Wakulla County Local Mitigation Strategy 2021

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Appendices

Acknowledgements

The 2021 update of the Wakulla County Local Mitigation Strategy (LMS) was developed under the authority and support of the Wakulla County Board of County Commissioners and the cities of Sopchoppy and St. Marks. The Wakulla County LMS update was updated in conjunction with the Wakulla County LMS Working Group and other interested parties and was prepared by the Apalachee Regional Planning Council. The Wakulla County LMS is available for public review at the Wakulla County Planning Department's website:
https://www.mywakulla.com/departments/planning_and_community_development/departments/planning_and_zoning/document_center.php

Chapter 1: The Planning Process

1.1 Origins of the Wakulla County Local Mitigation Strategy

The passage of the Disaster Mitigation Act of 2000 (DMA2K) was a watershed mark in the history of mitigation planning and implementation. Often referred to as the "cornerstone of emergency management", mitigation efforts were often relegated to only the most progressive of emergency management agencies that understood the financial, social, and political impacts of implementing a strong mitigation program. DMA2K changed this by emphasizing the importance of pre-disaster mitigation planning and established certain incentives for communities to undertake effective and meaningful mitigation planning.

Based on the lessons learned from destructive natural disasters that occurred in the mid to late 1990's, Congress passed the DMA2K and amended the Robert T. Stafford Act by Public Law 106-390. The law includes many provisions for the entire life cycle of a major disaster, addressed issues such as streamlining the Public Assistance Program and the Hazard Mitigation Grant Program, strengthened the development of local mitigation strategies or plans, and created a provision for states and local communities to develop "enhanced" mitigation plans that would allow certain delegations of authority to states to manage the Hazard Mitigation Grant Program (HMGP).

The Wakulla County Local Mitigation Strategy (LMS) is a comprehensive plan that identifies potential hazards that the county is vulnerable to and provides strategies for reducing that vulnerability. This strategy enables county and municipal officials, the business community, and local citizens to reduce risks and costs by including mitigation as a part of everyday planning, rather than limiting it to the measures taken after a Presidential Disaster Declaration.

The Wakulla County LMS covers the jurisdictions of Wakulla County (unincorporated), City of Sopchoppy, the City of St. Marks and the special jurisdiction of the Talquin Electric Co-Operative. These jurisdictions worked together to complete the update of the 2020 Wakulla County LMS and the strategy reflects changes in development patterns. The Future Land Use Map (FLUM) is incorporated into the LMS to demonstrate where future development and growth is expected.

1.2 Current Update and Plan Adoption

Every five years the LMS must be reviewed and updated to include the most current data and historical events for the County. To meet this requirement, the process of reviewing, revising, and updating the Wakulla County LMS began in March 2020. The Apalachee Regional Planning Council (ARPC) was retained to assist with the 5-year mandated update. ARPC staff worked with the Wakulla County LMS Working Group which is comprised of county and municipal government and agency officials as well as private citizens. The Working Group met multiple times in 2020 to update the LMS. The three jurisdictions represented in the LMS participated in the process by attending planning meetings and providing information to update the project priority list, critical facilities list, and goals and objectives. The Wakulla County Board of County

Commissioners, and the City Commissions of Sopchoppy and St. Marks formally recognize and approve of the planning process and have formally adopted the LMS by resolution.

A draft of the 2021 Wakulla County LMS was submitted to the Florida DEM on October 30, 2020. The deficiencies were corrected and resubmitted to Florida DEM for review and approval.

1.3 Opportunity for Public Involvement

Wakulla County understands the importance of including the public in the hazard mitigation planning process. Multiple opportunities were given to allow the public to attend planning meetings and provide comments and input on the Wakulla County LMS. All meetings of the LMS Working Group were advertised to the general public through the Wakulla County website (Appendix 2) and by email (Appendix 2). Representatives from neighboring counties (Leon, Liberty, Jefferson, and Franklin) were also encouraged to attend. In addition, several members of the Wakulla LMS Working Group are private citizens living in Wakulla County.

A copy of the draft 2021 Wakulla County LMS was made available to the public at the Wakulla County Public Library in Crawfordville, and at Wakulla County Planning Department's website: https://www.mywakulla.com/departments/planning_and_community_development/departments/planning_and_zoning/document_center.php. Feedback from the public was collected by the Wakulla County Planning Department and reviewed by the LMS Working Group for inclusion into the strategy.

