one drought to another. An examination of weather records since 1900 reveals that in every decade there has been at least one severe and widespread drought somewhere within Florida. Droughts that began in 1906, 1927, 1945, 1950, 1955, 1961, 1968, 1980, 1984, 1998, and 2006 were the most severe."

According to the NCDC there were 22 drought occurrences reported in Gadsden

Gadsden County LMS Plan Update 2022

County from 2010 to June, 2022. The date of these occurrences is documented in Table 4.42, below.

Table 4.42 – Drought Occurrences in Gadsden County, 2010 to 6/20/22

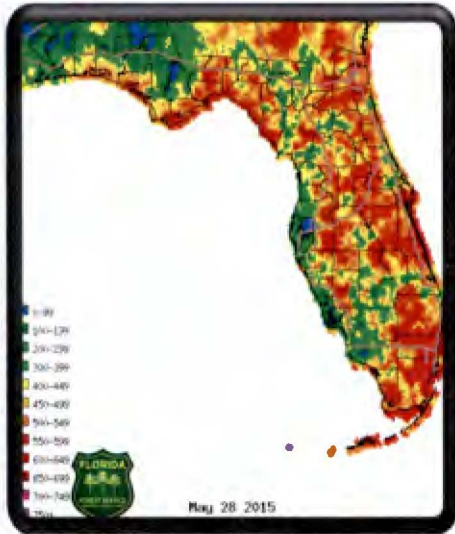
County	Date	Time	Type	Dth	Inj	PrD	CrD
Gadsden (Zone)	12/1/2010	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	1/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	2/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	5/24/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	6/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	7/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	8/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	9/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	10/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	11/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	12/1/2011	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	1/1/2012	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	2/1/2012	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	3/1/2012	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	4/1/2012	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	5/1/2012	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	6/1/2012	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	1/29/2013	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	2/1/2013	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	1/9/2018	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	2/1/2018	00:00	Drought	0	0	0.00K	0.00K
Gadsden (Zone)	10/1/2019	00:00	Drought	0	0	0.00K	0.00K
Total	Property/Crop Damage: N/A						

Key Code: Dth: Deaths; Inj: Injuries; PdD: Property Damage; CrD: Crop Damage

Source: <http://www.ncdc.noaa.gov/stormevents>

Hazard Event Narrative: Table 4.42 notes the occurrences of drought that occurred in Gadsden County over the last twelve years. There were no specifics as to any property or crop damage details reported. According to the NCDL, Gadsden County experienced drought conditions for 17 months out of the 19-month period from December, 2010 to June, 2012. Heavy rainfall occurred in the last week of June in 2012 from Tropical Storm Debby, which ended the drought across Northwest Florida. According to the NCDL, more recently, Gadsden County experienced drought conditions during 5 months within the period from 2013 -2022.

Figure T - Keetch Byram Drought Index (KBDI)



Another mechanism to monitor drought is the Keetch-Byram Drought Index (KBDI), which is updated each day by the Florida Forest Service. KBDI is a good indicator of the drought/moisture conditions for agricultural purposes, and it also provides a planning tool for the risks of wildfire. This index provides a numerical scale of 1 through 800, with 800 being the driest and 1 being wettest.

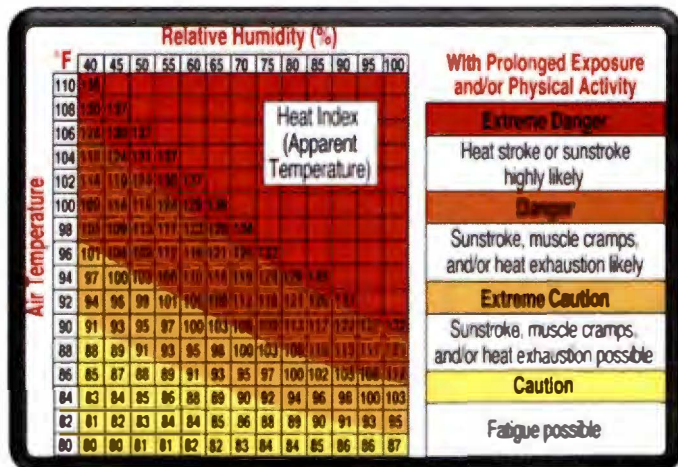
Source: http://flame.fl-dof.com/fire_weather/KBDI/4km_main.html

The direct physical effects of drought in Gadsden County can have a significant impact on the agricultural, conservation and environmentally sensitive land, and the timberland area as the dry heat can result in wildfire events. As stated in the 2017 Census of Agriculture, the agricultural industry's market value of the products sold in the county in 2017 was \$90,491,000 and the effects of drought could have a significant economic impact on these agricultural products resulting in millions of dollars in lost revenue.

Heat Wave Events

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat, or those prolonged excessive heat/humidity episodes. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air nears the ground.

Figure U – Heat Index Chart



Heat can kill by taxing the human body beyond its abilities. In a normal year, about 175 Americans die to the demands of summer heat. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the disastrous heat wave of 1980, more than 1,250 people died. Elderly persons, small children, chronic invalids, and those on certain medications or drugs, are particularly susceptible to heat reactions, especially during heat waves in areas where a moderate climate usually prevails.

Small children are incredibly susceptible to heat, especially in a vehicle as it only takes approximately ten minutes to heat up 19 degrees, so that it can reach lethal temperatures quickly. A child is more susceptible than adults to heat as their bodies heat up 3 to 5 times quicker and can suffer a heat stroke.

According to the NWS, the “Heat Index” (HI), is sometimes referred to as the “apparent temperature.” The HI, given in degrees F, is an accurate measure of how hot it really feels when relative humidity (RH) is added to the actual air temperature.

To find the HI, look at the Heat Index Chart, Figure Y. As an example, if the air temperature is 96°F and the RH is 60% (found at the top of the table), the HI - or how hot it really feels - is 116°F.

IMPORTANT: Since HI values were devised for shady, light wind conditions, exposure to full sunshine can increase HI values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous. Note on the HI chart the shaded zone above 105°F. This corresponds to a level of HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

Gadsden County's hot season are the months of June to late August with a summer average of 82°F – 93°F. Heat wave events occurring in the hot season would be in the 93°F plus temperature range.

According to http://weather-warehouse.com/WeatherHistoryListing/cities/FL_Q.html, the highest recorded temperature in Quincy, Florida was 106°F in both June 1932 and June 1954. Although the relative humidity data was not available, the county is located in a humid subtropical climate zone and at the time, the humidity was probably high. Based on the fact that the average relative humidity peak for the month of June in Quincy is around 80-90%, chances are it was around that % point or maybe higher. An example of what the Heat Index might have been for this record temperature of 106°F, if the RH was only 45%, the Heat Index would have been 130°F based on the Heat Index Chart.

Heat Wave Occurrences: According to the Florida Department of Health in Gadsden County, there were no historical records maintained on heat events, however, July 2000 was the hottest month ever recorded in Northwest Florida with temperatures reaching 100 degrees or higher seven days during the month.

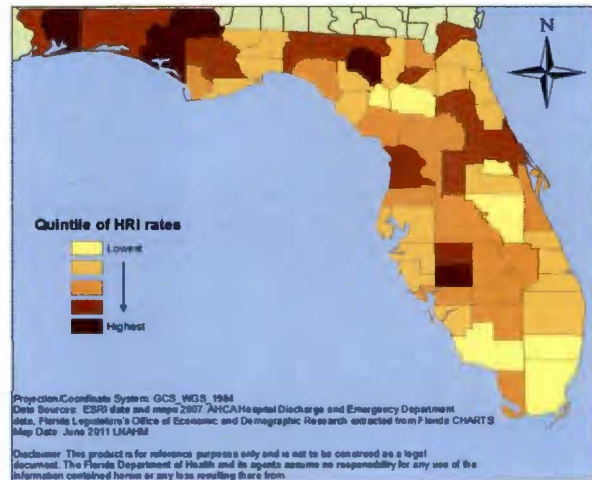
Heat-Related Incident Information: Heat-related data are not routinely tracked by the State of Florida. Some data that are available portray heat as a significant health concern for Floridians, particularly the elderly. As reported in 2011, by the Florida Department of Health, Division of Environmental Health, Bureau of Environmental Public Health Medicine, Descriptive Analysis of Heat-Related Illness Treated in Florida Hospitals and Emergency Departments... “Between 2005 and 2009, 18,572 Floridians were treated for non-occupational Heat Related Illness (HRI) in the Emergency Department (ED) or hospital (age adjusted rate = 20.2/100,000 Floridians; 95% CI = 17.3, 23.2). Among the cases of HRI identified, 53 deaths occurred (CFR = 2.8/1,000 HRI cases). The majority of HRI cases were treated in the ED (N = 15,576; 83.9%). For individuals admitted to the hospital the length of stay was a mean of 3.1 days (median = 2 days). More recently, in Natural Heat-Related Deaths In Florida: 2010–2020, by Serap Gorucu, Clyde Fraise, and Ziwen Yu, reported that 215 heat-related deaths occurred statewide during the period 2010 to 2020.

Figure Z shows that Gadsden County is in the 2nd to the lowest quintile for HRI rates, however according to the Florida Department of Health in Gadsden County, data related to ED incidents for HRI are not recorded for the county.

Vulnerability

The vulnerability to drought and heat wave events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. During the onset of a drought, which can occur about once in every three years in a given area, can result in elevated fire risk and decreased crop growth which are the primary impacts to nature, while heat exhaustion and other heat-related illnesses are possible among vulnerable children, the sick and the elderly.

Figure V- Heat-Related Incident Rate, Florida Counties



Florida was very vulnerable in the 1998 drought resulting in extensive drought-induced fires, which burned over 500,000 acres in Florida and cost over \$460 million in damages to homes and the forestry industry. With less than normal precipitation, and stream flow records dating to the early 1900s, the drought was one of the worst ever to affect the State. In terms of severity, this drought was comparable to the drought of 1949-1957 in duration and had record-setting low flows in several basins. The drought was particularly severe over the 5-year period in the northwest, which also included Gadsden County where rainfall deficits ranged from 38-40 inches below normal. Within these regions, the drought caused record low stream flows in several river basins, increased freshwater withdrawals, and created hazardous conditions for wildfires.

Vulnerability for the Gadsden County's Population: Gadsden County had a growth rate of 4.2% from 2010 to 2015 from 46,389 residents in 2010 to an estimated figure of 48,315 residents in 2015. Since 2015, Gadsden County's estimated population has decreased to 43,813, as of April, 2021, according to the State of Florida Bureau of Economic and Business Research. The entire estimated population could be affected by a drought or a heat wave event, especially water shortages, which could present a serious problem.

Heat Wave Event: A heat wave event does present a safety threat for the county's population, especially the elderly, the sick, the poor, and the children. The vulnerability to heat depends on climatic factors such as the frequency of heat waves and on individual risk factors, which could include; medical, age, gender, pre-existing disease, use of certain medications, level of hydration, living alone, housing condition, the presence and use of air- conditioning in the home or residential institution. It also can be said that the vulnerability to heat wave could result as a function of sensitivity to exposure, the characteristics of the population, the exposure to heat wave duration and, the measures and actions in place to reduce the loss of life.

According to data from the Florida Office of Economic and Demographic Research (estimated population % in poverty data, 2020 – calculated on the estimated population data from 2020), the following table identifies the percentage of the population classified as at the poverty level. This population group represents those residents that are most vulnerable to, and that could be affected by a heat wave occurrence.

Table 4.43 – Estimated % of the Population Potentially Affected by a Heat Wave Event

Estimated % of the Gadsden County Population Potentially Affected by a Heat Wave Occurrence	
% of related children in families in poverty	32.5 %-of related children, ages 5-17
% under age 18 in poverty	34.9% of persons under age 18; approximately 3210 persons
% all ages in poverty	21.9% of all persons; approximately 9600 persons

Table based on data from the Florida Office of Economic and Demographic Research

Vulnerability for Gadsden County's Structures and Facilities: The Gadsden County's buildings, structures, facilities, and infrastructure are not considered vulnerable to drought and heat wave events. It is important to note that a long-term drought event could present some vulnerability to the water wells, which could present water shortages throughout the county.

Problem Areas: The entire county could be affected by high temperatures with a high heat index especially the sick, the elderly, the poor, and the children who are the most vulnerable in a heat wave occurrence.

Probability

Gadsden County LMS Plan Update 2022

The probability for drought events is medium to high for the entire county (at least one occurrence every 3 years to once every year). The probability for heat wave occurrences is high (at least one occurrence every year).

Location

Drought can present a high risk for Gadsden County, especially a drought for a prolonged period of time, in which the entire planning area (all incorporated and unincorporated portions of Gadsden County) are equally vulnerable to drought conditions.

The entire planning area all incorporated and unincorporated area of Gadsden County could be a high risk to a heat wave occurrence due to the high temperatures the county reaches throughout the summer months.

Extent

Drought: Based on the quantitative measurements for droughts, the extent and worst-case scenario for a drought event would be the drought from 1998- 2002. As stated by the USGS... "Lower than normal precipitation caused a severe statewide drought in Florida from 1998 to 2002. Based on precipitation and stream flow records dating to the early 1900s, the drought was one of the worst ever to affect the State. In terms of severity, this drought was comparable to the drought of 1949- 1957 in duration and had record-setting low flows in several basins. The drought was particularly severe over the 5-year period in the northwest, which included Gadsden County where rainfall deficits ranged from 38-40 inches below normal. Within these regions, the drought caused record- low stream flows in several river basins, increased freshwater withdrawals, and created hazardous conditions ripe for wildfires, and even the draining of lakes."

Heat Wave: According to

http://weather-warehouse.com/WeatherHistoryListing/cities/FL_Q.html, the highest recorded temperature in Quincy, Florida was: 106°F in June 1932 and June 1954. Although the relative humidity data was not available, the county is located in a humid subtropical climate zone and at the time, the humidity was probably high. Based on the fact that the average relative humidity peak for the month of June in Quincy is around 80 -90%, chances are it was around that % point or maybe higher. An example of what the Heat Index might have been for this record temperature of 106°F, if the RH was only 45%, the Heat Index would have been 130°F based on the Heat Index Chart.

Impact

Drought: Drought occurrences are a prolonged period where there is a precipitation deficit from normal values. The duration of below normal precipitation amounts, and their impact can affect Gadsden County's water supply, present fire danger levels, and as noted drought could have a significant impact on the agricultural and timber industry.

The direct physical effects of drought in Gadsden County can have an impact on the agricultural, conservation and environmentally sensitive lands, with dry, brittle heat that can result in severe wildfire events. With 522 farms, accounting for 66,243 acres of farmland, or approximately 20% of the total County area, and the market value of agricultural products sold at \$90,491,000 in 2017, the effects of drought could severely impact this industry. [Agricultural data from the 2017 Census of Agriculture, USDA] Note: Historically, Gadsden County produces significant agricultural revenue from the production of Quail, timber, cotton, corn, and peanuts. An extreme, prolonged drought event could create extensive losses in these products and have a serious economic impact resulting in millions of dollars in lost revenue.

Heat Wave: In addition, Gadsden County does have heat-related incidents. It is ranked 2nd to the lowest for HRI as noted in Figure Z and heat-related incidents can occur especially for the poor, the elderly, the sick and the children in the county, however according to the Gadsden County Department of Health, data related to ED incidents for HRI is not recorded.

According to the 2021 QuickFacts Estimates from the US Census Bureau, the elderly represents 18.7% of the total County population, the poor, 21.9%; and children, 21.6%. These are groups that are particularly vulnerable to heat impacts and could suffer from a heat wave occurrence. The population of these most vulnerable groups, combined, is estimated to be approximately 50% of the County's total population, or approximately, 22,000 persons.

As noted earlier, the highest recorded temperature in Quincy, Florida was 106°F (1932 and 1954). As Gadsden County is located in a humid subtropical climate zone and at the time, with high humidity, the humidity during these record events was probably high, likely around 80% to 90%. The corresponding Heat Index for this record temperature of 106°F, with a relative humidity of 45%, would have been 130°F (based on Figure Y, Heat Index Chart).

Based on the data cited above, Gadsden County can expect to experience a future a heat wave occurrence.

End of Drought and Heat Wave Profile

####

WINTER STORMS/FREEZING TEMPERATURES PROFILE

Winter storms may include extreme cold temperatures (freeze), high winds, snow, and ice, all of which have the potential to impact people, structures, and infrastructure. During the winter, the North Florida region is occasionally invaded by massive cold fronts that originate far to the north and the results are carried to the Southern states. Although the temperature within these air masses rises significantly during their passage to Florida, they are capable of bringing intense cold to the State.

According to the Florida Climate Center, Office of the State Climatologist... "Although many people head south to escape the cold in the winter, it is not always warmer in Florida. When an intense low- pressure system is followed by a strong high-pressure system, particularly powerful invasions of cold air may occur in Florida. These cold air outbreaks can produce below-freezing temperatures and are usually accompanied by strong winds that can produce bitterly cold wind chills. Over the past 150 years, numerous severe cold outbreaks have affected Florida. In February 1899, a cold wave that became known as the Great Arctic Outbreak pushed frigid Canadian arctic air into the state. During this event, the lowest temperature ever recorded in Florida (- 2°F) occurred on February 13, 1899. Since this outbreak, a number of "impact freezes" have influenced the retreat of the famous Florida orange groves from areas around Jacksonville and St. Augustine to their current locations in south Florida."

Florida has experienced occasional cold fronts that can bring high winds and relatively cooler temperatures for the entire state, with high temperatures that could remain into the 40s and 50s (4°C to 15°C) and lows of 20s and 30s (-7°C to 4°C) for few days in the northern and central parts of Florida, although below-freezing temperatures are very rare in the southern part of the state.

Freezing Temperature Record: As noted above, the State's record minimum temperature was set in February 1899 when Tallahassee experienced -2° F. Once cold waves move onto the peninsula the relatively warm waters of the Atlantic and the Gulf of Mexico exert their influence, and the airmass' temperature rises.

Not a year goes by when there is not some damage to the citrus or vegetable crop somewhere in the State as a result of freezes or severe cold. Severe freezes in the 19th and 20th centuries gradually drove the center of citrus production southward from the Orlando area to southern Polk County.

Of the dozen or so devastating freezes that have impacted the citrus industry and other agriculture concerns over the last century or in the Southeast, nearly all of them occurred during times of Neutral conditions in the Pacific Ocean, when there is neither El Niño nor La Niña present. An in-depth analysis of weather observations from across the Southeast over the last 60 years shows that the risk of severe freezes in Florida is up to three times greater during Neutral conditions in the Pacific Ocean.

Winter Storm Occurrences: According to the NCDC there have been two winter storm/winter weather occurrences reported in Gadsden County, as noted in Table 4.44, below:

Table 4.44 – Winter Storm/Winter Weather/Freezing Hazard Events in Gadsden County (3/1/1950 – 5/31/2022)

Location	Date	Time	Type	Dth	Inj	PrD	CrD
Gadsden County	1/28/2014	16:00	Winter Storm	0	0	200K	0K
Gadsden County	1/3/2018	3:00	Winter Weather	0	0	0K	0K
Total	Property Damage: \$200,000						

Source: <http://www.ncdc.noaa.gov/stormevents/listevents>

Key Code: Dth: Deaths; Inj: Injuries; PdD: Property Damage; CrD: Crop Damage

Hazard Event Narrative: The third winter storm to impact the NWS Tallahassee County warning area in five years brought a wintery mix of precipitation to virtually the entire forecast area. The predominant precipitation types were sleet and freezing rain. Total liquid equivalent estimates were to be greater than a ¼ inch across portions of most of the Florida Panhandle counties. Several roads were closed, including a large stretch of I-10 in the Florida Panhandle. Most bridges were closed at one point from Tallahassee westward, and during the peak of the event, there was no road access to cross over the Apalachicola River. This led to very large transportation Impacts with significant monetary losses for some trucking companies. Even the bridge going to St. George Island was closed at one point due to ice.

On the morning of January 28th, there was a trough approaching from the west with moist SW flow and precipitation ahead of it over the SE. At the surface, a cold front was stalled across north central Florida and the Gulf of Mexico. However, the deep arctic air was still well north of our region. During the day, the precipitation changed over to snow and/or sleet in places like Atlanta, Birmingham, Macon, and Mobile, as progressively colder air flowed into the region. This caused major traffic problems, especially in Atlanta. Late in the afternoon and in the early evening the rain began to change to freezing rain and sleet in portions of the Florida Panhandle. There appeared to be a secondary cold front that helped accelerate the advance of the cold air and changeover to freezing/frozen precipitation during the evening.

During the night (1/28/14 – 1/29/14) the cold air continued to spread south and east. By the morning of the 1/29, many locations in our forecast area had changed to freezing rain, sleet, or a mix, including Tallahassee and much drier air in the mid to upper atmosphere overspread SE Alabama and SW Georgia. This caused the precipitation to end there during the morning hours. However, light wintry precipitation lingered across the Florida Big Bend throughout the day, as the upper-level trough continued to approach from the west. The combination of the unusually cold air and thick clouds prevented many locations from getting above freezing, a very rare occurrence in the Deep South.