1.4 Local Mitigation Strategy Working Group Membership

The Wakulla County LMS was updated by the LMS Working Group, which includes representatives from county and municipal governments as well as private Wakulla County citizens. The Wakulla County LMS Working Group includes the following members:

Table 1.1 – Wakulla County LMS Working Group Members

Name	Agency/Organization
Clyde Collins	Building Official, Wakulla County Building Department
Daniel Collins	Duke Energy
Hannah Dudley	LMS Coordinator, Wakulla County
Mike Greene	Talquin Electric Cooperative
David Harrison	Interested Citizen
Paul Johnson	Interested Citizen
RaSarah Johnson	Talquin Electric Cooperative
William Jones	Wakulla County Sheriff's Office
Padraic Juarez	Administrator, Florida Department of Health in Wakulla County
Sheree Keeler	Director, Wakulla County Intergovernmental Affairs and RESTORE Act
Mike King	Director, Road and Bridge, Wakulla County
Louis Lamarche	Public Safety Director/Fire Chief, Wakulla County

Zoe Mansfield	City Manager, City of St. Marks
Dallas Marshall	Interested Citizen
Linda McDonald	Florida Department of Health
Jennifer Nagy	Director, Wakulla County Emergency Management
Ned Nobles	Director, Wakulla County Public Works
Kirsten Parrish	Wakulla County Building Department
Steve Parrish	Interested Citizen
Somer Pell	Director, Wakulla County Planning & Community Development Department
Ashley Schilling	City Clerk, City of Sopchoppy
Todd Schroeder	Florida Department of Agriculture and Consumer Services
Cody Solburg	Director, Wakulla County Parks & Facilities Management Department
John Swindel	Interested Citizen

The Wakulla County Planning and Community Development Department is responsible for maintaining the Wakulla County Comprehensive Plan and Land Development Regulations and is a primary member of the LMS Working Group.

1.5 Local Mitigation Strategy Working Group Meetings

The Wakulla County LMS is a local community product. The LMS Working Group met multiple times in 2020 to evaluate the hazards facing Wakulla County and the Cities of Sopchoppy and St. Marks. Summaries of the meetings are given below. For a complete list of attendees and meeting minutes, refer to Appendix 2.

The first public LMS Working Group meeting for the 5-year update was held on March 4, 2020 in Crawfordville as well as virtually, for a total attendance of 10 people. The Working Group discussed the LMS five-year update and how Wakulla County will engage the Apalachee Regional Planning Council (ARPC) to assist with the project. The LMS Working Group also discussed an update on the Hazard Mitigation Grant Program Cycle for Hurricane Michael. An additional project for a generator to be installed at the Public Works Fuel Station was added as priority number 25.

The second public LMS Working Group meeting was held on May 6, 2020 via Zoom due to the COVID-19 pandemic with a total attendance of 13 members. A representative of the ARPC provided an update on the progress of the 5-year update and several projects were ranked, and estimated costs revised.

The third public LMS Working Group meeting was held on June 23, 2020 in Crawfordville as well as virtually with a total attendance of 12 people. The purpose of the meeting was to review the LMS Hazard and Vulnerability Assessment as listed in the current strategy. The group decided to add “pandemics” to the hazard list. The working group also discussed the Mitigation Goals and

Objectives which will be expanded to address the addition of the "pandemic" hazard. The next items reviewed were updates of the hazard maps and the Risk Assessment and Vulnerability Analysis. The group agreed to continue to use the STAPLEE method for ranking projects. An agreement was made that the project list did not need updating as the group meets quarterly and amends the projects list accordingly as needed.

The fourth public LMS Working Group meeting was held on August 26, 2020 in Crawfordville as well as virtually with a total attendance of 14 people. The purpose of this meeting was to continue to review the work presented by the ARPC on the five-year LMS update. This meeting began by rating the newly added "pandemic" hazard. The working group was then presented with the Mitigation Goals and Objectives newly added revisions. ARPC staff indicated that they were continuing to work on updating the hazard maps. Goals and Objectives were than discussed with the LMS working group agreeing that no changes needed to be made.

The fifth meeting of the LMS Working Group was held in Crawfordville at the Wakulla County Community Center on September 30, 2020. ARPC staff presented the first draft of the LMS 5-year update to the Working Group for review and several items were requested to be updated or changed. The Working Group completed the draft review and then ARPC staff walked through the steps for submitting the document to FDEM staff and posting the draft on mywakulla.com for public comments.

1.6 Supporting Information

The LMS Working Group provided a set of existing documents to be considered for this update which have been incorporated into the LMS. Each resource is a useful tool when developing mitigation strategies. In using this information, Wakulla County and its municipalities are meeting their DMA2K requirements in a cost effective and timely manner. The following list details the existing resources being incorporated into this plan.

- **Florida Department of Environmental Protection**
  The FDEP completed a coastal erosion study and report that included Wakulla County. This data was incorporated into the LMS.

- **Local Mitigation Strategy – 2016**
  The primary document for this project was the existing 2016 Wakulla County LMS. The update to the 2016 LMS was developed with Disaster Strategies and Ideas Group, LLC and provides the baseline and the starting point for this planning effort. Sections in the LMS include:
  - Agreements and Resolutions between participating organizations
  - Information on LMS Working Group members and meetings
  - Analysis of existing programs and policies
  - Hazard Identification and Profiling
  - Vulnerability Analysis
  - Mitigation goals and objectives
  - Mitigation actions and projects

- **State of Florida Enhanced Hazard Mitigation Plan**
  The SEHMP (2018) contains a wealth of information pertinent to Wakulla County. Much of the data contained in Appendix E pertinent to Wakulla County was used in this plan update. It provides counts of vulnerable structures per a number of common hazards indigenous to Florida, and Wakulla County.