The Wednesday morning surface chart showed the main cold front finally on the move

again through South Florida, while high pressure and very cold, dry air continued to infiltrate the Gulf Coast Region. This precipitation tapered off during the evening as the atmosphere dried out. The property damage was estimated at \$200,000 for Gadsden County, however, specifics to the property damage was not noted.

Additional Winter Storms/Freezing Temperature Occurrences: (Data derived from the following sources: NOAA News; NOAA Southern Region Headquarters; NWS; and, NCDC; details for the “Storm of the Century” are not specific for Gadsden County).

3/13/1993 – The No Name Storm (data from NCDC) - The “Storm of the Century” roared across Florida producing a variety of severe and unusual weather conditions for a period of about 18 hours from late Friday, 3/12 to late Saturday, 3/13. A severe squall line raced eastward at 50 mph ahead of an intense low producing several tornadoes and strong downbursts as it moved through the state and directly causing fatalities. From intense storm surge and flooding on the gulf coast to a period of 8 to 12 hours of high sustained winds of up to 50 mph with gusts to 70 mph to cold air which poured in behind the intense low with up to four inches of snow falling in the panhandle to a trace to 3 inches elsewhere across north Florida. Record or near record low temperatures occurred over much of the state the following two nights. Total property damage for the State was estimated at \$1.6 billion and 47 fatalities, (specific property damage for Gadsden County statistics and fatality data was not available). Upstream, the arctic, polar, and subtropical jet streams were merging and a deep flow of tropical moisture over the Gulf was coming north from the Caribbean Sea. These merging factors set the timer for the impending explosion.

The record low temperature recorded for Gadsden County (near the Quincy 2 SSW weather station) was 4 °F in January 1985. In addition, from 1900 – 2016, there have been numerous freezing temperature events in January where the temperature was below freezing (32 °F or lower) according to the Weather Warehouse data. Other record low temperatures include: January 1918 and 1927 - 11 °F; and January 1966 - 9 °F.

Vulnerability

The vulnerability to winter storms and freezing temperature events can be defined as to the extent to which people will experience harm and property will be damaged from the natural hazard. A severe winter storm or freeze can have a substantial impact on Gadsden County’s communities, utilities, transportation systems, telecommunications, and possibly result in loss of life due to accidents or hypothermia.

Ice accumulation accompanied by high winds can have destructive impacts to trees, power lines, road and bridge closures, and utility services. Communications and power are often disrupted while utility companies work to repair the damage. Power and communication disruptions are potential consequences of ice storms and even snow in the county.

Vulnerability for the Gadsden County's Population: The entire population would be at risk and vulnerable to winter storm and freezing temperature leaving several homes without heat or water resulting in shelter needs to assist and care. The most vulnerable residents would be the elderly, the poor, the sick, the special needs, the poor, and the mobile home residents.

According to the 2021 QuickFacts Estimates from the US Census Bureau, the elderly represents 18.7% of the total County population, the poor, 21.9%; and children, 21.6%. These are groups that are particularly vulnerable to winter storms and freezing temperatures and that could suffer from these events. The population of these most vulnerable groups, combined, is estimated to be approximately 50% of the County's total population, or approximately, 22,000 persons.

Vulnerability for Gadsden County's Structures and Facilities: The Gadsden County's buildings, structures, facilities could have some impact from a winter storm or freeze event with power interruptions or frozen pipes. Backup power is recommended for the county's critical facilities and infrastructure.

Problem Areas: Having backup power and an emergency shelter is important during a winter storm or freezing temperature event as the entire county could be affected especially the sick, the elderly, the special needs, the poor, and the children who are the most vulnerable.

<i>Probability</i>
The probability for winter storms events is medium for the entire county (at least one occurrence every 3 years).
The probability for freezing temperature events is high for the entire county (at least one occurrence every year). However, the freezing temperature would only last a short period for one to two days.
<i>Location</i>
The entire planning area (the incorporated and unincorporated areas of Gadsden County are at risk to a winter storm or freezing temperature event. Especially the residents that live in the unincorporated areas of the county with icy roads that could lead to road and bridge closures.

Extent

Based on historical data for the State of Florida, the coldest temperature was -2 degrees in February 1899. This recorded temperature would be the extreme and worst-case scenario. And, although rare for Gadsden County, freezing temperatures in the 20s and 30s can potentially occur and last a few days. In addition, Gadsden County experienced impact from extreme wind gusts from the "Storm of the Century" in March 1993.

Winter storms and freezing temperatures can potentially have a destructive impact on the county's residents and the infrastructure. Winter storms can impede visibility, and cause icing on roads affecting driving conditions, and can have an impact on communications, electricity, or other services. The risks to crops, vegetation, trees, and the general population are higher during these months than the rest of the year.

Gadsden County can expect freezing temperatures to occur during any of the Enso Phases (Neutral, El Niño or La Niña) at 90-100% probability. Although the freezing temperatures would not last for long periods of time, it is possible that the future impact could be considerable and would affect the elderly, the sick, the poor, the children, the forestry industry, and the agricultural crops.

The number of the elderly, the poor and the children that could suffer from a winter storm/freezing temperature occurrence is estimated to be approximately 50% of the County's total population, or approximately, 22,000 persons, the most vulnerable population of the County.

The direct physical effects of freezing temperatures in Gadsden County could have a significant impact on the County's agriculture sector. With 522 farms, accounting for 66,243 acres of farmland, or approximately 20% of the total County area, and the market value of agricultural products sold at \$90,491,000 in 2017, the effects of freezes and winter storms could severely impact this industry. [Agricultural data from the 2017 Census of Agriculture, USDA] Note: Historically, Gadsden County produces significant agricultural revenue from the production of quail, timber, cotton, corn, and peanuts. An extreme freeze or winter storm event could have a serious economic impact on agricultural production resulting in millions of dollars in lost revenue.

During the night (1/28/14 – 1/29/14) the cold air continued to spread south and east. By the morning of the 1/29, many locations in our forecast area had changed to freezing rain, sleet, or a mix, including Tallahassee and much drier air in the mid to upper atmosphere overspread SE Alabama and SW Georgia. This caused the precipitation to end there during the morning hours. However, light wintry precipitation lingered across the FL Big Bend throughout the day, as the upper-level trough continued to approach from the west. The combination of the unusually cold air and thick clouds prevented many locations from getting above freezing, a very rare occurrence in the Deep South. The Wednesday morning surface chart showed the main cold front finally on the move again through South Florida, while high pressure and very cold, dry air continued to infiltrate the Gulf Coast Region. This precipitation tapered off during the evening as the atmosphere dried out.

Freezing temperatures over an extended period of time further increases the risks of cold weather. Also, injuries or deaths could occur due to the presence of ice on the roadways, and thus putting drivers and utilities, such as power and communication lines, at risk. Windy conditions would also help cause tree limbs with ice weighing on them to fall, which could create

Gadsden County LMS Plan Update 2022

power outages or cause injury to property or people. Another source of damages, injuries, or deaths may be related to could result from the incorrect use of heating sources that could create fires or lead to carbon monoxide poisoning.

The record low temperature recorded for Gadsden County (near the Quincy 2 SSW weather station) was 4 °F in January 1985. In addition, from 1900 – 2016, there have been numerous freezing temperature events in January where the temperature was below freezing (32 °F) according to the Weather Warehouse data. Other record low temperatures include: January 1918 and 1927 - 11 °F, and January 1966 - 9 °F.

Impact – see next page

Winter storms and freezing temperatures can potentially have a destructive impact on the county's residents and the infrastructure. Winter storms can impede visibility and cause icing on roads affecting driving conditions, and can have an impact on communications, electricity, or other services. The risks to crops, vegetation, trees, and the general population are higher during these months than the rest of the year.

Gadsden County can expect freezing temperatures to occur during any of the Enso Phases (Neutral, El Niño or La Niña) at 90-100% probability. Although the freezing temperatures would not last for long periods of time, it is possible that the future impact could be considerable and would affect the elderly, the sick, the poor, the children, the forestry industry, and the agricultural crops.

The number of the elderly, the poor and the children that could suffer from a winter storm/freezing temperature occurrence is estimated to be approximately 50% of the County's total population, or approximately, 22,000 persons, the most vulnerable portion of the community.

The direct physical effects of freezing temperatures in Gadsden County could have a significant impact on the County's agriculture sector. With 522 farms, accounting for 66,243 acres of farmland, or approximately 20% of the total County area, and the market value of agricultural products sold at \$90,491,000 in 2017, the effects of freezes and winter storms could severely impact this industry. [Agricultural data from the 2017 Census of Agriculture, USDA] Note: Historically, Gadsden County produces significant agricultural revenue from the production of quail, timber, cotton, corn, and peanuts. An extreme freeze or winter storm event could have a serious economic impact on agricultural production resulting in millions of dollars in lost revenue.

Also, the winter storm that occurred on 1/28/2014 caused \$200,000 in property damage for the inland and coastal area of the region (although specifics were not noted on the damage). Details reveal:

Extended period of time of freezing temperatures further increases the risks of cold weather. Also, injuries or deaths could occur due to the presence of ice on the roadways, and thus putting drivers and utilities, such as power and communication lines, at risk. Windy conditions would also cause tree limbs with ice weighing on them to fall, which could create power outages or cause injury to property or people. Another source of damages, injuries, or deaths could result from the incorrect use of heating sources that could create fires or lead to carbon monoxide poisoning.

End of Winter Storms/Freezing Temperatures

####

TERRORISM/CYBER ATTACKS PROFILE

Under the federal Homeland Security Act of 2002, section 2(15), terrorism is defined as an activity that involves an act dangerous to human life or potentially destructive of critical infrastructure or key resources, and is a violation of the criminal laws of the United States or of any state or other subdivision of the United States in which it occurs, and is intended to intimidate or coerce the civilian population or influence a government or affect the conduct of a government by mass destruction, assassination, or kidnapping.

In analyzing the vulnerability of the county to domestic terrorism, it is important to differentiate “criminal” from “terrorist” activities. Terrorist activities involve the use or threat of terror to achieve an objective, often of a political nature. Whereas criminal activities are illegal activities that are not primarily based on the use or threat of terror to achieve an objective. For example, the indiscriminate use of explosives to highlight a cause (i.e., terrorism), versus the use of explosives to open a safe as part of a burglary (i.e., criminal). While the distinction may not be important to persons responding to an incident (such as firefighters to an explosion), it is important to consider when developing policies and programs for dealing with terrorist and/or cyber-attacks.

Given Gadsden County’s proximity to the City of Tallahassee, Leon County, the capital of Florida, and with Florida being the third largest state by population in the US, terrorism has the potential of occurring in Gadsden County, or Gadsden County could be affected by a terrorist/cyber-attack in Leon County.

Past Events: There have been no documented events in Gadsden County.

Vulnerability

Gadsden County maintains a current list of critical facilities that if disrupted, could have a large and significant impact on the County.

Lake Talquin is an enormous water resource for potable water and the generation of electricity for not only Gadsden County but surrounding counties as well. Any act of terrorism to Lake Talquin would have immediate and far-reaching effect to Gadsden, Leon, Wakulla, Liberty counties at a minimum.

Similarly, the Jim Woodruff Lock and Dam, on the Chattahoochee River, connecting to the northwest corner of the County, provides downstream flood control, facilitates through-navigation along the Apalachicola-Flint-Chattahoochee River system, generates electricity (43.35.MW capacity), and offers recreational opportunities. Any act of terrorism to the Jim Woodruff Dam could have immediate and profound impacts to the County and potentially both upstream and downstream, including downstream flooding, loss of electrical generation capability, and disruption of navigation along the river.

Problem Areas: The entire County is at low risk of a terrorist or cyber-attack, with a low-medium risk for each municipality based on events in Florida and across the US.

Gadsden County LMS Plan Update 2022

Probability
As of June 2022, Gadsden County has not had any terrorist or cyber-attacks or threats. While the occurrence is low, the probability is there. As mentioned earlier, the County is within close proximity to the City of Tallassee, and there are numerous exits off of I-10 into remote areas of Gadsden County. Furthermore, there are numerous community events throughout the year and there are other common gathering locations where citizens and/or visitors could be impacted. Given the nationwide heightened awareness of terrorism/cyber-attacks as a viable event, Gadsden County continues to be alert and prepared for such an event, no matter how unlikely it is to occur.
Location
The entire planning area (the incorporated and unincorporated areas of Gadsden County) is at risk of terrorism and/or cyber-attacks.
Extent
Lake Talquin, located in Gadsden County is a source of power and water for not only Gadsden County but surrounding counties. Any disruption of this resources would pose an immediate and far-reach impact. The Jim Woodruff Lock and Dam at the south end of Lake Seminole, on the Chattahoochee River, is adjacent to the County. This hydroelectric dam generates electricity, provides flood control, and facilitates navigation. Adverse impact to the dam could pose an immediate and significant impact to the population downstream and impact utility users. The County's transportation system, specifically I-10, is considered most at risk since it provides numerous exits into remote locations of Gadsden County for access not only to Gadsden County but the City of Tallahassee, Florida's capital city.
Impact
There have been no terrorist or cyber-attacks within Gadsden County. However, several events statewide could have easily originated in Gadsden County, or any other rural area.

End of Terrorism/Cyber Attacks Profile

####

INFECTIOUS DISEASE/PANDEMIC PROFILE

According to the World Health Organization, infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites, and fungi. These diseases can spread directly from person to person, both directly and indirectly. These diseases can occur as either epidemics, outbreaks, clusters, or pandemics. Information on the classification of these microorganisms can be found on the Center for Disease Control (CDC) website at: <https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section1.1.html>

Past Occurrence

Historically, the United States has experienced three different influenza pandemics that occurred in 1918, 1957, and 1968. Most notably was the 1918 Spanish Flu that killed an estimated 50 to 100 million people within a 9-month period. While the probability is low for an occurrence of this magnitude to occur again it remains difficult to predict the severity of such events until they actually occur.

While not as deadly as the 1918 Spanish Flu Pandemic, each year Gadsden County experiences impacts from the influenza virus, which causes seasonal flu symptoms. Symptoms range from mild to severe and can lead to death. Symptoms include fever, coughs, sore throat, runny or stuffy nose, headaches, fatigue, and muscle/body aches. According to the CDC's website, an estimated 35 million people were infected with the flu in 2019, and 34,000 of those infections resulted in death. Visit the CDC website for more information: <https://www.cdc.gov/flu/about/keyfacts.htm>

Other infectious disease such as Swine Flu and Ebola have been presented in the United States, but with no impact to Gadsden County. The risk of these two viruses occurring in Gadsden County is very low.

The COVID-19 Pandemic began in April 2020 and has been ongoing in the US and Gadsden County. This pandemic is caused by the SARS-CoV-2 Novel Coronavirus that was first identified in Wuhan, China before rapidly spreading across the globe. There have been more than 31 million confirmed cases globally and as of May 2022, more than one million deaths in the US. The virus affects the respiratory system and is most dangerous to those individuals 65 years of age and older, and those with underlying medical conditions.

Vulnerability

The influenza virus is most likely to affect children and people aged 65 and over. Healthy individuals are still at risk and can still be infected with influenza therefore, the entire population of Gadsden County is at risk. The most common way to reduce vulnerability to influenza is to receive an annual flu shot.

It is difficult to identify the vulnerable population of any infectious disease until an event occurs, therefore the entire population of Gadsden County is potentially at risk of being affected by infectious disease.

Gadsden County LMS Plan Update 2022

Problem Areas: The entire County is at risk during flu season (October-April), and at a relatively low risk for other infectious disease or pandemic scenarios.

Probability
Peak flu season occurs between the months of October and April in the US, including Gadsden County. The probability of that occurring each year is 100 percent. As for other pandemics/infectious diseases, it is difficult to estimate probability, and events such as the 1918 Spanish Flu or COVID-19 to occur with frequency and with similar impacts is relatively low.
Location
The entire planning area (the incorporated and unincorporated areas of Gadsden County) are at risk of terrorism and/or cyber-attacks.
Extent
Each year Gadsden County is impacted with infectious related influenza virus, the overall impact is low. Although COVID-19 Pandemic is currently on-going, the risk of highly lethal infection diseases to the County remains low, although not-impossible. The most common threat to the County is complications caused by the influenza virus, and vulnerability to this virus can be lessened with an annual flu shot.
Impact
Impacts associated with and in conjunction with infectious diseases can range from the obvious physical illness to social and economic impacts. The COVID-19 Pandemic economic impacts are proving to be on-going and often severe nationwide, including Gadsden County as many businesses were forced to close down, people were unable to work, and businesses that remained open faced a shortage of workers. Socially, individuals are experiencing anxiety and depressive symptoms associated with withdrawing from social activities and fear of infection. These impacts are considered the worst-case scenario and are not normally seen during the annual, regular flu season.

End of Infectious Disease/Pandemic Profile

####

HAZARADOUS MATERIALS PROFILE

Hazardous materials coordination is largely the responsibility of the County Emergency Management Director, along with local public and private facilities that store or use hazardous materials. The chief concern is the transportation of hazardous materials throughout the County by truck. A wide range of hazardous materials are transported through the County on a daily basis. The most common transported substances include gasoline, diesel, fuel oil, and LP gas. Other commonly transported substances include acids and chlorine. There is no advance notice given the County of hazardous material being transported.

Gadsden tracks and monitors facilities that use and/or store hazardous materials and maintains such an inventory as a component of the County’s inventory of critical facilities.

Past Occurrences

Based on a hazardous materials spills’ that occurred in Gadsden County and reported to the FDEM State Watch Office between 2016-2021. There were 37 events with hazardous material spills. At least 14 of the 37 incidents occurred along I-10 and were due to traffic accidents. There were approximately five incidents that were potentially environmental crimes. Diesel and gasoline were the primary chemicals spilled, with four incidents resulting in the spill of jet fuel, Adipic Acid, Chlorine Gas, and DECON-30 (Oils, thyme). However, none of the incidents reported were of a significant cause of concern and did not cause damages other than those associated with initial response and clean-up. A comprehensive list of events is available upon request from the EM Department.

Vulnerability

Any incident involving transported hazardous materials would generally affect those who live, work or travel along the transportation route where the incident occurred.

Problem Areas: Each municipality and much of the unincorporated areas of Gadsden County is connected by and accessible via I-10 and US 90, as well as several arterial county roads and rails. These rails and roads are used for the transportation of hazardous materials that can impact Gadsden County should an event occur leading to a serious spillage, leak, or other incident.

Probability

Gadsden County LMS Plan Update 2022

Despite the routine and constant transportation of hazardous materials through the County and/or stored at fixed sites located in the County, there have been relatively few incidents involving hazardous substances in the County. Due to past events and high traffic patterns on I-10 and US 90, the probability is medium-high for future events to occur.

Location

The probability is high for major roads such as I-10 and US 90, especially at exits ramps. The probability is lower for arterial county roads.

Extent

Over the last five years Gadsden has experienced 37 occurrences involving hazardous materials, with at least 14 occurring along I-10, according to FDEM records.

Impact

Any incident involving transported hazardous materials would generally affect those who live, work or travel along the transportation route where the incident occurred. The impact is medium to high depending on the type of hazardous material and the amount of spillage or leakage.

End of Hazardous Materials Profile

####

RADIOLOGICAL EVENTS PROFILE

Radiological accidents can occur wherever radioactive materials are used, stored, or transported. In addition to nuclear power plants, hospitals, universities, research laboratories, industries, major highways, railroads, or shipping yards could be the site of a radiological accident. Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation. Radioactive materials are dangerous because of the harmful effect of certain types of radiation on the cells of the body. The longer a person is exposed to radiation, the greater the risk.

Many of the residents the county live within the Ingestion Pathway Zone (IPZ) of the Joseph M Farley Nuclear Power Plant. This plant is located in Houston County just east of Dothan Alabama on the Chattahoochee River. The plant is operated by the Alabama Power Company. An IPZ is the area surrounding a nuclear power plant within a fifty-mile radius where the principal source of exposure from an incident would be the ingestion of contaminated food or water. Although there is no history of nuclear incidents in Gadsden County, the Farley Nuclear Power Plant in Houston County, Alabama is within 50 miles of Gadsden County and could pose a threat in the unlikely event of a release. It is prudent to assume that the entire population of the County would be directly or indirectly affected should a major accident occur at the facility.

Past Occurrences

There are no known occurrences of any threats from release of radiological events.

Vulnerability

Gadsden County is in the 50-mile EPZ for Farley Nuclear Power Facility in Houston County. This EPZ includes the ingestion exposure pathway, in which the population will be vulnerable to the health effects associated with the ingestion of radiological contaminated food and water. Hazard mitigation is especially important for Gadsden County because a large proportion of the population is considered to be vulnerable. Vulnerable populations, also known as at-risk populations, include those persons who are physically and/or financially less able or unable to prepare, evacuate, and recover from natural hazards. The populations generally considered as vulnerable include the elderly, disabled, young, poor, and institutionalized. The 2006-2008 American Community Survey provides estimates based on data gathered from three years of annual surveys. This data set estimates that 22.8% of families and 27.6% of individuals in Gadsden County are below the poverty level, rates more than twice that of the U.S. as a whole.

According to the Department of Health, Division of Radiological Control, there are four facilities actively using radioactive materials in small quantities in the county. These are typically companies involved in road construction using devices containing small quantities of radioactive materials used to measure compaction in newly paved roadbeds. Given the small amounts of radioactive materials used in these devices and controls that exist regulating the use of this equipment, there is very little risk associated with this potential hazard.

Problem Areas:

Probability
The occurrence of a radiological event impacting Gadsden County is considered to be an extremely low-probability event.
Location
It is prudent to assume that the entire population of the County would be directly or indirectly affected should a major accident occur at the facility.
Extent
The northern third of the County, including the City of Chattahoochee is located in the 50-mile vulnerability zone of that plant. It is prudent to assume that the entire population of the County would be directly or indirectly affected should a major accident occur at the facility. Again, this is considered to be an extremely low-probability event.
Impact
There was insufficient information to generate an estimate of the impact to citizens, agriculture, the environment, the economy, or the potential dollar losses resulting from this hazard should one occur.

End of Radiological Events Profile

####

Summary of Hazards Profiled

Throughout Section 4, the LMS Committee/Workgroup identified hazards and their vulnerability and risk to each hazard. This included assessments for the County and each jurisdiction. This section provides a summary of those individual hazard assessment (or “profiles”).

Flooding: Flooding in Gadsden County results from periods of intense rainfall causing ponding and sheet runoff in the low, poorly drained areas. The floodplains of the Apalachicola and Ochlockonee Rivers are also subject to flooding during high river stages. The jurisdictions of Chattahoochee, Havana, Quincy, and selected areas of the unincorporated area of the county are most vulnerable to flooding.

Dam/Levee Failure: There are 28 dams located throughout Gadsden County (see Table 4.11), which are primarily located in the unincorporated areas of Gadsden County. However, Chattahoochee, Midway, and Quincy all have streams running through them with dams upstream of the municipal boundaries. The largest of these dams is the Jim Woodruff Dam located on the Apalachicola River, in the northwest portion of the County adjacent to the City of Chattahoochee. The Jim Woodruff Dam would have the highest and most significant impact to the County should it fail and cause severe flooding and damages to destruction of public and private property.

Sinkholes: To date, there has been no damages to infrastructure or structures in Gadsden County due to existing sinkholes or the formation of new ones. However, the southern tip of the County as well as areas in the northwestern portions of the County have a medium probability of sinkhole formation or damage from an existing sinkhole based on an occurrence of an event every 3-years. All other areas of the County are at a low probability of sinkhole formation or damage from an existing sinkhole based on an occurrence of an event every 10-years.

Hurricanes/Tropical Storms: Hurricanes and tropical storms are Gadsden’s largest threat because it is the most probable to happen with impacts on all aspects of life throughout County, including people, businesses, personal property, and public infrastructure. Depending on the hurricane’s category, strength, and landfall location, the vulnerable areas, structures, and populations vary. The stronger the storm will obviously have the most impact and potential for damages. The risks and vulnerability for municipalities is not substantially different from the risks for the unincorporated areas of Gadsden County.

Tornadoes: There is a medium probability that severe thunderstorms and/or tornados will impact any of Gadsden County municipalities. However, the possibility of severely damaging tornadoes F3 or above is low. There have been several tornadoes in the County over the past 60 years. Based on historical statistics, it can be expected that all the jurisdictions and the unincorporated areas of Gadsden County will continue to experience continued low threats from tornado events with potential damages to roofs, and tree debris impacting transportation and power services due to the high winds.

Thunderstorms (including high winds, lightning, and hailstorms): The entire County is vulnerable to the impacts of a thunderstorm occurrences, and areas with a high concentration of mobile homes are the most vulnerable. The probability of a thunderstorm event is high for the entire County (based on at least one occurrence a year). The probability for hailstorms and lightening is considered a medium probability (based on at least one occurrence every three years).

Landslide: The overall vulnerability for the County's is very low and chances of occurrence are minimal. However, this risk is included based on a historical landslide event in 1948 that occurred northwest of Greensboro and details were not well documented limiting information on its impact.

Wildfires: Gadsden's municipalities are particularly susceptible to fires due to their larger populations and greater density of commercial and residential development. This increases their vulnerability to fire events when compared to more remote area of the County. The probability of a fire occurring is relatively low for the municipalities and the unincorporated areas of the County, but they are all highly vulnerable to a fire threat.

Drought/Heat Wave: The entire County is vulnerable to droughts and high temperatures with a high heat index. Gadsden County has experienced both drought and high temperatures over the last 10 years. The probability for drought events is medium to high (based on at least one occurrence every three years to once every year). The probability for a heat wave occurrence is high (at least one occurrence every year).

Winter Storms/Freezing Temperatures: Gadsden County is vulnerable to winter storms and freezing temperatures, including damages to personal and public property, power interruptions, and frozen pipes. The population most vulnerable to the impacts of cold and freezing temperatures are the elderly, children, the sick, special needs, and the poor. The probability for a winter storm event is medium (based on at least one occurrence every three years). The probability for a freezing temperature occurrence is high (based on one occurrence each year). However, freezing temperatures normally only last a short period of 1-2 days.

Terrorism/Cyber-Attacks: Although neither a terrorist or cyber-attack has occurred in Gadsden County, and the probability for either event is low, the possibility and threat is there. Gadsden has annual and special events held throughout the County, including a nation bass fishing competition at Lake Talquin. Any large gathering of people, computer systems, transportation systems, as well as electrical and water systems could be impacted by either of these events. While the probability is low, Gadsden County continues to prepare for such an invent no matter how unlike it is to ever happen.

Infectious Diseases/Pandemic: Gadsden County is vulnerable and experiences the impacts of the annual flu season (April-October), but the overall impact is medium-low and is lessened with an annual flu shot. The risk of a highly lethal infectious diseases such as COVID-19 remains low, although not impossible should another pandemic occur.

Hazardous Materials: Each municipality and much of the unincorporated areas of Gadsden County is connected by and accessible via I-10 and US 90, as well as several arterial county roads. These roads are used for the transportation of hazardous materials that can impact Gadsden County should an event occur leading to a spillage. In the last five years none of these incidents caused damages other than those associated with clean-up. Due to high traffic patterns on I-10 and US 90, the probability is medium-high for future events to occur.

Radiological Events: Although there is no history of nuclear incidents in Gadsden County, the Farley Nuclear Power Plant in Houston County, Alabama is within 50 miles of Gadsden County and could pose a threat in the unlikely event of a release. It is prudent to assume that the entire population of the County would be directly or indirectly affected should a major accident occur at the facility.

Omission of Hazards

The following hazards were not included due such a low to no probability of these events occurring in Gadsden County.

Earthquakes: Gadsden County is not in a seismic zone and has never experienced an earthquake. Should one ever occur, it would be of such a small magnitude that is probably would cause little damage if any. Therefore, earthquake events are not included as a hazard.

Tsunami: Gadsden County is an inland County. If a Tsunami event were to occur the impact is estimated to be the same or similar as hurricane surge and is not necessary to address as a hazard.

Repetitive Loss (RL) Property

FEMA defines a Repetitive Loss property as any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period since 1978. The property may or may not be currently insured by the NFIP.

The NFIP system of record, the Federal Insurance and Mitigation Administration (FIMA) NFIP dataset of redacted claims, represents more than two million claim transactions for compensation for losses due to flood events. Information within the dataset has been redacted to protect policy holder personally identifiable information.

Review and analysis of the dataset reveals that claims have been filed for fewer than a dozen properties within Gadsden County since 1970. According to the dataset, two claims were filed for one of the properties listed, however, only one of these claims was paid by the NFIP; none of the other properties filed more than one claim. Thus, none of the claims represent a repetitive loss within Gadsden County. The *Open FEMA Dataset: FIMA NFIP Redacted Claims* can be accessed at: <https://www.fema.gov/about/openfema/terms-conditions>.

Summary of Updates

- Citations updated.
- Added and profiled four (4) disasters to the list of hazards: Terrorism/Cyber Attacks, Infectious Disease/Pandemic, Hazardous Materials, and Radiological Events.
- Added two required sections to address: Summary of Hazards and Omission of Hazards.
- Clarified Repetitive Loss (LS) definition and updated RL in Gadsden County.
- Updated all tables, figures and narrative with most current data and information; and deleted/replaced out-of-date and incorrect tables/maps/figures/data/sources.
- Non-substantive editing for clarity and cohesiveness with other Plan Sections.

End of Section 4: Hazards, Risk, and Vulnerability Assessment
####

Section 5 – Mitigation Strategy

Requirements:

§201.6 (c) (3) (i) – [The hazard mitigation strategy must include] A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

§201.6 (c) (3) (ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

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

Gadsden County LMS Mitigation Goals

The mitigation strategy outlines the goals and objectives for the mitigation efforts in Gadsden County, which are a vital part of the LMS Plan. The County's mitigation goals, and objectives (see Appendix 2) were reviewed and updated for the 2016 LMS Plan to ensure they continue meeting the unique needs, interests, and desires of the community. Upon review of the 2016 Mitigation Goals and Objectives for the LMS Plan update (2022) it was determined that no updates were necessary. The LMS goals and objectives are also formed through a close review of risks, vulnerabilities, and capabilities and are consistent with the State of Florida Hazard Mitigation Plan, the local comprehensive plans, the state comprehensive plan, and the local comprehensive emergency management plan, and the LMS Plan update (2022)

The goals and objectives are related to the broad mitigation needs and capabilities of the communities involved, rather than addressing a specific hazard type or category. Therefore, the Gadsden County mitigation goals, by definition, are "multi-hazard" in scope and can be described as statements of the desired "mitigation-related capabilities" that will be present in each participating jurisdiction in the future as the goals are achieved."

The goals and objectives also provide the direction for the mitigation projects or initiatives that will harden the community for a more sustainable and resilient future. These mitigation projects or initiatives are those activities that aim to reduce the risks from natural hazards in a community. Several factors play a role in the decision on which mitigation activities to pursue including the frequency and severity of the hazard, the community's ability to address the problem, ease of implementation, costs and benefits, availability of funding, and a local champion to spearhead the activity, among others.

The mitigation goals are intended to reduce or avoid the long-term vulnerability to the effects of the profiled hazards addressed in the risk assessment area of Section 4.

- ✓ They reflect the updated risk assessment,
- ✓ They were analyzed and re-evaluated which lead to the current mitigation projects that will reduce

Gadsden County LMS Plan Update 2022

- the vulnerability for each jurisdiction,
- ✓ They did support to the changes made in the mitigation priority list, and
- ✓ They provided the direction needed to reflect the current State of Florida goals for mitigating hazards within the counties.

Summary Overview of the Goals and Policy Objectives

As Gadsden County's LMS plan continues to evolve, the goals will be reviewed at least every other year at a publicly noticed LMS meeting to ensure that they are applicable to meeting the unique needs of the community. The LMS Goals and Objectives (see Appendix 2), as state above were reviewed and evaluated during the LMS Plan update. It was determined by the Committee/Workgroup Members that the goals and objectives address the county's needs for reducing or avoiding long-term vulnerabilities to the identified hazards and they are incorporated into the LMS annual plan update.

National Flood Insurance Program (NFIP), and Continued Compliance with NFIP Requirements

As stated by FEMA... "The NFIP is aimed at reducing the impact of flooding on private and public structures. This is achieved by providing affordable insurance for property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase and retention of Risk Insurance in general, and National Flood Insurance in particular." Source: <https://www.fema.gov/national-flood-insurance-program>

Compliance with NFIP: The Cities of Chattahoochee, Gretna, Midway, Quincy, and the Towns of Greensboro and Havana, and Unincorporated Gadsden County as of the LMS Plan update participate with the National Flood Insurance Program and will continue to participate in the NFIP. Gadsden County has 153 Flood Insurance Policies in force.

Remainder of Page Intentionally Left

Gadsden County LMS Plan Update 2022

Table 5.1 - Gadsden Participation in the NFIP – as of 6/1/2022

CID #	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg- Emer Date	Tribal
120091	Gadsden County	Gadsden County	9/16/1977	5/2/1991	2/4/2009	5/2/1991	No
120092	City of Chattahoochee	Gadsden County	7/19/1974	9/4/1987	2/4/2009	9/4/1987	No
120046	City of Gretna			2/4/2009	2/4/2009 (M)	11/1/2010	No
120026	City of Midway	Gadsden County		2/4/2009	2/4/2009	6/4/2010	No
120093	City of Quincy	Gadsden County	3/1/1974	2/1/1987	2/4/2009	2/1/1987	No
120036	Town of Greensboro	Gadsden County		2/4/2009	2/4/2009 (M)	12/23/2013	No
120411	Town of Havana	Gadsden County	7/23/1976	6/17/1986	2/4/2009	6/17/1986	No

(M) – No elevation was determined - All Zone A, C and X

Table 5.2 - NFIP Policy Statistics as of 4/30/2016

Community Name	Policies In-Force	Insurance In-force whole \$	Written premium In-force
Gadsden County	115	\$35,102,500	83,674
City of Chattahoochee	4	\$495,000	2,412
City of Midway	14	\$6,355,500	17,545
City of Quincy	10	\$2,766,700	5,089
Town of Havana	10	\$2,633,700	4,493
Total Number of Policies In-Force :	153		

Gadsden County NFIP Overview:

As of 4/30/2022, see table 5.2 above, there are currently 153 flood insurance policies in force. The most current flood maps were updated and adopted on February 4, 2009. Specific floodplain studies were performed in the Flood Insurance Study (FIS) #12039CV000A by the Federal Emergency Management Agency (FEMA) and the Northwest Florida Water Management District (NFWFMD).

The countywide FIS investigated the existence and severity of flood hazards in, or revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Gadsden County, Florida, including: the Cities of Chattahoochee, Gretna, Midway and Quincy; the Towns of Greensboro and Havana; and the unincorporated areas of Gadsden County (hereinafter referred to collectively as Gadsden County).

The scope of the study covered the geographic area of Gadsden County, Florida. Flooding caused by overflow of the Little River, the Ochlockonee River, Attapulugus Creek, Swamp Creek, Quincy Creek, Richlander Creek, Bear Creek, Ocklawaha Creek, and the Apalachicola River.

Gadsden County LMS Plan Update 2022

The Gadsden County Emergency Management Department works closely with the County Building Inspection and Planning and Growth Management Departments to map areas that are prone to frequent floods and track repetitive loss properties. See section 4 for information on repetitive losses.

After a disaster, all damaged structures are inspected, and the damage documented. The office also maintains flood mitigation information for the county citizens to review on flooding issues, which include retrofitting, safety, insurance, maps, historical data, and many other sources of information.

Gadsden County will continue to participate in the NFIP. The following actions have been identified, analyzed, and prioritized as necessary steps to remain in compliance with the program:

- ▶ Continue to enforce the most current Florida Building Code, Land Development Code, Comprehensive Plans, and Code of Ordinances;
- ▶ Provide current Special Flood Hazard Area Maps for analysis and review which are located at the Planning and Community Development Department;
- ▶ Continue outreach programs to the public with special emphasis for the properties lying in the repetitive flood areas;
- ▶ Continue to provide current the Flood Insurance Rate Maps (FIRM) information to all interested parties (*details can be obtained at the NFWFMD, Flood Information Portal link-<http://portal.nfwfmdfloodmaps.com/map.aspx?cty=gadsden>*);
- ▶ Continue to monitor all elevation certificates and maintain records and copies for anyone to review;
- ▶ Continue to assist local insurance agents with obtaining correct FIRM's and flood insurance rates;
- ▶ Continue to participate in all hazard mitigation efforts to include working with Gadsden County's Emergency Management to maintain and monitor hazard data for future planning;
- ▶ Submit all information to FEMA necessary to keep current FIRM's as accurate as possible; and,
- ▶ Participate whenever possible in any future flood studies.

Community Rating System (CRS): The Community Rating System (CRS) is a voluntary program for National Flood Insurance Program (NFIP) participating communities. This program's goals are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. CRS has been developed to provide incentives in the form of premium discounts for communities to go beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding. *Status as of May 1, 2022: Gadsden County and the incorporated areas (i.e., cities of Chattahoochee, Gretna, Midway, Quincy, and the towns of Greensboro, and Havana) do not participate in the CRS.*

Identification and Analysis of the County's Mitigation Projects

There are many actions and/or projects that the Gadsden County communities can undertake to reduce or eliminate losses from hazards. FEMA identifies six general categories of mitigation actions:

- ▶ **Prevention** - Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.
- ▶ **Property Protection** - Actions that involve the modification of existing buildings or structures to protect them from a hazard or removal from the hazard area. Examples include acquisition, elevation, relocation,

Gadsden County LMS Plan Update 2022

- structural retrofits, storm shutters, and shatter-resistant glass.
- ▶ **Public Education and Awareness** - Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.
 - ▶ **Natural Resource Protection** - Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
 - ▶ **Emergency Services** - Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.
 - ▶ **Structural Projects** - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

The LMS consists of mitigation projects (see Appendix 3) that are designed to minimize potential losses to natural disasters identified in the risk assessment. The strategy for maintaining existing protection mechanisms is provided in the county and municipal government comprehensive plans, county ordinances, land development code, and other implementation mechanisms. The strategy also provides for identifying future local government capital improvements, which, among other purposes, mitigate adverse impacts from natural disasters, and a public information program to educate county residents of the need to prevent and mitigate damage caused by natural disasters.

The county and its associated municipalities will also use any updated floodplain maps prepared as a result of the FEMA Floodplain Map Modernization Program and Repetitive Loss Initiative. The county and its associated municipality, when feasible, will also use any products produced through the FEMA's on-going field and database verification projects for repetitive loss properties.

The risk assessment identifies the county is most susceptible to flooding, hurricanes/tropical storms, wildfires, tornadoes, drought, and thunderstorm/wind events, etc. The county and its associated municipality evaluate their comprehensive plans and land development regulations for modifications to improve mitigation measures, with special emphasis on these occurrences.

The Building Inspection, the Growth Management, and the Emergency Management Departments continue to maintain a list of repetitive loss structures and properties (see Section 4. "Repetitive Loss" section). The county with the assistance of other related agencies implements a public education campaign regarding construction within floodable areas, the use of burn bans, emergency water conservation regulations, as well as minimum housing codes with regards to minimum building standards.

Implementation of the Mitigation Projects

All mitigation projects or initiatives were carefully reviewed, analyzed, and revised according to the list of mitigation projects that were developed and updated in 2016, and annually thereafter. As mentioned earlier, Appendix 3 provides a comprehensive list of all mitigation projects for the County as a whole, jurisdictions, the identified hazards with detailed specifics, including but not limited to actions that address the reduction of hazards on new as well as existing buildings and infrastructure, and provides updated project status over the last five years to indicate if a project was completed, deferred, deleted or if any new projects were added as a result of a hazard event.

Gadsden County LMS Plan Update 2022

Prioritization Process and Benefit-Cost Review

The mitigation projects are prioritized to promote initiatives, which support public health and safety and yield the greatest mitigation benefits. Ranking indicates the overall importance of the project to local mitigation efforts, but it does not dictate which projects are accomplished when. The project implementation will depend more on funding availability rather than rank. In the event of a significant disaster, the LMS Committee/Workgroup will convene as necessary to consider damage, additional mitigation projects, and then evaluate and re-prioritize the LMS project list.

The **prioritization** process developed requires the identification of projects or initiatives that will reduce property damage, have technical merit, be cost-effective, and will protect the health, safety and welfare of Gadsden County's citizens and meet the other mitigation benefits noted.

The **Benefit Cost Analysis (BCA)** is a scientific way of determining whether a project is likely to be cost effective. Although the prioritization process includes some economic considerations, project benefit cost ratios will be analyzed based on the guidelines set forth by State of Florida and FEMA. BCA will be conducted for the top tiered projects and/or projects which are included in the funding applications.

Each initiative or project is scored individually and is based on the scored criteria developed by the LMS Committee/Workgroup. The process to prioritize the projects is accomplished during joint meeting between the Committee/Workgroup members and the officials from the local governments. Because these projects are mitigation projects intended to reduce risk to hazards, it is almost by definition that a majority of the projects were ranked as high. To identify and prioritize projects, representatives from each municipality were requested to identify the most important project for his or her jurisdiction, respectively.

The Project Prioritization Method, provided in Figure AA below, is a multi-page worksheet that assigns a numerical value to several factors to aid in prioritizing projects when general agreement among the group cannot be reached. The Project Prioritization Method contains eight categories:

- ✓ Goals and Objectives
- ✓ Level of Vulnerability
- ✓ Cost Effectiveness
- ✓ Ancillary Benefits
- ✓ Local Funding
- ✓ Special Designations
- ✓ Timelines
- ✓ Local Expertise

The point weighting system gives the most weight to projects that produce a benefit that is greater than their cost under the Cost Effectiveness category. Analysis of projects based on a cost-benefit review ensures the ability to maximize the benefits of available funding. The Local Expertise category provides the second highest weight and is similar to the process that the LMS Committee/Workgroup went through to develop the priority ranking of projects county-wide for each jurisdiction (see Appendix 3).

Remainder of Page Intentionally Left Blank

Figure AA – Mitigation Project Prioritization Method

Gadsden County Local Mitigation Strategy Prioritization and Scoring Method

The LMS Prioritization and Scoring Method is used for identifying projects and programs that have technical merit, will be cost effective, and acceptable to the public upon implementation. The project or program is described and categorized by type. The score is used as the basis for the preliminary ranking of projects and programs on the LMS list.

Reference Number:

Location:

Project/Program Name:

Project/Program Description:

--

Project/Program Category

Goals & Objectives

Points are awarded for each goal and/or objective supported by the project or program from the Local Mitigation Strategy. Choose the goals and objectives supported by the project/program. Total the number of goals and objectives addressed. Multiply the total number of goals and objectives by the points awarded to obtain the score.

Criteria	List Goals & Objectives	Total #	Points	Score
Goals			2	
Objectives			1	
Total:				

Level of Vulnerability

Points are based upon the type of hazard mitigated and the predetermined Level of Vulnerability.

Improved Evacuation and/or Sheltering Capabilities	5	
Multi-Jurisdictional	5	
Eligible for the National Register of historic Places	5	

Gadsden County LMS Plan Update 2022

Criteria	Rating	Points	Score
The project/program has the greatest likelihood of significantly benefiting the jurisdiction	5	25	
The project/program has a significant likelihood of benefiting the jurisdiction	4	20	
The project/program will likely benefit the jurisdiction	3	15	
The project/program may benefit the jurisdiction in more than one area of concern	2	10	
The project/program may benefit the jurisdiction in at least one area of concern	1	5	
The project/program could benefit the jurisdiction, however there are circumstances that may decrease the chances for it to be completed or implemented.	0	0	
Total:			

Total Worksheet Score

Criteria	Score
Goals & Objectives	
Level of Vulnerability	
Cost-Benefit	
Ancillary Benefits	
Local Funding Availability	
Special Designations	
Timeliness	
Local Expertise	
TOTAL SCORE	

Date Completed:

Scorers Initials:

Reviewed by Gadsden County LMS Working Group:

Comments:

Gadsden County LMS Plan Update 2022

In developing the prioritization procedures, it is not the intent to direct that the projects be accomplished in their prioritized order. The purpose of the ranking is to indicate the overall importance of the project to the local mitigation efforts. This system also designates which projects are the first to be implemented after a disaster or when resources (funds) do become available.

After a natural disaster event if a state and presidential declaration are made, and if Gadsden County is designated as a result of the disaster; the county will be eligible for the Hazard Mitigation Grant Program (HMGP) funding. Once the county receives the disaster designation the LMS Committee/Workgroup will meet to analyze the damage that was sustained. Then in respect to the current conditions within the county, changes in policy and overall mitigation needs, prioritization of projects to be funded will be reviewed for the specific declared disaster.

Gadsden County Mitigation Projects or Initiatives

In summary, the mitigation projects (Appendix 3) can be manifested in many different ways. These actions might address the following:

Prevention – Preventing hazard loss by filing to develop and build in hazard prone areas. This can be accomplished through zoning, ordinances, open space, and storm water management requirement.

Property Protection – Modifying or removing existing buildings or infrastructure to protect them from a hazard.

Public Education and Awareness – Education on mitigation to all county citizens.

Natural Resource Protection – Actions that mitigate hazards through the protection of natural resources. An example would be wetlands protection to prevent flooding.

Emergency Services – Protection of all the county critical facilities. Advanced warning systems to protect the county citizens.

Structural Projects – Projects, which engage construction to reduce hazard risk. Some examples could include replacing culverts and building safe rooms.

The County's master list of mitigation projects or initiatives (Appendix 3) includes the current, ongoing, jurisdiction, deferred, completed, and deleted projects for the county for the period beginning 2022. It describes the mitigation project, identify if the hazard has been mitigated, if the goals were achieved through the completion of the project, the funding source, the agency responsible for implementation, the estimated cost, or total final costs, the timeframe for completion, and details on the progress of the mitigation project.

These mitigation projects or initiatives are action items for the identified hazards in Section 4 and address the reduction of hazards on *new as well as existing buildings and infrastructure*. They are as follows:

- ✓ The *new, ongoing, and deferred* mitigation projects - (the deferred projects remain active and will be pursued as funding sources are identified or priorities change due to disaster events).
- ✓ The mitigation projects that have been *completed* over the last five years.
- ✓ The mitigation projects that were determined to be removed or deleted.

Gadsden County LMS Plan Update 2022

Analysis of the Comprehensive Range of Mitigation Projects or Initiatives

Table 5.3 below demonstrates that Gadsden County has a “comprehensive range” of specific mitigation projects that will address the goals to reduce or avoid long-term vulnerability for each jurisdiction.

Table 5.3– Comprehensive Range of Mitigation Projects for Each Jurisdiction

natural Hazards Profiled	Unincorp. Gadsden County	City of Quincy	City of Chattahoochee	City of Gretna	City of Midway	Town of Greensboro	Town of Havana
Flooding	X	X	X	X	X	X	X
Dam/Levee Failure	X		X				
Sinkholes	X	X	X	X	X	X	X
Hurricanes/ Tropical Storms	X	X	X	X	X	X	X
Tornado	X	X	X	X	X	X	X
Thunderstorms /Winds/ Lightning/ Hailstorms	X	X	X	X	X	X	X
Wildfire	X	X	X	X	X	X	X
Drought/Heat Wave	X	X	X	X	X	X	X
Winter Storms/ Freezing Temperatures	X	X	X	X	X	X	X
Infection Diseases/Pandemics	X	X	X	X	X	X	X
Terrorism/Cyber Attacks	X	X	X	X	X	X	X
Hazardous Materials/Radiological Events	X	X	X	X	X	X	X
All Hazards	X	X	X	X	X	X	X

Jurisdiction Projects

The County’s Master list of projects and initiatives provided in Appendix 3 includes and identifies projects for each jurisdiction within the county, including specifics on the natural hazards that will be mitigated, the agency responsible of overseeing the project, analysis of the initiative and potential funding source, and what jurisdiction will benefit from the mitigation project.

Possible Funding Sources for Mitigation Projects

Mitigation projects implemented by the County and each jurisdiction will be dependent on available funding. It is anticipated that the County and/or jurisdictions will seek federal, state, and local funds to assist in the implementation of action items involving capital improvements and/or additional personnel. In addition to local and county matching funds, there are hosts of funding sources available to counties of all sizes, and the County and jurisdictions will monitor and evaluate all available funding opportunities and make every attempt to secure funding. Below are sources of funds researched and identified as part of the 2022 plan updated process:

- Hazard Mitigation Grant Program (HMGP)
- Florida Communities Trust (FCT)

Gadsden County LMS Plan Update 2022

- Community Development Block Grant Program (CDBG)
- Emergency Management Preparedness and Assistance Trust Fund (EMPATF)
- Flood Mitigation Assistance Program (FMA)
- Pre-Disaster Mitigation Program (PDM)
- State Housing Initiative Partnership Program (SHIP)
- Surface Water Improvement and Management Program (SWIM)
- Low-Income Home Energy Assistance and Weatherization Program (WAP)
- Residential Construction Mitigation Program (RCMP)
- Florida Department of Agriculture and Consumer Services/Forestry Wildfire Grant Funds
- US Corp of Engineers, Emergency Bank Protection Program
- Office of Domestic Preparedness (ODP)
- Department of Economic Opportunity Technical Assistance Grant
- Department of Environmental Protection, Florida Resilient Coastline Program Grant

The most probable sources for funding for mitigation projects are the HMGP and the PDM programs since they specific to mitigation projects, as discussed below:

Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 93-288 as amended). It is a partnership that is designed to assist states, local governments, private non-profit organizations, and Indian Tribes in implementing long-term hazard mitigation measures following a major disaster declaration. The objectives of HMPG are to: 1) prevent future losses of lives and damage to property due to disasters; 2) implement state or local hazard mitigation plans; 3) enable mitigation measures to be implemented during immediate recovery from a disaster; and, 4) provide funding for previously identified mitigation measures that benefit the disaster area.

Pre-Disaster Mitigation Grant Program (PDM) The PDM program was authorized by Section §203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by Section §102 of the Disaster Mitigation Act of 2000, to assist communities to implement hazard mitigation programs designed to reduce overall risk to the population and structures before the next disaster occurs. The Florida Division of Emergency Management solicits project applications and encourages local governments to identify and submit applications that address eligible mitigation activities that are designed to reduce your community's overall risk to hazards. Unfortunately, available funding has been significantly reduced from prior year levels.

Administration of Actions

It is anticipated that Gadsden County and each the incorporated areas (i.e., Cities of Quincy, Chattahoochee, Midway, Gretna and the Towns of Havana and Greensboro) with regards to any mitigation project(s) that are included in the LMS, will apply for, and administer grants for actions within their respective jurisdictions. The following lists of agencies are responsible for carrying out the identified mitigation projects (if applicable) that are contained in the LMS as well as the functions they provide.

Gadsden County Emergency Management Department is the lead agency responsible to research, develop, evaluate, write, maintain, and update the LMS Plan. The department is also responsible for managing and overseeing all details for the communities to prepare for, respond to, recover from, and mitigate against natural, technological, and man-made hazards. The Emergency Management Director and Coordinator are responsible for implementing and administrating the mitigation projects, including

researching, and identifying funding sources and providing timeframes for the completion of the project.

City of Quincy Volunteer Fire Department identifies and recommends mitigation goals that will reduce and/or lessen the impact of wildfires within their jurisdiction. Provide education and training that will assist in accomplishing the mitigation goals and objectives. The Representative will take the lead in implementing and administrating the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Gadsden County Health Department identifies and recommends mitigation goals that will reduce and/or lessen the impact of County residents' health and safety within their jurisdiction. Provide education and training that will assist in accomplishing the mitigation goals and objectives. The Administrator or Preparedness Planner will take the lead in implementing and administrating the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Gadsden County Building Inspection and Planning and Community Development Departments identify, develop, and recommend changes to the building and zoning codes that will eliminate or lessen the impact of disasters. Assure enforcement of all existing building and land development regulations. The Director of Building Inspection and the Director of Planning & Community Development are responsible for implementing and administrating the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Gadsden County School District. The Board is responsible for construction and maintenance of public schools used as emergency shelters. The School Board will be responsible for implementation of mitigation actions proposed for public school buildings. The Superintendent is responsible for implementing and administrating the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Gadsden County Public Works Department. Provides technical assistance and advice on identifying and accomplishing mitigation actions to improve the design, construction and placement of roads, bridges, culverts, etc., that will eliminate or lessen the impact of disasters. The Public Works Director is responsible for implementing and administrating the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Florida Forest Service. Provides technical assistance and advice on all aspects of wildfire issues including identification and accomplishment of mitigation actions designed to reduce the loss of life and real property. The Wildfire Mitigation Specialist is responsible for implementing and administrating the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Florida Department of Transportation. Provides technical assistance and advice on identifying and accomplishing mitigation actions to improve the design, construction and placement of roads, bridges, culverts, etc., that will eliminate or lessen the impact of disasters. The FDOT District Three Representative for the area is responsible for implementing and administrating the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Florida Division of Emergency Management (FDEM). Provides technical assistance and funding when available; in all aspects of emergency management to better able the county to prepare for, respond to, recover

Gadsden County LMS Plan Update 2022

from, and mitigate against natural, technological, and man-made hazards.

Northwest Florida Water Management District (NFWFMD). Provides technical assistance and advice on identifying and accomplishing mitigation actions to help reduce or eliminate the impact of flooding in the County. The NFWFMD Representative is responsible for implementing and administering the mitigation project, including researching, and identifying funding sources and providing timeframes for the completion of the project.

Summary of Updates:

1. Deleted Table 5.1 Mitigation Goals and Objectives and incorporated as Appendix 2.
2. Tables 5.2, 5.3 and 5.4, were renumbered 5.1, 5.2, and 5.3, respectively, and data and associated narrative updated to reflect most current data. Table 5.3 was updated to reflect Radiological Events.
3. Deleted Table 5.5, master list of projects and initiatives and incorporated as Appendix 3.
4. Deleted Table 5.6 and replaced with updated narrative to reflect potential funding sources.
5. Minor editing and formatting for clarity and conformity with other sections of the LMS plan.

End of Section 5: Mitigation Strategy

####

Section 6 - Plan Evaluation, Maintenance, and Adoption

Requirements:

§201.6(c)(4)(i): [The plan maintenance process that includes] A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

§201.6(c)(4)(ii): A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

§201.6(c)(4)(iii): Discussion on how the community will continue public participation in the plan maintenance process.

§201.6(c)(5): **Documentation** that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

§201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

Changes in Development

The Gadsden County LMS Plan serves as a guide for hazard mitigation activities on a community-wide basis. The LMS Plan reflects the developing needs of the communities as the county experiences growth and changes in relation to hazard vulnerability. Land use modification and development can affect a variety of infrastructure issues such as roads, bridges, sewers, electrical grids, water and sewer utilities, and ecological considerations such as water quality.

Critical facilities are classified as Risk Category IV facilities. Risk Categories in building codes are assigned to reflect current understanding of the risk to human life, health, and welfare associated with damage or failure of a facility by nature of its occupancy or use. Risk Category IV, the highest risk category, includes buildings and structures that, if severely damaged, would reduce the availability of essential community services necessary to cope with an emergency.

However, in the last five years (2016-2021) there were no developments, Comprehensive Plan amendments or zoning changes affecting the unincorporated areas of Gadsden County or its jurisdictions that increased vulnerability to flooding, fires, evacuation routes or other potential hazardous risks.

Furthermore, changes and impacts for actual and potential disaster events to this LMS Plan are reflected in Section 2, Planning Process which provides discussion on addressing current Plan updates as well as source documents reviewed; Section 3, Geography, Demographics, and Land Use provides narrative describing Gadsden's current (2022) land use and future (2022 and beyond) potential land use; Section 4, Hazards, Risks and Vulnerability Assessment provides data, information and profiles on actual and potential disaster threats; and, Section 5 Mitigation Strategy discusses mitigation goals, strategies,

Gadsden County LMS Plan Update 2022

projects, and initiatives to address response, recovery and mitigation of hazards profiled in Section 4.

LMS Plan Evaluation, Maintenance and Update

The Gadsden County EM Director and the Growth Management Director, work together and in conjunction with the Gadsden County LMS Committee/Working Group to coordinate the monitoring, evaluation, and revisions of the LMS Plan. The LMS Committee/Workgroup will meet no less than annually to review and update the effectiveness of the LMS Plan, goals, and objectives (Appendix 2) and the masterlist of projects and initiatives (Appendix 3). At the LMS meeting, the Committee/Workgroup Members review the following topics, as applicable:

- ✓ Any significant changes to the hazard risk or vulnerability section of the plan;
- ✓ Analyze and evaluate each mitigation project or initiative and provide an update on the status;
- ✓ If the mitigation project has been completed, if the project will need to be removed or deleted, if there are any new mitigation projects that need to be added, and if there are any changes in the priority ranking of mitigation initiatives;
- ✓ Review the Repetitive Loss Property data;
- ✓ Analyze the Mitigation Goals and Objectives to see if they still meet the needs for the community;
- ✓ Audit any updates to the County's critical facilities list;
- ✓ Audit any updates to the County's list of facilities storing hazardous materials;
- ✓ Review any emerging and prior year threats; and
- ✓ Examine the vulnerability assessment data and maps, if necessary.

As a result of these efforts from these meetings, any important changes as well as the information required in accordance with Florida Administrative Code 27P-22 will be submitted to the Florida Division of Emergency Management, Mitigation Planning Section within the timeframe prescribed by law.

In the event a disaster occurs, or other type of emergency in the county, the Committee/Working Group may choose to meet more often or earlier than planned, in the recovery and then redevelopment phase, soon after damage assessments are conducted. At this point, the LMS Plan and current strategies, objectives, goals, and objectives may be reviewed as applicable to an event, and necessary changes made based on lessons learned from the response and recovery phase of the disaster.

The Committee/Workgroup will begin each 5-year update process as close to the 18-months prior to the expiration of the LMS Plan. The plan update will be based on an evaluation and analysis of the risk and vulnerability assessment (as described in Section 4). The intent is to incorporate any changes in the estimate of replacement costs, new scientific data on hazards, the affects hazards have on the communities, changes in growth patterns, and if there are any reductions in vulnerability due to completion of mitigation projects.

Once the risk assessment is updated, the Committee/Working Group will utilize this information and evaluate the goals, objectives, and actions contained in the LMS to determine if they are still applicable. The most recent review and discussion on the LMS Goals and Objectives were determine and affirm that they continue to meet the needs for the County.

Also, the Working Group will evaluate whether communities have the resources available to implement current and new programs and projects. The updated LMS will also capture the planning process followed during the update of the Plan as discussed in this Section.

Incorporation into Existing Planning Mechanisms

When feasible, the local governments should incorporate the requirements of the Local Mitigation Strategy into their comprehensive plans and land development regulations. The process for amending local government comprehensive plans is specified by Section 163.3184, Florida Statutes, which requires local governments to prepare Evaluation and Appraisal Reports of their comprehensive plan at least once every seven years. The purpose of the process is to consider changes to comprehensive plans that reflect new information, comprehensive plan successes and failures, changing conditions and trends, as well as changes in state policy on planning and growth management which may have occurred during the prior seven years. Local governments will consider new information and policy guidance provided in the LMS in their next evaluation and appraisal report for amendments to their comprehensive plans.

Section 163.3177, Florida Statutes, requires local government comprehensive plans to include a capital improvements element and a 5-year schedule of capital improvements. Furthermore, Section 163.3177 (3)(b), Florida Statutes, requires the capital improvements element to be reviewed and modified as necessary on an annual basis. In addition, that statute mandates that the identified improvements be consistent with the plan and that all public facilities shall be consistent with the capital improvements element. Therefore, all identified capital improvement projects contained in the LMS, which are anticipated to be implemented within the next five years should be considered for incorporation into capital improvements element on an annual basis.

The LMS is intended to provide the local communities an opportunity to implement across planning boundaries. There are a variety of ways that the LMS has incorporated elements of other planning mechanisms and programs in addition to related mechanisms and program that have integrated components of the LMS. While all documents referenced in Section 2, The Planning Process were reviewed and incorporated as applicable and for continuity of application, the following were further examined and addressed due to the legal standing of such source documents and significant impact they can have on the LMS Plan. During this review, the only document (local law, policy, program, or plan) that was updated based on the LMS plan was the 2022 CEMP (reference section 2, The Planning Process, Source Documents and Jurisdictional Authority). As a result of this Plan update, the County is also reviewing its 2016 Ingestion Pathway Plan related to response to potential radiological events to determine if updates are needed.

Furthermore, each jurisdiction and special district have the authority vested in them in accordance with federal, state and local laws and interlocal agreements to adopt or amend local laws, policies and programs as needed including, but not limited to, those concerning growth management and disaster response, recovery and mitigation efforts, e.g., Comprehensive Plan, zoning ordinances, building codes, CEMP, Gadsden County's 2016 Ingestion Pathway Plan, etc.

Gadsden County Code of Ordinances

Chapter 42 - FLOODS

ARTICLE II. - FLOOD DAMAGE PREVENTION

Sec. 42-32. - Statutory authorization.

The state legislature has in F.S. § 163.3202(2)(d), delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the board of county commissioners does ordain as provided in this Article.

Sec. 42-33. - Findings of fact.

Gadsden County LMS Plan Update 2022

The flood hazard areas of the county are subject to periodic inundation, which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, flood proofed, or otherwise unprotected from flood damages.

Sec. 42- Sec. 42-34. - Statement of purpose.

It is the purpose of this Article to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: Restrict or prohibit uses which are dangerous to health, safety and property due to water erosion, or which result in damaging increases in erosion hazards, or in flood heights or velocities;

Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction;

Control the alteration of natural floodplains, stream channels and natural protective barriers, which are involved in the accommodation of floodwaters;

Control filling, grading, dredging and other development, which may increase erosion or flood damage; and Prevent or regulate the construction of flood barriers, which will unnaturally divert floodwaters, or which may increase flood hazards to other lands.

Sec. 42-35. - Objectives.

The objectives of this Article are to:

Protect human life and health;

Minimize expenditure of public money for costly flood control projects;

Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

Minimize prolonged business interruptions;

Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, street and bridges located in floodplains;

Help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas; and

Ensure that potential home buyers are notified that property is in a flood area.

Sec. 42-38. - Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the Federal Emergency Management Agency (FEMA) in its flood insurance study and flood insurance rate map, dated February 4, 2009, with accompanying supporting data, and any subsequent revisions thereto, are adopted by reference and declared to be a part of this Article. The flood insurance study and flood insurance rate map are on available at the county growth management department.

Sec. 42-41. - Warning and disclaimer of liability.

The degree of flood protection required by this Article is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur on rare occasions.

Flood heights may be increased by manmade or natural causes. This Article does not imply that land

Gadsden County LMS Plan Update 2022

outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This Article shall not create liability on the part of the board of county commissioners, or by any of its officers or employees, for any flood damages that result from reliance on this Article, or any administrative decision lawfully made thereunder.

Sec. 42-63. - Variances and appeals.

The planning and zoning commission, as established by the board of county commissioners shall hear and make recommendations to the board of county commissioners who shall decide appeals and requests for variances from the requirements of this Article.

In passing upon such applications, the planning and zoning commission and the board of county commissioners shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this Article, and:

The danger to life and property due to flooding or erosion damage;

The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;

The safety of access to the property in times of flood for ordinary and emergency vehicles;

DIVISION 3. - FLOOD HAZARD REDUCTION

Sec. 42-81. - General standards.

In all areas of special flood hazard, all development sites including new construction and substantial improvements shall be reasonably safe from flooding.

Sec. 42-82. - Specific standards.

Located within the areas of special flood hazard established in Article 3, Section B [section 42-38], where there exist A zones for which no base flood elevation data and regulatory floodway have been provided or designated by the Federal Emergency Management Agency, the following provisions shall apply: Notify, in riverine situations, adjacent communities, the Florida Department of Community Affairs—NFIP Coordinating Office, and the Northwest Florida Water Management District prior to any alteration or relocation of a watercourse, and submit copies of such notifications to FEMA.

Gadsden County Comprehensive Plan

Conservation Element

OBJECTIVE 5.2: Provide for the conservation, appropriate use and protection of those lands deemed as environmentally sensitive.

Policy 5.2.1: Wetlands and lands designated as Special Flood Hazard Areas and/or floodplains by the Federal Emergency Management Agency are locally designated as environmentally sensitive lands and shall be afforded maximum protection with applicable planning controls.

OBJECTIVE 5.3: Conserve and protect the quality and quantity of local water bodies and their sources.

Policy 5.3.1: Wetlands are locally designated as environmentally sensitive and shall be afforded maximum protection with applicable planning controls.

Policy 5.3.2: Development shall be required to maintain a fifty (50) foot minimum natural setback around all FDEP and U.S. Army Corps of Engineers jurisdictional wetlands with exception to utility and transportation networks and water dependent uses such as docks and platforms.

Policy 5.3.3: The location of septic tanks and drain fields shall be prohibited within one hundred (100) feet of all perennial rivers, streams, creeks, lakes, and wetlands.

Gadsden County LMS Plan Update 2022

Policy 5.3.4: Any amendment to the Future Land Use Map shall consider the impact to the functionality of adjacent and on-site wetlands. The protection and conservation of wetlands by the direction of incompatible land uses away from wetlands shall occur in combination with other principles, guidelines, standards, and regulations in this Plan and the Land Development Code.

Policy 5.3.9: The County shall regulate development within 100-year floodplains to maintain the flood-carrying and flood storage capacities of the floodways and flood plains and reduce the risk of property damage and loss of life.

City of Quincy Code of Ordinances

Chapter 46 Land Development Code

ARTICLE V. - RESOURCE PROTECTION

STANDARDS DIVISION 2. - FLOOD DAMAGE

PREVENTION

Sec. 46-452. - Statutory authorization.

The Legislature of the State of Florida has in F.S. ch. 166 delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the city commission ordains as follows in this division.

Sec. 46-453. - Findings of fact.

The flood hazard areas of the city are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas of uses vulnerable to floods or hazardous to other lands which are inadequately elevated, flood proofed or otherwise unprotected from flood damages.

Sec. 46-454. - Purpose of division.

It is the purpose of this division to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion, or which result in damaging increases in erosion hazards, or in flood heights or velocities; Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters;

Control filling, grading, dredging and other development, which may increase erosion or flood damage; and Prevent or regulate the construction of flood barriers.

Sec. 46-455. - Objectives of division. The objectives of this division are to:

Protect human life and health;

Minimize expenditure of public money for costly flood control projects;

Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

Gadsden County LMS Plan Update 2022

Minimize prolonged business interruptions;

Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;

Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize flood blight areas; and

Ensure that potential home buyers are notified that property is in a flood area.

Sec. 46-457. - Basis for establishing areas of special flood hazard.

The areas of special flood hazard identified by the Federal Emergency Management Agency in its flood insurance study (FIS) and the flood insurance rate map (FIRM), dated February 4, 2009, panels 12039C0226C, 0227C, 0228C, 0229C, 0231C, 0233C, 0237C, 0240C, and 0241C, with accompanying other supporting data, and any subsequent revision thereto, are adopted by reference and declared to be a part of this division.

Sec. 46-462. - Warning and disclaimer of liability.

The degree of flood protection required by this division is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This division does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This division shall not create liability on the part of the city or by any officer or employee thereof for any flood damages that result from reliance on this division, or any administrative decision lawfully made thereunder.

Sec. 46-468. - Provisions for flood hazard reduction—General standards. In all areas of special flood hazard the following provisions are required:

New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage; New construction and substantial improvements shall be constructed by methods and practices that minimize flood damage.

Sec. 46-528. - Flood zone change restrictions.

No fill or other alteration shall be made to the topography in any natural area subject to flooding for up to and including a 100-year storm event.

Chapter 34 Fire Prevention and Protection
ARTICLE II. - FIRE SAFETY STANDARDS

Sec. 34-26. - Purpose.

This article shall be deemed an exercise of the police powers of the city for the preservation and protection of the public health, peace, safety, and welfare, and all the provisions of this article shall be liberally construed for that purpose.

City of Chattahoochee Code of Ordinances Part II

Chapter 26

ARTICLE I. - STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE, AND OBJECTIVES

Sec. 26-1. - Statutory authorization.

Gadsden County LMS Plan Update 2022

The Legislature of the State of Florida has authorized and delegated in Chapter 166 of Florida Statutes, the responsibility to local government units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the City Council of Chattahoochee, Florida, does hereby adopt the following floodplain management regulations.

Sec. 26-2. - Findings of fact.

The flood hazard areas of Chattahoochee, Florida, are subject to periodic inundation, which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands, which are inadequately elevated, flood proofed, or otherwise unprotected from flood damages.

Sec. 26-3. - Statement of purpose.

It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards which result in damaging increases in erosion or in flood heights and velocities; Require that uses vulnerable to floods, including facilities which serve such uses be protected against flood damage throughout their intended life span;

Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters;

Control filling, grading, dredging and other development, which may increase erosion or flood damage; and Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters, or which may increase flood hazards to other lands.

Sec. 26-4. - Objectives.

The objectives of this chapter are to:

Protect human life, health and to eliminate or minimize property damage; Minimize expenditure of public money for costly flood control projects;

Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

Minimize prolonged business interruptions;

Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, roadways, and bridges and culverts located in floodplains;

Maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas; and

Ensure that potential home buyers are notified that property is in a flood hazard area.

ARTICLE III. - GENERAL PROVISIONS

Sec. 26-27. - Lands to which this chapter applies.

This chapter shall apply to all areas of special flood hazard within the jurisdiction of the City Council of Chattahoochee, Florida.

Gadsden County LMS Plan Update 2022

Sec. 26-28. - Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the Federal Emergency Management Agency in the Flood Insurance Study (FIS) for the City of Chattahoochee, dated February 4, 2009, with the accompanying maps and other supporting data and any subsequent revisions thereto, are adopted by reference and declared to be a part of this chapter. The flood insurance study and flood insurance rate map are available at office of city manager.

Sec. 26-34. - Warning and disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This chapter does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of City Council of Chattahoochee, Florida, or by any officer or employee thereof for any flood damages that result from reliance on this chapter, or any administrative decision lawfully made hereunder.

ARTICLE V. - PROVISIONS FOR FLOOD HAZARD REDUCTION

Sec. 26-56. - General standards.

In all areas of special flood hazard, all development sites, including new construction and substantial improvements, shall be reasonably safe from flooding and meet the following provisions.

Sec. 26-57. - Specific standards.

In all A-zones where base flood elevation data have been provided (zones AE, A1-30, and AFI), as set forth in section 26-28, the following provisions, in addition to those of section 26-56, shall apply:

Adequate drainage paths around structures shall be provided on slopes to guide water away from structures.

Standards for streams with established base flood elevations, without regulatory floodways located within the areas of special flood hazard established in section 26-28, where streams exist for which base flood elevation data has been provided by the Federal Emergency Management Agency without the delineation of the regulatory floodway (zones AE and A1-30), the following additional provisions shall also apply:

Until a regulatory floodway is designated, no new construction, substantial improvements, or other development, including fill, shall be permitted within the areas of special flood hazard unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community. Development activities, which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the developer or applicant first applies—with the community's endorsement—for a conditional FIRM revision and receives the approval of the Federal Emergency Management Agency.

Sec. 26-58. - Specific standards for A-zones without base flood elevations and regulatory floodways. Located within the areas of special flood hazard established in section 26-28 where there exist A zones for which no base flood elevation data and regulatory floodway have been provided or designated by the Federal Emergency Management Agency, the following provisions shall apply: Notify, in riverine situations, adjacent communities, the State of Florida, Department of Community Affairs, NFIP Coordinating Office, and the applicable water management district prior to any alteration or relocation of a watercourse, and submit copies of such notifications to FEMA.

Chapter IV - RESOURCE PROTECTION STANDARDS

4.00.01. - Purpose and intent.

The purpose of this chapter is to establish those resources that must be protected from harmful effects of development. This chapter implements the policies contained in the comprehensive plan and is intended to promote, preserve, and enhance the important hydrology, biological, ecological, aesthetic, recreational, and educational functions that waterways, drainage systems, wetlands, natural groundwater aquifer recharge areas, and groundwater provide.

4.00.02. - Scope.

This chapter incorporates regulations, which are designed to protect the following environmental sensitive areas: wetlands, groundwater and wellheads, surface waters, wildlife habitat and unique natural areas, areas of significant slope, steep heads, steep slopes, and floodplains. Additional regulations contained in this chapter address mining and hazardous wastes and their threat to environmentally sensitive areas.

4.00.03. - Development standards for areas containing land and water-based natural resources. Purpose.

It is the purpose of this section to set forth standards necessary to ensure that development and redevelopment limits and mitigates its impacts to lands containing land and water based natural resources.

The intent of these environmental resource protection standards is to:

Maintain the natural hydrological and ecological functions of the wetlands, floodplain, and wildlife habitats;

Maintain desirable ground and surface water levels; Maintain ground and surface water quality;

Prevent increased erosion and sedimentation;

Minimize the potential for property damage and personal injury from flooding;

Restrict adverse interference with the normal movement of surface waters;

Maintain the optimum storage capacity of watersheds; and

Protect and maintain environmentally sensitive areas from adverse effects due to adjacent development.

4.01.00. - WETLANDS

4.01.01. - Generally.

The city shall direct incompatible land uses away from wetlands. Development shall be required to maintain a 25-foot minimum natural buffer around all Florida Department of Environmental Protection (FDEP), the Army Corp of Engineers (ACOE) and the Northwest Florida Water Management District (NWFMDP) jurisdictional wetlands. A 25-foot buffer of native vegetation, subject to site plan approval, shall be required around and along all wetlands. Such buffer shall be measured from the FDEP wetlands jurisdictional line or the Northwest Florida Water Management District jurisdictional line, whichever is greater. The property owner may create a pathway through the buffer for visual or authorized pedestrian access to the wetland provided that the pathway is limited to a five-foot wide swath.

4.05.00. - FLOODPLAINS

4.05.01. - Purpose and objectives.

Purpose. It is the purpose of this section to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

Restrict or prohibit uses, which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;

Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

Control the alteration of natural floodplains, stream channels, and natural protective barriers which are

involved in the accommodation of floodwaters;
Control filling, grading, dredging and other development, which may increase erosion or flood damage;
and
Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters, or which may increase flood hazards to other lands.
Objectives. The objectives to this section are:
To protect human life and health;
To minimize expenditure of public money for costly flood control projects;
To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
To minimize prolonged business interruptions;
To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;
To help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas;
To ensure that potential homebuyers are notified that property is in a flood area; and
To ensure that the ecological and physical functions of wetlands and floodplains shall not be adversely affected.

City of Gretna Code of Ordinances Part II

Chapter 7.5 Environment

Article II – Flood Damage Prevention

Sec. 7.5-27. - Findings.

It is hereby found and determined that flood hazard areas in the City of Gretna are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare. It is also found and determined these flood losses are caused by the cumulative effect of obstructions in flood plains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, flood proofed, or otherwise unprotected from flood damages.

Sec. 7.5-28. - Statement of purpose.

It is the purpose of this article to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:
Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion, or which result in damaging increases in erosion hazards, or in flood heights or velocities; Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
Control the alteration of natural flood plains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;
Control filling, grading, dredging and other development, which may increase erosion or flood damage;
and
Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters, or which may increase flood hazards to other lands.

Sec. 7.5-29. - Objectives.

Gadsden County LMS Plan Update 2022

The objectives of this article are:

To protect human life and health;

To minimize expenditure of public money for costly flood control projects;

To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; To minimize prolonged business interruptions;

To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, street and bridges located in flood plains;

To help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas; and

To insure that potential home buyers are notified that property is in a flood area.

Chapter 8 Fire Prevention and Protection Sec. 8-3. - Open Fires.

It shall be unlawful to start open fires within the corporate city limits without first complying with the provisions of this chapter. No open fire shall be commenced within the city limits without first securing a permit. A permit to start an open fire within the city limits shall be issued through the city manager's office. Any individual requesting a permit to start an open fire within the city limits shall give his name and the place and designation of the fire and shall likewise give information as to the approximate time and date of the fire. It is the intent of this provision to prevent unregulated or unpermitted fires in enclosures as well as open fires, which are deemed by city officials to pose a threat to public safety.

City of Midway Code of Ordinances

Appendix B – Land Development

Regulations ARTICLE VIII. -

FLOODPLAINS

8.00.00. - Purpose.

The purpose of this article is to establish flood hazard zones and to direct development away from these zones in order to: 1) protect public health, safety, and welfare, and 2) protect areas which are naturally subject to flooding from the potentially harmful effects of development.

8.01.00. - General provisions.

8.01.02 Warning and disclaimer of liability.

Although the degree of flood protection required by these flood damage prevention regulations is reasonable and appropriate for regulatory purposes, based on scientific and engineering considerations, more severe floods will occur, and flood heights may be increased by manmade or natural causes.

Consequently, these flood damage prevention regulations do not imply that land outside the Areas of Special Flood Hazard or uses permitted within those areas will be free from flooding or flood damages.

These flood damage prevention regulations shall not create liability on the part of the City or any of its officers or employees for any flood damages that result from reliance on these flood damage prevention regulations, or any administrative decisions lawfully made thereunder.

8.01.03 Declaration of public nuisance.

All development located or maintained within any Area of Special Flood Hazard after the effective date of this code in 1992, in violation of these flood damage prevention regulations is hereby declared a public nuisance per se.

Gadsden County LMS Plan Update 2022

8.03.00. - Standards for reducing flood hazards in the area of special flood hazard.

8.03.01 Generally.

The standards in this part apply to all development within the Area of Special Flood Hazard as shown on a Flood Hazard Boundary Map or a Flood Insurance Rate Map.

8.04.01 Generally.

The following standards must be complied with in all Areas of Special Flood Hazard for which a Base Flood Elevation has been established by a Flood Insurance Rate Map or otherwise.

8.05.00. - Standards for reducing flood hazards in certain zones within the area of special flood hazard.

ARTICLE IX. - PROTECTION OF ENVIRONMENTALLY SENSITIVE LANDS

9.00.00. - General provisions.

In addition to meeting the following protection of environmentally sensitive land requirements, development plans shall comply with applicable federal, state and water management district regulations relating to environmentally sensitive lands. In all cases the strictest of the applicable standards shall apply.

9.04.00. - Mitigation.

Generally.

Compensatory mitigation, by which jurisdictional wetland areas are purchased, created, enhanced and/or restored to compensate for the loss of such lands, is required whenever jurisdictional wetlands are destroyed during the development process. The standards for compensatory mitigation shall be those established by the Department of Environmental Regulation.

Town of Havana Performance Zoning Ordinance

Section 4401. Floodplains.

A. The determination of all floodplain boundaries shall be based on the maximum recorded or projected flood elevation applicable. The area constituting a riverine floodplain shall be determined by reference to the following sources in the order indicated below. If the first source is not applicable, the second one shall be used. 1. Certified Federal Emergency Management Agency flood insurance rate maps (FIRM maps). 2. Flood-prone area maps published by the Water Resources Division of the U.S. Geological Survey.

B. Permanent open space. All such areas shall be permanent open space. No uses or improvements other than those permitted herein shall be permitted in any area consisting of floodplain as defined by this Ordinance.

C. Permitted uses. The following uses are permitted within the floodplain as a matter of right: 1. All uses which are permitted in designated open spaces by Section 4500. 2. All uses which are classified as agriculture, nurseries, and outdoor recreation in Sections 4104, 4106, and 4107. 3. Operational, rental, or sales shelters associated with uses permitted by this section, drive-in movie screens, provided that their floors or structure are elevated above flood elevation on piles, piers, or other structures designed to permit floodwaters to flow safely underneath.

D. All other buildings or any residential, institutional, office, commercial and entertainment, commercial recreation, recreational rental dwelling, or nursery uses may be permitted pursuant to conditional use permits (see Article VII), provided that all such uses or structures and their access are raised so that no floor, or its structural supports, or any utility line has less than three (3) feet of clearance between its lowest

Gadsden County LMS Plan Update 2022

point and the 100- year flood elevation. Vehicular access to such structures shall comply with the same standards in order to insure emergency or fire access during periods of high water. Any reduction of cross-sectional area due to vertical supporting members shall be offset by compensatory storage. E. I

E. Installation of fill materials. Fill may be placed within the floodplain only when allowed as a conditional use pursuant to Article VII (Conditional Uses) and any requirements of the Florida Department of Environmental Protection are met. An application for such conditional use shall be accompanied by detailed fill plans, showing existing and proposed conditions. If a structure is to be placed on the fill, the plans shall show the structure as well. In considering the application, the Zoning Hearing Board shall determine whether the proposed fill meets the general standards set forth in Article VII and the following additional standards: 1. An inland depressional floodplain may have its location and contours altered through cut and fill over thirty (30) percent of its surface area. 2. Compensatory storage shall be provided to offset the storage lost through the filling. 3. All changes in velocity, depth of flood elevation, or storage shall be limited to the property of the owner doing the filling or those property owners who have been granted flood or flow easements, provided that in no event shall an increase in flood elevation be permitted if it would affect any existing building or bring any building to within three (3) feet of the flood elevation. 4. In an inland depressional floodplain, the depth of fill measured from the natural grade to the new surface shall not exceed five (5) feet. 5. Fill shall consist of soil or rock materials only; sanitary landfills shall not be permitted in the floodplain. Further, all fill areas shall be stabilized with material, which will insure and protect against erosion hazards, undercutting, and undermining.

F. Structural anchoring. Any structure placed in the floodplain shall be anchored firmly to prevent floodwaters from carrying it downstream. Such anchoring shall be sufficient to withstand a flood velocity of six (6) feet per second. The zoning officer shall require the applicant to submit the written opinion of a registered professional engineer that the proposed structural design meets this standard.

Section 4402.

Wetlands. A. Permanent open space. All such areas shall remain as permanent open space. Wetlands may be dredged for deepening or enlargement, provided necessary permits from DEP and/or Corps of Engineers are obtained, but wetlands shall not be filled. B. Permitted uses. The following buildings or structures are permitted within wetlands as a matter of right:

1. Boat launching ramps, boat docks, piers, picnic shelters, and stormwater detention facilities, provided that a licensed engineer has certified that such structures are designed to withstand the forces exerted by the 100-year storm event. Evidence of this certification shall be presented as a precondition to issuance of a zoning certificate. 2. Boat houses, boat buildings, and operational sales or rental structures (except boat or motor repair buildings) associated with uses permitted in the preceding subsection, provided that a licensed engineer certifies that such structures are designed to allow free entrance of floodwaters and structurally to withstand the forces exerted by the 100-year flood event at that location. Evidence of this certification shall be presented as a precondition to issuance of a zoning certificate.

3. Operational, rental, or sales shelters associated with uses permitted by this section; drive-in movie screens, provided that their floors or structures are elevated above flood elevation on piles, piers, or other structures designed to permit floodwaters to flow safely underneath. All other buildings or any residential, institutional, office, commercial and entertainment, commercial recreation, recreational rental dwelling, or nursery use may be permitted pursuant to conditional use permits (see Article VII), provided that all such uses or structures and their access are elevated so that no floor, or its structural supports, or any utility line

has less than three (3) feet of clearance between its lowest point and the 100-year flood elevation. Vehicular access to such structures shall comply with the same standards in order to insure emergency or fire access during periods of high water. Any reduction of cross-sectional area due to vertical supporting members shall be offset by compensatory storage.

Town of Greensboro Code of Ordinances

Part I Charter and
Incorporation Chapter
19 - FLOODS

ARTICLE I. - IN
GENERAL

Sec. 19-1. - Scope.

The provisions of this chapter shall apply to all development that is wholly within or partially within any flood hazard area, including but not limited to the subdivision of land.

Sec. 19-2. - Intent.

The purposes of this chapter and the flood load and flood-resistant construction requirements of the Florida Building Code are to establish minimum requirements to safeguard the public health, safety, and general welfare and to minimize public and private losses due to flooding through regulation of development in flood hazard areas to:

Minimize unnecessary disruption of commerce, access, and public service during times of flooding; Require the use of appropriate construction practices in order to prevent or minimize future flood damage;

Manage filling, grading, dredging, mining, paving, excavation, drilling operations, storage of equipment or materials, and other development, which may increase flood damage or erosion potential;

Manage the alteration of flood hazard areas, watercourses, and shorelines to minimize the impact of development on the natural and beneficial functions of the floodplain;

Minimize damage to public and private facilities and utilities;

Help maintain a stable tax base by providing for the sound use and development of flood hazard areas;

Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events; and

Meet the requirements of the National Flood Insurance Program for community participation as set forth in the 44 CFR 59.22.

Sec. 19-4. - Warning.

[The degree of flood protection required by this chapter and the Florida Building Code, as amended by this community, is considered the minimum reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur. Flood heights may be increased by manmade or natural causes. This chapter does not imply that land outside of mapped special flood hazard areas, or that uses permitted within such flood hazard areas, will be free from flooding or flood damage. The flood hazard areas and base flood elevations contained in the flood insurance study and shown on flood insurance rate maps and the requirements of Title 44 CFR 59 and 60 may be revised by the Federal Emergency Management Agency, requiring this community to revise these regulations to remain eligible for participation in the National Flood Insurance

Program. No guaranty of vested use, existing use, or future use is implied or expressed by compliance with this chapter.

Gadsden County LMS Plan Update 2022

Sec. 19-6. - Applicability.

Generally.

Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Areas to which this chapter applies. This chapter shall apply to all flood hazard areas within the town, as established in section 19-7.

Sec. 19-7. - Basis for establishing flood hazard areas.

The flood insurance study for the county and incorporated areas dated February 4, 2009, and all subsequent amendments and revisions, and the accompanying flood insurance rate maps (FIRM), and all subsequent amendments and revisions to such maps, are adopted by reference as a part of this chapter and shall serve as the minimum basis for establishing flood hazard areas. Studies and maps that establish flood hazard areas are at the town hall, located at 150 East 11th Street, Greensboro, FL 32330.

Sec. 19-8. - Submission of additional data to establish flood hazard areas.

To establish flood hazard areas and base flood elevations, pursuant to article IV of this chapter, the floodplain administrator may require submission of additional data. Where field surveyed topography prepared by a state licensed professional surveyor or digital topography accepted by the community indicates that ground elevations:

Are below the closest applicable base flood elevation, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as flood hazard area and subject to the requirements of this chapter and, as applicable, the requirements of the Florida Building Code.

Are above the closest applicable base flood elevation, the area shall be regulated as a special flood hazard area unless the applicant obtains a letter of map change that removes the area from the special flood hazard area.

ARTICLE IV. - SITE PLANS AND CONSTRUCTION DOCUMENTS

Sec. 19-118. - Information for development in flood hazard areas.

The site plan or construction documents for any development subject to the requirements of this chapter shall be drawn to scale and shall include, as applicable to the proposed development:

Delineation of flood hazard areas, floodway boundaries and flood zones, base flood elevations, and ground elevations if necessary for review of the proposed development. Where base flood elevations, or floodway data are not included on the FIRM or in the flood insurance study, they shall be established in accordance with section 19-119(2) or (3).

Chapter 18 - FIRE PREVENTION AND PROTECTION ARTICLE II. - FIRE PREVENTION CODE

Sec. 18-19. - Adoption of Florida Fire Prevention Code.

There is hereby adopted by the town for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion, that certain code known as the Florida Fire Prevention Code and the whole thereof, save and except such portions as are hereinafter deleted, modified, or amended. One copy of such code has been and now is filed in the office of the clerk of the town and the same is hereby adopted and incorporated as fully as if set out at length herein, and from the date on which this Code shall take effect, the provisions thereof shall be controlling within the limits of the town.

NWFWMD Strategic Water Management Plan

Gadsden County LMS Plan Update 2022

The purpose of this plan is to establish strategic priorities. It serves as the district wide plan for water supply, water quality, flood protection and floodplain systems, and natural systems. The strategic priorities for fiscal years are as follows:

- ▶ Springs Protection and Restoration: Protect and restore water quality and flows within the major spring systems of northwest Florida.
- ▶ Minimum Flows and Levels (MFLs): Develop and implement science based MFLs that protect water resources and associated natural systems.
- ▶ Apalachicola-Chattahoochee-Flint River Basin: Protect Apalachicola River and Bay water quality and freshwater inflow.
- ▶ Water Supply: Ensure sufficient water is available for all existing and future reasonable beneficial uses and natural systems.
- ▶ Watershed Protection and Restoration: Protect and restore watershed resources and functions.
- ▶ Flood Protection and Floodplain Management: Maintain natural floodplain functions and minimize harm from flooding.

Continued Public Involvement

The importance of including and educating the public on mitigation is an important issue for the Gadsden County Emergency Management Department, and may include but not be limited to the following public involvement activities:

- ✓ Advertisement of all LMS meetings in the Gadsden County Times, Chattahoochee News Herald, and the Havana Herald (local paper and online), and postings on County and jurisdictional websites.
- ✓ Gadsden County Fire Rescue/EMS participates in the "Show & Tell" for all schools within the county.
- ✓ Gadsden County Volunteer Fire Rescue utilizes the month of October as the Fire Prevention Month to disseminate fire safety information to the citizens.
- ✓ Florida Forest Service brings Smokey Bear to the schools to educate the kids in wildfire safety tips and techniques, when available.
- ✓ Gadsden County Emergency Management conducts disaster safety presentations at community meetings and gatherings throughout the county.
- ✓ Gadsden County Department of Health conducts an outreach program in the low-income housing areas and disseminates information to the residents.
- ✓ Gadsden County Department of Health participates in the "Get Going Gadsden" community program.
- ✓ Gadsden County Fire Rescue conducts community events installing smoke detectors at residential homes.
- ✓ Gadsden County Sheriff's Office has Citizens on Patrol.
- ✓ Florida Forest Service conducts events at the Bear Creek Educational Facility.
- ✓ Gadsden County Fire Rescue utilizes \$25,000 a year to install/inspect fire hydrants, which lowers the ISO rating.
- ✓ Gadsden County Emergency Management continues to promote the K.I.S.S programs for the senior citizens.

The Gadsden County LMS Committee/Working Group may hold scheduled quarterly meetings throughout the 5-year mitigation planning process cycle but will meet no less than annually. All meetings are open to the public and are noticed by the placement of

Gadsden County LMS Plan Update 2022

legal notices in at least two local newspapers and a notice placed on the County's website encouraging the public to attend the meetings and provide input as required by law and County policy, with any exceptions to be noted.

Plan Adoption

LMS Committee/Workgroup: The LMS Committee/Working Group will hold at least one public meeting encouraging public participation and to solicit formal written comments from the public regarding proposed Plan updates, to approve updates to the current LMS Plan, and for presenting the updated LMS plan to the Board and jurisdictions as discussed below. The public meeting will be properly noticed in at least two local newspapers no less than 5-days prior to the meeting date. The current LMS Plan and proposed updates to the current LMS Plan, meeting notices, agendas, minutes, and any other relevant materials presented at the County LMS meetings will be available for review on the County's website and a paper copy will be available at various locations as identified in Section 2.0.

Gadsden County Board of County Commissioners: Following the annual LMS Committee meeting, a public meeting of the Gadsden County Board of County Commissioners will be scheduled in accordance with County policy, and the public provided an opportunity to comment on the updated LMS Plan as approved by the LMS Committee/Workgroup. Notices of the public meeting and seeking public input will be accomplished through the same process as discussed above under "LMS Committee/Workgroup." At the Board public meeting, staff will present the necessary updates to the LMS Plan for Board discussion and direction.

Following the public meeting at a regularly scheduled Board meeting, staff will present an agenda item seeking Board approval of the LMS Plan update by Resolution and approval to transmit the LMS Plan update to FDEM and FEMA for formal review. Staff will address and remediate any deficiencies as noted by FDEM and FEMA and take appropriate actions to ensure compliance in accordance with the Section for public input and approval of the LMS Committee and the Board.

Jurisdictions and special districts must adopt the LMS Plan/Updates by Resolution to be eligible for federal mitigation grant funds.

Summary of Updtes:

1. Clarified that school board is a special district and must adopt LMS plan by resolution to be eligible for FEMA and CDBG disaster related financial assistance.
2. Added language explaining local jurisdictions regarding creating and updating local laws, policies, and programs.
3. Added language under "Changes in Development" that no developments, COMP amendments or zoning changes were made that increased risk to any hazards.
4. Added language explaining that the CEMP was only plan updated based on LMS Plan and added language that as a result of this Plan update, the County will review its 2016 Ingestion Pathway Plan related to response to potential radiological events to determine if updates are needed.
5. Updated the LMS Meeting public notice lead time from ten to five-days' notice to conform with current practice and address local newspaper run day constraints.
6. Updated narrative discussion for 2022 LMS Plan updates, maintenance, and adoption.
7. Minor editing and formatting for clarity and consistency with other sections of the LMS Plan.

End of Section 6: Plan Evaluation, Maintenance and Adoption

####

SUMMARY SHEET

RECOMMENDATION TO SUPERINTENDENT FOR SCHOOL BOARD AGENDA

AGENDA ITEM NO. 9a

DATE OF SCHOOL BOARD MEETING: March 28, 2023

TITLE OF AGENDA ITEM: West Gadsden Middle School

DIVISION: Academic Services

_____This is a CONTINUATION of a current project, grant, etc.

PURPOSE AND SUMMARY OF ITEM:

According to School Board Policy 2340 (Field and Other District-Sponsored Trips), all out-of-state field trips must be approved by the School Board. West Gadsden Middle School 7th Grade Civics and Honor students is requesting approval for an out-of-state field trip to Alabama State University and Rosa Parks Museum in Montgomery, Alabama.

Please see attached documentation.

FUND SOURCE: TSSSA

AMOUNT: N/A

PREPARED BY: Tammy McGriff, EdS 

POSITION: Assistant Superintendent, Academic Services PreK-12

INSTRUCTIONS TO BE COMPLETED BY PREPARER

_____Number of ORIGINAL SIGNATURES NEEDED by preparer.

SUPERINTENDENT'S SIGNATURE: page(s) numbered _____

CHAIRMAN'S SIGNATURE: page(s) numbered _____

REVIEWED BY: _____



THE SCHOOL BOARD OF GADSDEN COUNTY
Educating Every Student Today, Making Gadsden Stronger Tomorrow

FIELD TRIP REQUEST

FORM MUST BE RECEIVED IN DISTRICT OFFICE 2 WEEKS PRIOR TO TRIP

DATE OF REQUEST: March 3, 2023	SCHOOL: West Gadsden Middle School	CONTACT FOR FIELD TRIP: Sonja Wilson Lewis
--	--	--

DATE OF TRIP: April 6, 2023	WHO IS ATTENDING: (grade/organization) 7 th Grade Civics and Honor Students
---------------------------------------	--

LOCATION: Alabama State University Rosa Parks Museum Montgomery, Alabama	TRAVELING BY: <input type="checkbox"/> School Bus/District Vehicle <input checked="" type="checkbox"/> Charter Bus
--	---

PURPOSE:

Please see attachment.

FUNDING source of this field trip: Please mark and "X" in the appropriate box

Students		Fundraiser		School/District Budget	X
----------	--	------------	--	------------------------	----------

<p>SCHOOL BUS –Required items for approval:</p> <ol style="list-style-type: none"> Principal’s signature Complete list of participants and chaperones Signed Permission Form for each participant. Complete final itinerary Documentation showing correlation of the Florida Standards or benchmark to the field trip request 	<p>CHARTER BUS-Required items for approval:</p> <ol style="list-style-type: none"> Principal’s signature Complete list of participants and chaperones Signed Permission Form for each participant. Complete final itinerary Copy of charter bus contract with signatures Proof of Insurance showing either district or school as insured
---	---

Sonja Wilson Lewis
 Signature of Person Requesting Trip

Valerie Jones
 Approval of Principal (Signature required)

____ APPROVED	____ DENIED
_____ Superintendent/Designee	_____ Date

Please forward the completed form via email, district mail or fax:
 Mrs. Euruka Fields, Program Assistant for Instructional Services
 Fax: (850) 627-3530 Email: fieldse@gcpsmail.com

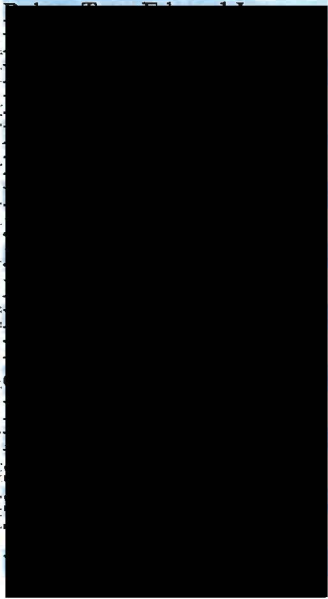
Revised 1/24/2023

4th Grade Civics Field Trip Roster

Class List
Shereka Williams
0052 - West Gadsden Middle School

M/J LANG ARTS 2 (1001040-703) 07 - Room: 05104 408
Mar 2, 2023

19 Students
Last, First M



Grade

07
07
07
07
07
07
07
07
07
07
07
07
07
07
07
06
07
07



WEST GADSDEN MIDDLE SCHOOL

200 Providence Road, Quincy, FL 32351

Phone: (850) 442-9500 Fax: (850) 442-6126

Valarie Jones, Principal

Kimberly Cummings, Asst. Principal

Shannon Williams, Asst. Principal

Alabama State & Rosa Parks Museum Tour



Chaperones

Valarie Jones, Principal

April Denton

Tamaria Chandler

Paul Mathew

Victor Walker



WEST GADSDEN MIDDLE SCHOOL

200 Providence Road, Quincy, FL 32351

Phone: (850) 442-9500 Fax: (850) 442-6126

Valarie Jones, Principal

Kimberly Cummings, Asst. Principal

Shannon Williams, Asst. Principal

Alabama State & Rosa Parks Museum Tour

April 6, 2023



7TH GRADE Civics Field Trip

Event	Time
Arrive to WGMS & Load Bus - GYM	7:00 A.M. - 7:20 A.M.
Depart for Montgomery, AL.	 7:30 A.M. PROMPTLY 
Restroom Break	At driver's discretion
Arrive to Montgomery, AL.	11:30 A.M. EST – 10:30 A.M. CST
Alabama State University Tour	11:00 A.M. – 12:30 A.M. CST
Lunch & Load Bus for Rosa Parks Museum	12:30 - 12:45 P.M. CST
Rosa Parks Museum	1:00 P.M. – 2:00 P.M. CST
Load Bus	2:00 P.M. CST
Depart for Dreamland BBQ	2:10 P.M.
Arrive at Dreamland BBQ - Dinner	2:15 P.M.-3:30 P.M.
Wright Brother's Park	3:45 P.M. – 4:30 P.M.
Depart for WGMS	4:30 P.M. CST – 5:30 P.M. EST
Restroom Break (Optional)	At driver's discretion
Arrive to WGMS & Unload Bus	9:00 P.M. EST



WEST GADSDEN MIDDLE SCHOOL

200 Providence Road, Quincy, FL 32351

Phone: (850) 442-9500 Fax: (850) 442-6126

Valarie Jones, Principal

Kimberly Cummings, Asst. Principal

Shannon Williams, Asst. Principal

Purpose of Field Trip

Field trips offer a unique opportunity for students to create connections, which will help them gain understanding and develop an enjoyment of learning. Students on field trips sharpen their skills of observation and perception by utilizing all their senses.

This field trip is to serve as a culminating activity to provide students with a real-world experience to travel back in time to view history related to the Civil Rights Acts. This experience will also enlighten them on the attributes of cultural experiences to American History. Included with this trip is a college tour of Alabama State University to expose the students to higher education opportunities.

This field trip provides real-world experience and application for the following standards:

SS.7.C.1.4 Analyze the ideas (natural rights, role of the government) and complaints set forth in the Declaration of Independence.

SS.7.C.1.6 Constitution. Interpret the intentions of the Preamble of the Constitution

SS.7.C.2.4 Evaluate rights contained in the Bill of Rights and other amendments to the Constitution.

SS.7.C.2.5 Distinguish how the Constitution safeguards and limits individual rights

SS.7.C.2.10 Examine the impact of media, individuals, and interest groups on monitoring and influencing government.

SS.7.C.3.6 Evaluate constitutional rights and their impact on individuals and society.

SS.7.C.3.7 Analyze the impact of the 13th, 14th, 15th, 19th, 24th, and 26th amendments on participation of minority groups in the American political process.

ELA.7.C.1.4: Write expository texts to explain and analyze information from multiple sources, using relevant supporting details and a logical organizational pattern.

Students will also participate in a fine-dining meal experience at a local restaurant. This experience will allow students to practice social skills and dining etiquette skills at a local Montgomery restaurant.

Students will complete a one-page summary upon their return to document their experience throughout this field trip. This activity will reinforce writing skills and the application of knowledge obtained in class and through touring the Rosa Parks Museum.

The students will also reflect on their tour of Alabama State University and their plans for preparing for high school graduation and their plans for after high school graduation.



Parent/Guardian Consent Form
and Indemnity Agreement
Field Trip



School: West Gadsden Middle School

Teacher / Class / Group: 7th Grade Civics Students

will be attending a field trip to Montgomery Alabama to tour Alabama State University and the Rosa Parks Museum
(See attached itinerary)

Departing on: Thursday, April 6, 2023, at 7:30 a.m. Returning on: Thursday, April 6, 2023, at 9:00 p.m.

Lunch Info/Instructions: Students will be provided school breakfast and lunch; with dinner at a local restaurant.

Mode of Transportation: Astro Charter Bus

All signed permission slips and Medical Release Forms are due back to Ms. Wilson Lewis no later than
Monday, March 27, 2023. Students may bring extra money for snacks and/or souvenirs. These items are the sole
responsibility of the student.

Students are REQUIRED to wear jeans, uniform pants or knee length jean/uniform shorts, the provided trip t-shirt
and tennis shoes. No slides of ANY TYPE are allowed on this trip.

Student T-shirt Size:

Please Print:

(Parent/Guardian) grant permission for (Student) to participate in the field trip to Montgomery, Alabama to tour Alabama State University and the Rosa Parks Museum for
supervised activities, and agree to release and discharge the Gadsden County School Board, its officers, agents and
employees, exercising reasonable care within their scope of employment, from liability growing out of personal injuries
and property damage resulting or occurring during the afore mentioned activities, or in transit to and from said activity.

A "Medical Release Form" must be completed, signed, and taken on the field trip for each student during an out-of-county
field trip.

Students who do not have a completed and signed Parent Permission and Medical Release Form on the day of the
field trip will not be able to attend the field trip.

EMERGENCY MEDICAL TREATMENT: In the event of an emergency, I give permission for my child to receive
medical treatment. In case of an emergency, please contact:

1st Emergency Contact: Relationship:
(print name)

Cell #: Work #: Home #:

2nd Emergency Contact: Relationship:
(print name)

Cell #: Work #: Home #:

If the student needs medication during the field trip, a Permission for Administration of Medication form must be
completed and brought to the school with the medication by the parent/guardian a minimum of two school days prior to
the field trip date. A blank form may be obtained from the student's teacher or the school's front office.

As Parent or Guardian, I agree to all the above stated considerations and conditions:

Parent/Guardian: Date:

Valarie Jones, Principal

Kimberly Cummings, Asst. Principal

Shannon Williams, Asst. Principal



Medical Release Form for Field Trip

WEST GADSDEN MIDDLE SCHOOL Montgomery, Alabama Civics Trip

Please clearly print information, sign below, and return with Parent/Guardian Consent form.

Student: _____ DOB: _____

School: West Gadsden Middle School Field Trip: Montgomery, Alabama Civics Trip

Field Trip Departure Date: Thursday, April 6, 2023 Field Trip Return Date: Thursday, April 6, 2023

In the event of a medical emergency, I give permission to School Board Personnel to authorize whatever treatment is necessary and I will accept liability for payment of any bills related to the treatment.

Insurance Company: _____

Policy Number: _____ Effective Dates: _____

Policy Holder Name: _____

List any medical issues or special needs below, in addition, please note that a **Permission for Administration of Medication** form must be completed for any GCPS personnel to be authorized to administer any medication to a student.

In case of emergency:

1st Emergency Contact (please print): _____

Cell: _() _____ Home: _() _____ Work: _() _____

2nd Emergency Contact (please print): _____

Cell: _() _____ Home: _() _____ Work: _() _____

3rd Emergency Contact (please print): _____

Cell: _() _____ Home: _() _____ Work: _() _____

As Parent or Guardian, I agree to all of the above stated considerations and conditions.

Parent/Guardian Signature: _____ Date _____



Permission for Administration of Medication

IMPORTANT REQUIREMENT:

All medications must be physically brought to the school office by the Parent/Legal Guardian. (No medication may be handed to school personnel by a minor child.)

Prescribed Medication

Student: _____ DOB: _____ School: _____

Name of Medication: _____ Doctor: _____

Prescription Number: _____ Date of Prescription: _____

I, _____, grant permission for the principal or the principal's designee
(Parent/Legal Guardian)

to assist in the administration of prescribed medication for my child/legal ward,

(Student)

I certify that the prescribed medication is in its original container and that it is necessary, according to my doctor's instructions, for this medication to be provided during the school day, including when my child is away from school property on official school business. I understand that this medication will be given only according to the directions on the label as prescribed by the doctor. I further understand that it will be my responsibility to pick up any unused medication, within 30 days at the end of the school year.

Parent/Guardian: _____ Date: _____

(Signature)



4876 Woodlane Circle
Tallahassee, FL 32303-6808
850-514-1793

(Fax: 850-514-0044)
info@astrotravel.com

Confirmation

West Gadsden Middle School
Sonja Wilson-Lewis
200 Providence Road
Quincy, FL 32351
adamst@gcpsmail.com

Charter # 31980
Date Printed: Monday, March 6, 2023
PO #: Q16099
Group Name: Montgomery
Phone: (850) 442-9500 Fax:
Salesperson: Janet Callahan
Email: jcallahan@astrotravel.com

		Departure Time	Date	# Coaches	Description	Total Capacity
Pickup	West Gadsden Middle School 200 Providence Road Quincy, FL	07:00 am	Thu 04/06/23	1	Prevost	56
Dropoff	Montgomery, AL Montgomery, AL		Thu 04/06/23			56
Pickup	Montgomery, AL Montgomery, AL		Thu 04/06/23			56
Dropoff	West Gadsden Middle School 200 Providence Road Quincy, FL	09:00 pm	Thu 04/06/23			56

Balance of \$ 2,683.95 is due: March 13, 2023
Total Cost: \$ 2,683.95

Billing Instructions: Check or cash payable to Astro Travel.
All major credit cards accepted.
(4% service charge on credit card payments)

Itinerary: Group Contact:
Sonja Wilson Lewis lewissonja@gcpsmail.com
(850) 442-9500
West Gadsden Middle School
rq'd quote for 2 buses 3.3.23jc

**THIS RATE IS AVAILABLE ON WEDNESDAY AND THURSDAY'S IN APRIL
EXCEPT 4.13.23 AND 4.27.23-THOSE DATES ARE SOLD OUT.**

Trip Details

Please sign this agreement, enclose payment as noted above. Failure to return signed contract and payments by due date will subject the reservation to be cancelled without notice. Your cost is based on the services detailed above and is subject to change in accordance with your actual itinerary. The cost quoted does not include DRIVERS PRIVATE ROOM, GRATUITY, PARKING FEES OR TOLLS unless specifically listed as included in price. Cancellation within 30 days may result in forfeiture of deposit up to the full charter price. This company reserves the right to lease equipment from other companies in order to fulfill this agreement. This company shall not be liable for items left on the coach or loss of time due to mechanical failure or inclement weather. We cannot guarantee the assignment of requested drivers or coaches. A signed contract and deposit will confirm your reservation and acknowledge your acceptance of this agreement.

****** SMOKING IS PROHIBITED AT ALL TIMES ON THE VEHICLES ******

*****GRATUITIES FOR YOUR DRIVER ARE ALWAYS APPRECIATED*****

FEID: 59-1300342

USDOT: 659912

ICC-MC303493

Signature _____

Date _____



4876 Woodlane Circle
Tallahassee, FL 32303-6808
850-514-1793

(Fax: 850-514-0044)
info@astrotravel.com

Confirmation

West Gadsden Middle School
Sonja Wilson-Lewis
200 Providence Road
Quincy, FL 32351
adamst@gcpsmail.com

Charter # 31980
Date Printed: Monday, March 6, 2023
PO #: Q16099
Group Name: Montgomery
Phone: (850) 442-9500 Fax:
Salesperson: Janet Callahan
Email: jcallahan@astrotravel.com

Number of Passengers: 54
One Way or Round Trip: Round Trip
Pickups: 1
Have you Already Planned your Activities? Upload your
Itinerary if Available.:
Trip Times: Departure and Destination
Depart From:: West Gadsden Middle School
200 Providence Road
Quincy, FL 32351
Departure Date and Time: 04/06/2023 07:00 AM
Destination: Rosa Parks Museum
252 Montgomery St.
Montgomery, AL 36104
Depart Destination to Home Date and Time: 04/06/2023
05:00 PM
Additional Requirements
Requested Vehicle(s): 56 Passenger Deluxe Motorcoach
Additional Requirements: WiFi
Restrooms
Power Outlets
Special Instructions or Comments: Educational trip to
Montgomery, Alabama with first stop at the Rosa Parks
Museum, Freedom Rides Museum and maybe the Civil Rights
Memorial Center. The first two museums are in walking
distance for the students.

The final itinerary will include a late lunch stop before
traveling home.

Travel dates are flexible to include any available Wednesday
or Thursday in April.

Initial _____ Date _____

Please initial here to indicate that you have read the terms and conditons on page 1 of this contract.



4876 Woodlane Circle
Tallahassee, FL 32303-6808
850-514-1793

(Fax: 850-514-0044)
info@astrotravel.com

Confirmation

West Gadsden Middle School
Sonja Wilson-Lewis
200 Providence Road
Quincy, FL 32351
adamst@gcpsmail.com

Charter # 31980
Date Printed: Monday, March 6, 2023
PO #: Q16099
Group Name: Montgomery
Phone: (850) 442-9500 Fax:
Salesperson: Janet Callahan
Email: jcallahan@astrotravel.com

GENERAL TERMS OF CONTRACT

Please return a signed copy of this agreement by the due date to reserve your charter. A deposit is required to guarantee vehicle reservation. Deposits are fully refundable if your trip is cancelled at least thirty (30) days prior to departure. Payment can be made by cash, certified funds, check, electronic transfer, or credit card.

While most transportation costs can be estimated and included in the quote, customers are responsible for unplanned costs such as parking, entrance fees, tolls, airport fees, permits, port charges, etc.

For your trip to be successful, a detailed itinerary is needed at least two (2) weeks prior to departure including specific pickup locations and any other special directions. If your itinerary differs from the basis of this agreement, the price is subject to change. Your driver will make all attempts to follow your requested routes and parking requests. However, if the driver deems any request is unsafe to chartering party or potential damage to an Astro Travel vehicle, alternate routes/parking will be at the sole discretion of your motorcoach operator.

When lodging is required, the chartering party must furnish a separate private hotel room for the driver. Federal regulations and Astro Travel safety policies require CDL drivers to have undisturbed rest time. To ensure your trip is both safe and enjoyable, a driver has limited driving and on-duty time. Within a 24-hour time period, a driver is allowed 10 hours of driving with a maximum 15 hours of on-duty time and is required to have 9 hours of uninterrupted rest time.

If needed, we will arrange extra drivers to accommodate your schedule. Additional driving time and/or on-duty service may require a relay/relief driver, which will incur additional charges. Astro Travel will gladly accommodate these requirements in your itinerary with advance notice.

Smoking cigarettes, including e-cigarettes, is prohibited on board Astro Travel vehicles.

It is the responsibility of the chartering party to ensure illegal activities are not permitted while on board Astro Travel vehicles, which include but are not limited to illegal drugs, underage drinking/smoking, possession of a weapon, etc.

The chartering party will be responsible for any damage to the exterior or interior of the coach done by the chartering party.

Astro Travel is not responsible for lost, stolen, or damaged property. The expenses related to the return or replacement of property left on the vehicle are the responsibility of the property owner.

Astro Travel reserves the right to substitute equipment from another company, if in our sole discretion, substitution is necessary. Astro Travel reserves the right to use assigned vehicles for multiple charters and customers on the same day.

Astro Travel shall not be liable for loss of time due to mechanical, inclement weather, or other occasional delays that are beyond our control.

While Astro Travel will make every effort to ensure devices are operational, failure of amenities such as Wi-Fi, DIRECTV, power outlets, DVD player, monitors, audio devices, a/c, heat, lavatory, or microphones shall not be cause for refund. Astro Travel cannot guarantee operation of these amenities.

Initial _____ Date _____

Please initial here to indicate that you have read the terms and conditions on page 1 of this contract.



Map data ©2023 1000 ft


Alabama State University
 915 S Jackson St, Montgomery, AL 36104

- ↑ 1. Head north on S Jackson St toward Tuscaloosa St
0.4 mi
- ← 2. Turn left onto High St
0.6 mi
- ↷ 3. Turn right onto S Perry St
0.4 mi
- ← 4. Turn left onto Dexter Ave
0.1 mi
- ⦿ 5. At the traffic circle, take the 1st exit onto Court Square
184 ft
- ← 6. Turn left onto Montgomery St
Destination will be on the right
0.1 mi

6 min (1.7 mi)

Rosa Parks Museum
 252 Montgomery St, Montgomery, AL 36104

- ↑ 7. Head southwest on Montgomery St toward Molton St
102 ft
- ↷ 8. Turn right onto Molton St
0.2 mi
- ↷ 9. Turn right onto Tallapoosa St
0.3 mi

 10. At the traffic circle, take the 2nd exit onto W Jefferson St

 Destination will be on the left

456 ft

3 min (0.6 mi)

Dreamland BBQ

12 W Jefferson St, Montgomery, AL 36104

 11. Head east on W Jefferson St toward N Court St

144 ft

 12. Turn right at the 1st cross street onto N Court St


433 ft

 13. Turn right onto Bibb St

0.3 mi

 14. Turn right onto Catoma St

446 ft

 15. Turn left onto Maxwell Blvd

 Destination will be on the right

0.3 mi

3 min (0.9 mi)

SUMMARY SHEET

RECOMMENDATION TO SUPERINTENDENT FOR SCHOOL BOARD AGENDA

AGENDA ITEM NO. 9b

DATE OF SCHOOL BOARD MEETING: March 28, 2023

TITLE OF AGENDA ITEM: Approval of the 2023 – 2024 PAEC Course Catalog

DIVISION: Office of Professional Learning Services

X This is a CONTINUATION of a current project, grant, etc.

PURPOSE AND SUMMARY OF ITEM:

The PAEC Course Catalog is being submitted for adoption by the Gadsden County School District.

FUND SOURCE: N/A

AMOUNT: N/A

PREPARED BY: Kameelah Weeks

POSITION: Director of Professional Learning

INTERNAL INSTRUCTIONS TO BE COMPLETED BY PREPARER

____ Number of ORIGINAL SIGNATURES NEEDED by preparer.

SUPERINTENDENT’S SIGNATURE: page(s) numbered _____

CHAIRMAN’S SIGNATURE: page(s) numbered _____

REVIEWED BY: _____

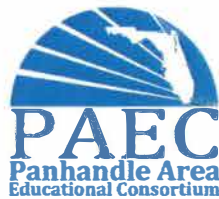




Panhandle Area Educational Consortium

Professional Learning Catalog

2023-2024



Serving the Following:

District	Superintendent
Calhoun	Darryl Taylor, Jr.
FAMU-DRS	Dr. Micheal Johnson
FAU Lab School	Dr. Joel Herbst, Superintendent
Franklin	Steve Lanier
Pembroke Pines-FSUS Broward	Dean Damon Andrew, Superintendent
Gadsden	Elijah Key
Gulf	Jim Norton
Holmes	Buddy Brown
Jackson	Steven Benton
Jefferson	Eydie Tricquet
Liberty	Kyle Peddie
Madison	Shirley Joseph
Taylor	Alicia Beshears
Wakulla	Robert Pearce
Walton	A. Russell Hughes
Washington	Joe Taylor, Chairman, PAEC Board of Directors

Also Serving: Florida Virtual School – Professional Learning Catalog, Driver Education/Traffic Safety Endorsement, Reading Endorsement, ESOL Endorsement, Florida Gifted Endorsement, Autism Spectrum Disorder K-12.

Panhandle Area Educational Consortium

Board of Directors

2023-2024

Joe Taylor, Superintendent

Chairman, PAEC Board of Directors

Darryl Taylor, Jr., Superintendent

Dr. Micheal Johnson, Superintendent

Steve Lanier, Superintendent

Elijah Key, Superintendent

Jim Norton, Superintendent

Buddy Brown, Superintendent

Steven Benton, Superintendent

Kyle Peddie, Superintendent

Shirley Joseph, Superintendent

Alicia Beshears, Superintendent

Robert Pearce, Superintendent

A. Russell Hughes, Superintendent

Washington District Schools

Calhoun District Schools

Florida A & M Developmental Research School

Franklin District Schools

Gadsden District Schools

Gulf District Schools

Holmes District Schools

Jackson District Schools

Liberty District Schools

Madison District Schools

Taylor District Schools

Wakulla District Schools

Walton District Schools



John T. Selover, Executive Director

850. 628. 6131 ext. 2235

John.Selover@paec.org

TABLE OF CONTENTS

SECTION TITLE	PAGE NUMBER
Mission	4
Rationale	4
Management	4
Online Management through electronic Professional Development Connections (ePDC)	4
Organization	5
Professional Learning Catalog Component Information	6
List of General Components – Alphabetical with Page Number	9
List of General Components – Numerical	12
Add-On Endorsement Components	15
Professional Development Alternatives (PDA) Components	17
Professional Learning Catalog Components	19
General Components	19
Add on Endorsement Plans	385
Athletic Coaching/Sports Medicine	386
Autism Spectrum Disorder K-12	416
Driver Education/Traffic Safety	454
English for Speakers of Other Languages – ESOL Endorsement	474
Florida Gifted	538
Reading K-12	576
Professional Development Alternatives (PDA)	659
Appendices	917
APPENDIX A – FLDOE Reporting Codes and Data Elements	918
APPENDIX B – District Component Implementation Agreement	923
APPENDIX C – The Florida Educator Accomplished Practices	924
APPENDIX D – Florida Educational Leadership Standards	926
APPENDIX E – Summary of Applicable State Board Rules and Florida Statutes	931

MISSION

The mission of the Panhandle Area Educational Consortium (PAEC) is to provide a continuum of shared services that elevate student achievement throughout all Consortium member school districts. One program provided as a service to maximize resources is the PAEC Professional Development Center (PDC). Through the PDC, a comprehensive program of professional learning is coordinated and implemented in accordance with Florida's Professional Learning Standards and Florida's Professional Development Review Protocol for member and participating districts.

RATIONALE

PAEC member and participating districts believe that "every student deserves a great teacher, not by chance, but by design" (Fisher, Frey, and Hattie, 2016). Customized professional learning is the means through which educators continually build on their expertise to meet the needs of all students, resulting in increased student achievement. The *PAEC Professional Learning Catalog* serves as the foundation upon which each member and participating district builds their professional development system to enable educators and staff to reach their full potential and maximize their effectiveness as teachers, leaders, facilitators and learning, and support team members. To meet this goal, the *PAEC Professional Learning Catalog* is aligned with *Florida's Professional Learning Standards* and *Florida's Professional Development Review Protocol*, which serve as the basis for high-quality professional learning practices across the districts.

PROFESSIONAL LEARNING CATALOG ADVISORY COMMITTEE

Kristy Grey, PDC Chairman, Walton District

Susan Saunders, Washington District

Pam Price, Vice Chairman Holmes District

Brenda Crouch, PAEC

Yvette, Lerner, PAEC

Katrina Roddenberry, PAEC

MANAGEMENT

The professional Learning catalog contains the approved professional learning components for the *PAEC Professional Learning Catalog* participating districts. The PAEC Professional Development Center's management system allows the implementation of focused, data-driven professional learning activities, based upon the improvement needs of each educator, school, and district. Educators from each member district serve on the PDC Advisory Council. The PAEC Professional Learning Catalog is reviewed annually, revisions made as necessary, approved by the PDC Council, presented to each respective school board for approval, and board approval letters are returned to PDC and submitted on behalf of the districts to the Florida Department of Education on an annual basis by October 1.

ONLINE MANAGEMENT THROUGH THE ELECTRONIC PROFESSIONAL DEVELOPMENT CONNECTION (ePDC)

The electronic Professional Development Connections (ePDC) at PAEC is the online professional development management system available to the member districts. This electronic system allows educators to register for professional learning activities, describe an action plan for implementing learning, report impact of implementing professional learning, complete only courses, track Inservice points, complete a needs assessment and complete an individual Professional Learning Plan (if required by their district), effectively and efficiently. The system also permits school and district administrators to create and retrieve course information; manage attendance; identify educator professional learning needs; review and evaluate implementation and follow-up activities that may include action plans, reflection, impact evaluation, coaching summaries, artifacts, etc. ; assign course completion credit; email participants; align course offerings with

educator needs; and document implementation and impact of professional learning in classrooms. Districts also utilize the system to generate report data for submission to the Florida Department of Education per F. S. 6A-5. 071. Participating districts have professional learning tracking systems that are approved by their local school boards.

ORGANIZATION

Florida's Professional Learning Standards and *Florida's Professional Development Review Protocol* are the basis for the Professional Learning Catalog. *Florida's Professional Learning Standards* define the state's core expectations for high-quality professional learning systems and opportunities and form the foundation for school district professional learning systems and the *PAEC Professional Learning Catalog*. The seven standards are grouped into five domains that are representative of stages in an improvement cycle. Each standard includes title, description, and multiple indicators of what the standard looks like in practice.

Table 1

Florida's Professional Learning Standards

DOMAINS	STANDARDS
Domain 0: Foundation	<p><i>Standard 0.1 Leadership</i></p> <p>Professional learning requires leaders who develop capacity, create support systems, and advocate for professional learning to continually improve educator practice and student outcomes.</p>
Domain 1: Needs Assessment and Planning	<p><i>Standard 1.1: Professional Learning Needs</i></p> <p>Professional learning includes the use of student, educator, and system data to analyze, prioritize, and plan for continuous improvement of educator practice and student outcomes.</p> <p><i>Standard 1.2: Professional Learning Resources</i></p> <p>Professional learning requires schools and systems to maximize and monitor the use of resources to continually improve educator practice and student outcomes.</p>
Domain 2: Learning	<p><i>Standard 2.1: Learning Outcomes</i></p> <p>Professional learning includes outcomes that ensure changes in educator knowledge, skills, dispositions, and practice align with student learning needs.</p> <p><i>Standard 2.2: Learning Designs</i></p> <p>Professional learning includes use of research and evidence-based learning designs to continually improve educator practice and student outcomes.</p>
Domain 3: Implementing	<p><i>Standard 3.1: Implementation of Learning</i></p> <p>Professional learning includes multiple opportunities to implement new learning with ongoing support and actionable feedback to continually improve educator practice and student outcomes.</p>

<p>Domain 4: Evaluating</p>	<p><i>Standard 4.1: Evaluation of Professional Learning</i></p> <p>Professional learning includes formative and summative evaluation of the effectiveness of professional learning in increasing educator knowledge, changing educator dispositions and practice, and improving student outcomes to inform decisions about future professional learning.</p>
------------------------------------	---

Needs Assessment and Planning occur at the individual/faculty, school, and district levels. Educators review previous and current student data, personal and school improvement goals and initiatives, and complete their district's professional learning needs assessment. Then, each educator identifies personal learning goals and develops a plan, which is discussed with the administrator and adjusted based upon performance appraisal data and other grade level or school priorities. Specific learning goals for student achievement and professional practice learning activities. The final educator evaluation form is signed by both the educator and the administrator and includes a timeline for review. School Improvement Plans and goals are developed after review of student data. Teacher data, in conjunction with the school improvement plan goals and objectives, guides the completion of a school level professional development plan. District administrators utilize the school plans to establish district priorities for professional learning opportunities. PDC Council members are tasked with reporting ongoing professional learning needs, based on their district data, as a basis for planning the *PAEC Professional Learning Catalog*. PAEC team members review data and expressed needs and will assist in developing professional learning opportunities to meet the expressed needs.

Pursuant to 6A. 5. 071, F.A.C., (05-03-2022), *Professional Learning Catalogs*, and on behalf of the PAEC member and participating districts, PAEC has developed and makes available an annual assessment of professional learning needs. The PAEC *Professional Development Needs Assessment* is made available to district and school instructional and administrative personnel in an electronic format. The needs assessment is reviewed by district professional learning experts and revised, as needed, to address current trends and mandated requirements to better target professional learning needs of educators at the district, school, and educator levels.

Learning opportunities are provided to meet professional learning needs at the faculty, school, and district levels. To be most effective, learning activities follow a collaborative approach that is sustained over an extended period with opportunities to implement learning and measure the impact on student learning in a collegial atmosphere. For educators and support personnel (non-instruction), learning opportunities include, but are not limited to, analysis of student achievement data, ongoing formal and informal assessment of student achievement, identification and use of enhanced and differentiated instructional strategies that emphasize rigor and relevance, reading, ESOL, enhance of subject content expertise, integrated use of classroom technology that enhances teaching and learning, classroom management, parent involvement, school safety, mental health, topics that enhance learning for exceptional student education populations, dealing with diverse populations, and/or other mandated topics.

Implementing newly acquired skills and knowledge in a sustained and supported effort is required for changes in educator practice. Implementation is the very heart of professional learning. Applying new

knowledge and/or skills and strategies and observing the impact on student learning and/or behavior is the primary purpose of professional learning. Selection of methods for follow up and support for implementation of professional learning is included with all learning components in the *PAEC Professional Learning Catalog* and in course information entered into the ePDC. These may include classroom-based feedback, observation, reflection, collegial dialogue, coaching, mentoring, tools, resources, or other means of support.

Evaluating the effectiveness of the professional learning is multifaceted. First, the professional learning component activity is evaluated by the participants to determine the appropriateness of the learning design and delivery of the learning component. This is done electronically through the ePDC and/or by means of a tool provided by the professional learning provider. Evaluation data collected through the ePDC is available to personnel at the school, district, Consortium and FLDOE upon request.

Next is the evaluation of participant implementation of knowledge and/or skills and strategies gained through participation in the professional learning activity. The participant is required to provide evidence of implementation, most typically through one or more of the following: student assessment data, student artifact/portfolio, observation of student performance, anecdotal records, changes in classroom practice, documentation of behavioral changes, or other process.

Annually, comprehensive professional learning activity reports are available to each district upon request. Additionally, specific activity reports are provided to districts or schools as requested throughout the year. Reports provide data on specific courses and include registration, attendance, follow-up, and completion of all learning, implementation, and evaluation aspects. Analysis of this data is used along with student, school, and district data to evaluate the effectiveness of the professional learning catalog.

PROFESSIONAL LEARNING CATALOG COMPONENTS

The professional learning catalog contains the approved inservice components for member and participating districts that use the plan. To receive inservice credit, inservice events must meet the criteria and content fall within the objectives of an approved component. If a desired inservice does not align to an existing component, a new component must be written, reviewed by the professional development council, and approved by the school board of each district during the annual professional learning catalog approval process. The *PAEC Professional Learning Catalog* is reviewed, revised as necessary, and approved annually by the school board of each participating district. Approval letters are submitted to PAEC by each school board and PAEC provides the letters of approval to the Florida Department of Education.

Component Specifications

Each component in the professional learning catalog must include:

1. Component Title
2. Component number in adherence with the State of Florida management Information Services (MIS) reporting protocol and classification system
3. Maximum number of inservice points allowed
4. Description
5. Specific learning objectives
6. Research-based delivery methods and activities
7. Appropriate follow-up methods and support
8. Evaluation process

A professional learning catalog component may address one of the following professional learning areas:

1. Reading, especially as specified in the *Comprehensive K-12 Reading Plan*
2. Florida's Academic Content Standards, benchmarks, and related subject content
3. Research-based instructional methods and strategies
4. Technology
5. Assessment and data analysis
6. Classroom management
7. Family involvement
8. School safety
9. Leadership and management
10. Diversity
11. Ethics
12. Role of the Teacher
13. Knowledge of subject matter
14. Communication
15. Human development and learning
16. Effective learning environments
17. Critical thinking and meta-cognition
18. Continuous improvement

Additional components are also included, as appropriate, for other employee classifications including administrative, professional/confidential, paraprofessional, non-instructional support, and classified personnel.

Professional learning Component Reporting Codes

Inservice records for each employee are reported to the Florida Department of Education at regularly and state-determined intervals, usually in conjunction with established FTE audit timelines. Each professional learning catalog component is assigned a unique seven-digit number according to FLDOE guidelines. See Appendix A for a complete listing of the reporting codes.

PROFESSIONAL LEARNING CATALOG COMPONENTS – ALPHABETICAL

Note Professional Development Alternatives (PDA) are listed in a subsequent section.

Table 2

Professional Learning Catalog Components, Alphabetical

Title of Component	Component Number	Component Number for ESE	Page Number
Action Research	4-400-001		20
Adult Education Subject Content	1-301-001		23
Assessment	4-401-001	4-102-001	26
Assistive Technology in the Classroom		3-100-001	29
Career and Technical Education Including CAPE Industry Certification Courses Instructional Strategies	2-002-001		32
Career and Technical Education Including CAPE Industry Certification Courses Subject Content	1-211-001	1-105-001	36
Career Education Subject Content	1-002-001		40
Child Abuse and Neglect – Identifying and Mandatory Reporting	6-511-001		44
Classroom Management	5-404-001	5-101-001	47
Clinical Educator	7-501-001		50
Computer Science Subject Content	1-003-001		54
Cultural Awareness	2-412-001		59
Data Analysis	4-408-001		63
District Code of Student Conduct	6-404-001		67
Educational Leadership	7-507-001		70
Educational Paraprofessional	8-506-001		74
Effective Communication	2-406-001		77
Emergent Literacy for VPK Instructors - Online	1-408-004		80
English/Language Arts Subject Content	1-008-001	1-105-006	83
English/Language Learners in the VPK Classroom-Online	1-408-006		87
ESE Procedures and Practices		2-103-001	90
ESOL for Administrators	7-704-500		94
ESOL for Category III Teachers	2-704-528		99
ESOL for Guidance Counselors	2-704-525		103
Extended Learning	2-007-003		108
Fine Arts Subject Content	1-000-001	1-105-008	111
Florida’s Academic Content Standards	2-007-001		115
Florida Civics Seal of Excellence	1-016-002		119
Florida’s Comprehensive Health Education Components Subject Content	1-005-001		122
Florida Literacy Coach Endorsement – Florida Center for Reading Research (FCRR) Program	2-013-007		126

Florida Literacy Coach Endorsement – UF Lastinger Center Program	2-013-004		129
Humanities Subject Content	1-006-001		132
Implementing the Florida Standards in Preschool Classrooms: 3 Years Old to Kindergarten-Online	1-408-007		136
Instructional Leadership: School Principal Level II	7-507-002		139
Instructional Methodology	2-408-002	2-100-001	145
Integrating the Standards: Phonological Awareness-Online	1-408-008		149
Language and Vocabulary in the VPK Classroom	1-408-004		152
Leadership Evaluation Model, Policies and Procedures	7-507-004		155
Lesson Study	2-400-002		158
Mathematics Subject Content	1-009-001	1-105-002	161
Mathematical Thinking for Early Learners-Online	1-408-009		165
Media Specialist and Instructional Materials- Laws, Rules, and Procedures	8-410-002		168
Media Specialist Subject Content	1-407-001		172
Mental Health Services	5-414-001		176
MTSS Problem-Solving Process	8-415-003		179
Music Instruction	2-010-001		182
New Teacher Induction	2-404-001		186
Non-Instruction: Custodian/Maintenance	8-510-001		191
Non-Instruction: Food Service Training	8-505-001		194
Non-Instruction: Office/Clerical support	8-509-001		197
Non-Instruction: Transportation Service Training	6-515-001		200
Office of Early Learning, Language and Vocabulary Training Project Targeted Stand-Coach Track	1-408-001		203
Office of early Learning, Language and Vocabulary Training Project Targeted Strand-Teacher Track	1-408-002		206
Office of Early Learning, Language and Vocabulary Training Project-Coach Track	1-408-003	1-105-009	209
Other Content Areas Subject Content	1-007-001	1-105-009	212
Physical & Mental Wellness	6-414-001		216
Physical Education Instructional Strategies	2-011-001		220
Physical Education Subject Content	1-011-001	1-105-010	223
Policies and Procedures	8-410-002		227
Preschool/Child Care	2-012-001		230
Principles of Professional Conduct – Professional Ethics	8-416-001		234

Professional Conference: District/State/National	2-408-003		237
Professional Learning Communities	2-400-001		240
Reading: Elementary Literacy Micro-Credential	1-013-013		244
Reading: Secondary Literacy Micro-Credential	1-013-014		249
Reading Endorsement Option: Foundational Skills to Support Reading for understand Knowledge Building- Combined Competencies One and Two	1-013-011		254
Reading Instruction-Integrating a Multi-Sensory Approach	2-013-002		260
Reading Instruction-Integrating a Multi-Sensory approach for Students with Disabilities or Other Diverse learning Needs		2-100-002	263
Reading Strategies: General	2-013-001		266
Reading Subject Content	1-013-001	1-105-011	269
School Health and Safety	6-511-002		273
School Improvement	7-512-001		279
Schools of Excellence (2017-18 only)	8-506-003		283
Schools of Excellence (2018-19 forward)	8-521-001		283
Science Subject Content	1-015-001	1-015-004	287
Social Studies Subject Content	1-016-001	1-105-013	291
STEM Instructional Strategies	2-007-002		295
STEM Integrated Content	1-007-002		299
Student and Instructional Support: Scholarships, Financial Aid, and Educational Transitions	8-418-001		303
Student and Instructional Support: Student Motivation	8-421-001		306
Student and Instructional Support: Students Records	8-422-001		309
Student Behavior – Behavioral Assessment and Interventions	8-403-001		312
Student Support Services: Assessment/Student Appraisal	8-401-001		316
Student Support Services: Human Relations/Communication Skills	8-406-001		320
Student Support Services: Laws, Rules, Policies, Procedures	8-410-001	8-103-001	324
Student Support Services: Parent Communication, Engagement, and Involvement	8-413-002	8-104-001	327
Student Support Services: Problem Solving Teams	8-415-003		330

Student Support Services: Program Administration, Evaluation and Accountability	8-417-001		334
Student Support Services: Section 504/American's w/Disabilities Act	8-419-001		337
Student Support Services: Service Coordination, Collaboration, Integration	8-420-001		340
Students With Hearing Loss		1-105-014	343
Substance Abuse Prevention	6-403-001		346
Substitute Teacher	8-506-002		349
Teacher Performance Evaluation Model, Policies, and Procedures	7-507-003		352
Technology Applications Strategies	3-003-001		355
Technology for Educational Leaders	7-003-001		358
Technology in the Classroom/Digital Curriculum	3-408-001	3-100-002	362
Title IX for School Personnel	6-410-001		366
Virtual/Digital Learning Instructional Methodology	2-408-001		369
Visually Impaired		1-105-012	372
World Language Subject Content	1-004-001		375
Writing Instruction	2-017-001		379
Youth Mental Health First Aid	6-414-002		382

PROFESSIONAL LEARNING CATALOG COMPONENTS – NUMERICAL

Component Number: A seven-digit code which identifies each component in the professional learning catalog. The tables that follow are numerical listings of the professional learning components designed for implementation through this professional learning catalog.

Table 3

Professional Learning Catalog Components, Numerical

Title of Component	Component Number
Fine Arts Subject content	1-000-001
Career Education Subject Content	1-002-001
Computer Science Subject Content	1-003-001
Foreign (World) Language Subject Content	1-004-001
Florida's Comprehensive Health Education Components Subject Content	1-005-001
Humanities Subject Content	1-006-001
Other Content Areas	1-007-001
English/Language Arts Subject Content	1-008-001
Mathematics Subject Content	1-009-001
Physical Education Subject content	1-011-001
Reading Endorsement Option: Foundational Skills to Support reading for Understanding: Knowledge Building - Combined Competencies One and Two	1-013-011
Reading Endorsement Option: Foundations of Assessment, Differentiated Instruction and Demonstration of Accomplishment – Combined Competencies Three-Five	1-013-012
Reading: Elementary Literacy Micro-Credential	1-013-013
Reading: Secondary Literacy Micro-Credential	1-013-014

Science Subject Content	1-015-001
Social Studies Subject Content	1-016-001
Florida Civics Seal of Excellence	1-016-002
Subject Content for ESE	1-100-001
Career and Technical Education for ESE	1-105-001
Mathematics Subject Content for ESE	1-105-002
Science Subject content for ESE	1-105-004
English/Language Arts for ESE	1-105-006
Fine Arts Subject Content for ESE	1-105-008
Other Content Areas for ESE	1-105-009
Physical Education Subject Content for ESE	1-105-010
Reading Subject Content for ESE	1-105-011
Visually Impaired	1-105-012
Social Studies Subject Content for ESE	1-105-013
Hearing Impaired	1-105-014
Career and Technical Education	1-211-001
Adult Education Subject Content	1-301-001
Media Subject Content	1-407-001
Office of Early Learning, Language and Vocabulary Training Project-Targeted Strand Coach Track	1-408-001
Office of Early Learning, Language and Vocabulary Training Project-Targeted Strand Teacher Track	1-408-002
Office of Early Learning, Language and Vocabulary Training Project-Universal Strand Coach Track	1-408-003
Learning, Language and Vocabulary in the VPK Classroom	1-408-004
Emergent Literacy for VPK Instructors-Online Professional Learning	1-408-005
English Language Learners in the VPK Classroom-Online Professional Learning	1-408-006
Implementing the Florida Standards in Preschool Classrooms: 3 Years Old to Kindergarten-Online Professional Learning	1-407-007
Mathematical Thinking for Early Learners-Online Professional Learning	1-408-008
Career and Technical Education Including CAPE Industry Certification Courses	2-002-001
Instructional Strategies	
Florida Standards	2-007-001
STEM Instructional Strategies	2-007-002
Extended Learning	2-007-003
Music Instruction	2-010-001
Preschool/Child Care	2-012-001
Reading Strategies-General	2-013-001
Instructional Methodology: Reading Instruction-Integrating a Multi-Sensory approach	2-013-002
Florida Literacy Coach Endorsement UF Lastinger Center Program	2-013-004
Florida Literacy Coach Endorsement Florida Center for Reading Research Program	2-013-007
Writing Instruction	2-017-001
Instructional Methodology-ESE	2-100-001
Instructional Methodology: Reading Instruction-Integrating a Multi-Sensory Approach for Students with Disabilities or other Diverse learning Needs	2-100-002
ESE Procedures and Practices	2-103-001
Professional Learning Communities	2-400-001
Lesson Study	2-400-002
New Teacher Induction	2-404-001
Communication	2-406-001
Virtual Instructional Methodology	2-408-001
Instructional Methodology	2-408-002
Professional Conference – District, State, National	2-408-003

Cultural Awareness	2-412-001
ESOL for Guidance counselors	2-704-525
ESOL for Category III Teachers	2-704-528
Technology Applications Strategies	3-003-001
Assistive Technology in the Classroom (ESE)	3-100-002
Technology in the Classroom	3-408-001
Assessment (ESE)	4-102-001
Action Research	4-401-001
Data Analysis	4-408-001
Classroom Management (ESE)	5-101-001
Classroom Management	5-404-001
Mental health Services	5-414-001
Substance Abuse prevention	6-403-001
District Code of Student Conduct	6-404-001
Title IX for School Personnel	6-410-001
Physical & Mental Wellness	6-414-001
Youth Mental Health First Aid	6-414-002
Child Abuse and Neglect – Identifying and Mandatory Reporting	6-511-001
School Health and Safety	6-511-002
Non-Instructional : Transportation Service Training	6-515-001
Clinical Education	7-501-001
Educational leadership	7-507-001
Instructional Leadership: School Principal Level II	7-507-002
Teacher Performance Evaluation Model, Policies, and Procedures	7-507-003
Leadership Evaluation Training	7-507-004
Technology for Educational Leaders	7-507-005
School Improvement	7-512-001
ESOL for Administrators	7-704-500
ESE Parent Envolement, Parent Support	8-104-001
Student Support Services: Assessment/Student Appraisal	8-401-001
Student Behavior – Behavioral Assessment and Interventions	8-403-001
Student Support Services: Human Relations/Communication Skills	8-406-001
Student Support services: Laws, Rules, Policies, Procedures	8-410-001
Media Specialist and Instructional Materials– Laws, Rules, Procedures	8-410-002
Student Support Services: Parent Involvement, Parent Support	8-413-001
Student Support Services: Problem-solving Teams	8-415-001
Principles of Professional Conduct – Professional Ethics	8-416-001
Student Support Services: Program Administration, Evaluation, Accountability	8-417-001
Non-Instruction: Food Service Personnel	8-505-001
Educational Paraprofessional	8-506-001
Substitute Teacher	8-506-002
Schools of Excellence (2017-2018 only)	8-506-003
Non-Instruction: Office/Clerical Support	8-509-001
Non-Instruction: Custodian/Maintenance	8-510-001
Schools of Excellence (2018-2019 forward)	8-521-001

ADD-ON ENDORSEMENT PROGRAM COMPONENTS

Table 4

Athletic Coaching/Sports Medicine Add-On Endorsement Program (p. 217)

Title of Component	Component Number	Inservice Points Required
Care and Prevention of Athletic Injuries	1-011-540	60
Coaching Theory	1-001-541	60
Theory and Practice of Coaching a Specific Sport	1-011-542	60

Table 5

Autism Spectrum Disorder K-12 Add-On Endorsement Program (p. 217)

Title of Component	Component Number	Inservice Points Required
Nature and Needs, Assessment, and Diagnosis of Autism Spectrum Disorders with Field Experience	2-103-545	80
Applied Behavior Analysis and Positive Behavior Supports for Students with Autism Spectrum Disorders with Field Experience	5-101-546	80
Augmentative/Alternative Communication Systems and Assistive/Instructional Technology for Students with Autism Spectrum Disorders with Field Experience	3-100-547	80

Table 6

Drivers Education/Traffic Safety Add-On Endorsement Program (p. 217)

Title of Component	Component Number	Inservice Points Required
Basic Driver Education/Traffic Safety	1-014-537	60
Advanced Driver Education/Traffic Safety	1-014-538	60
Administration and Supervision Driver Traffic Safety	1-014-539	60

Table 7

ESOL Add-On Endorsement Program (p. 291)

Title of Component	Component Number	Inservice Points Required
Methods of Teaching ESOL	2-700-520	60
Applied Linguistics	2-702-521	60
Cross-Cultural Communication and Understanding	2-705-525	60
Testing and Evaluation of ESOL Students	2-701-523	60
Curriculum and Materials Development	2-703-524	60

Table 8

Florida Gifted Add-On Endorsement Program (p. 355)

Title of Component	Component Number	Inservice Points Required
Nature and Needs of the gifted	2-100-511	60
Educating Special Populations of Gifted Students	2-100-512	60
Curriculum Development for the Gifted	2-100-540	60
Guidance Counseling of the Gifted Student	2-100-542	60
Theory and Development of Creativity	2-100-543	60

Table 9*Reading Add-On Endorsement Program (p. 393)*

Title of Component	Component Number	Inservice Points Required
Competency One: Foundations of Reading Instruction	1-013-501	60
Competency Two: Application of Research-based Instructional Practices	1-013-502	
Competency Three: Foundations of Assessment	1-013-503	60
Competency Four: Foundations & Applications of Differentiated	1-013-504	60
Competency Five: Demonstration of Accomplishment	1-015-505	60

PROFESSIONAL DEVELOPMENT ALTERNATIVES (PDA) COMPONENTS

Professional Development Alternatives are made available by the Florida Department of Education Bureau of Exceptional Education and Student Services. Professional development alternatives are online courses offering professional development, designed to assist educators with responding to instructional needs of each learner to maximize achievement for all students. Many of the PDA courses support the recertification requirement of 20 hours in teaching students with disabilities (Renewal Credit in Teaching Students with Disabilities 1012. 585, F.S.), however, each school district or private school agency determines which modules satisfy the content requirement for their employees. FDLRS reports in-service credits to school districts and private school agencies.

Table 10

Professional Development Alternative Courses and Component Numbers Alphabetical Listing

Component Name	Component Number	Page Number
Assessment and Evaluation	4-102-001	
Battelle Development Inventory 2nd Edition Training Module	4-102-006	
Building Inclusive Schools	6-100-001	
Collaborative Teaching Partnerships	2-408-004	
Deaf Ed Express	1-100-020	
Developmentally Appropriate Practices in Inclusive Pre-K Settings	2-100-017	
Differentiating Mathematics Instruction	2-100-105	
Differentiating Reading Instruction	1-100-002	
Differentiating Science Instruction	2-100-006	
Effective Teaching Practices for Students with Disabilities: Focusing on the Content Areas	2-100-010	
Emotional/Behavioral Disability: An Introduction	8-403-002	
Engaging Learners Through Informative Assessment	4-102-003	
English Language Learners for Therapists	8-700-001	
Exploring Structured Literacy	2-100-103	
Formative Assessment for Differentiating Instruction	4-102-001	
Foundations of Exceptional Student Education-Facilitated	8-103-002	
Developmentally Appropriate Practices in Inclusive Pre-K Settings	2-100-017	
Increasing Outcomes for All Pre-K Children in Exceptional Student Education Programs	2-100-019	
Instructional Practices in ESE	2-100-001	
Integrating Standards Aligned Instruction Across the tiers	2-415-001	
Interpersonal Interactions and participation	2-100-003	
Introduction to Assistive Technology	3-100-004	
Introduction to Differentiating instruction	2-100-003	
Language Reading Connection	2-409-001	
Leadership for Inclusion of Students with Disabilities	7-513-002	
Leading Within an MTSS	7-400-001	
Math Difficulties, Disabilities and Dyscalculia	2-100-023	
Matrix of Services	8-103-103	
Multi-Tiered System of support: An Introduction	8-415-001	
Paraprofessional Support for Students with Disabilities	8-103-107	
PBS: Understanding Student Behavior	5-101-003	
Reading Difficulties, Disabilities and Dyslexia for SWD Inservice Points	2-100-018	
Reading Difficulties, Disabilities and Dyslexia for Reading Inservice Points	2-013-005	

Secondary Transition	8-103-108
Secondary Transition: Developing and Implementing Effective Programs	9-420-001
SIM-content Mastery Routine	2-100-021
SIM-EPD Unit Organizer Routine	2-100-022
Strategies to Support Pre-K Activities and Routines	5-012-001
Structured Literacy through a Multi-Sensory Approach-Online	2-013-006
Surrogate Parent	8-103-104
Teaching Students with Disabilities in the Fine Arts	2-100-016
Teaching Students with Disabilities	2-100-007
Technology for Student Success-An Introduction	3-100-004
Technology for the Diverse Classroom	3-100-005
Technology to Support Reading Comprehension	3-013-001
Transition	1-100-001
Universal Design for Learning-Lesson Plans	2-404-001
Usher Syndrome Screening	4-102-007