- **Section 302 Hazards Analysis Facility Summary Report**
  This document was developed by the District 2 Local Emergency Planning Council, via the Apalachee Regional Planning Council. It provides the list of known Section 302 hazardous materials housed in Wakulla County.

- **Wakulla County Emergency Management Plan (CEMP)**
  CEMP information has been incorporated into this Plan when appropriate. The CEMP directs the actions for the entire County, its municipalities, and the unincorporated communities and areas. It includes an identification of the pertinent hazards affecting Wakulla County.

- **Wakulla County Comprehensive Plan (COMP)**
  The COMP Plan and its elements identify growth management goals and policies and contains the Future Land Use Map (FLUM), which shows where growth in the County is expected to occur.

- **City of St. Marks Comprehensive Plan**
  Provides critical supporting information pertinent to the City of St. Marks in terms of local ordinances and provisions of law supporting mitigation efforts in the City.

- **City of Sopchoppy Code of Ordinances**
  Provides critical supporting information pertinent to the City of Sopchoppy in terms of local ordinances and provisions of law supporting mitigation efforts in the City.

- **Wakulla County Critical Facilities List**
  Wakulla County Emergency Management and the LMS Working Group developed a comprehensive list of all facilities in the county deemed “critical” for the continuing operations of the County. It was used to assist in assessing the overall vulnerability for Wakulla County. A comprehensive list of Wakulla County’s critical facilities can be found in Appendix 3.

- **Internet Resources**
  Data for the hazard risk assessment and vulnerability analysis was obtained through various websites including, but not limited to, National Oceanic and Atmospheric Administration (NOAA), Federal Emergency Management Agency (FEMA), Florida Department of Forestry (DOF), United States Geological Survey (USGS), and numerous others, which are listed throughout the text.

1.7 Project Schedule for 2020

Week 1 Conducted first public meeting of the LMS Working Group to discuss the LMS Plan update with ARPC staff.

Week 10 Conducted second public meeting of the LMS Working Group to discuss status of the update. ARPC discussed presenting the LMS Hazard Vulnerability Assessment at the following meeting for group review. In addition, ARPC staff indicated they would be reviewing the Mitigation Goals and Objectives at the next meeting.

Week 11 Received hazard profile data and initiated LMS Plan update.

Week 12 Updated 2015 LMS goals and objectives for LMS Working Group review and approval.

Week 19 Conducted third public meeting of the LMS Working Group during which each hazard, the impact ranking, probability, and magnitude was discussed. Next, Mitigation Goals and Objectives were reviewed and approved by those in attendance.

Week 20 Updated requested changes to the LMS Hazard and Vulnerability Assessment and Mitigation Goals and Objectives.

Week 24 Conducted fourth public meeting of the LMS Working Group. The group again discussed the changes made to the LMS Hazard and Vulnerability Assessment as well as the Mitigation Goals and Objective newly added revisions.

Week 25 Updated hazard maps and tables throughout the 2020 Wakulla County LMS.

Week 29 Held fifth public meeting of the LMS Working Group to review and approve the draft of the 2021 Wakulla County LMS.

Week 32 Reviewed final draft of LMS Plan and submitted Plan to Florida DEM for review.

TBD Reviewed DEM comments, update LMS, and resubmitted final strategy to FDEM.

TBD Upon approval by FDEM submitted 2021 Wakulla County LMS to the Wakulla County Board of County Commissioners and Cities of Sopchoppy and St. Marks for adoption by resolution.

TBD Meet with Wakulla County Board of County Commissioners and City Commissions of Sopchoppy and St. Marks for adoption.

1.8 Description of Process

The LMS Working Group established the following general process in the preparation of the updated LMS Plan.

- Research and Data Collection – Gather all relevant data from various sources including the 2016 Wakulla County LMS, Wakulla County Comp Plan, Wakulla County CEMP and other resources listed above and throughout the strategy.
- Data Collation and Plan Writing – After the initial phase of data collection, the documents and data were analyzed for inclusion in the 2021 Wakulla County LMS.
- Review and Comments – The initial draft of the Wakulla County LMS was completed and reviewed by the LMS Working Group. The public was provided an opportunity comment on the draft strategy. All comments have been incorporated into final edition.
- Finalization, Adoption and Delivery – After all revisions were made and the draft 2021 Wakulla LMS is approved by FDEM the strategy will be adopted by Wakulla County and the

Cities of Sopchoppy and St. Marks. The final approved and adopted LMS, along with the adopted resolutions, are submitted to FDEM, who will forward it to FEMA.

1.9 Review and Updates to Section 1

Section 1 of the LMS was reviewed by the LMS Working Group and updated as follows:

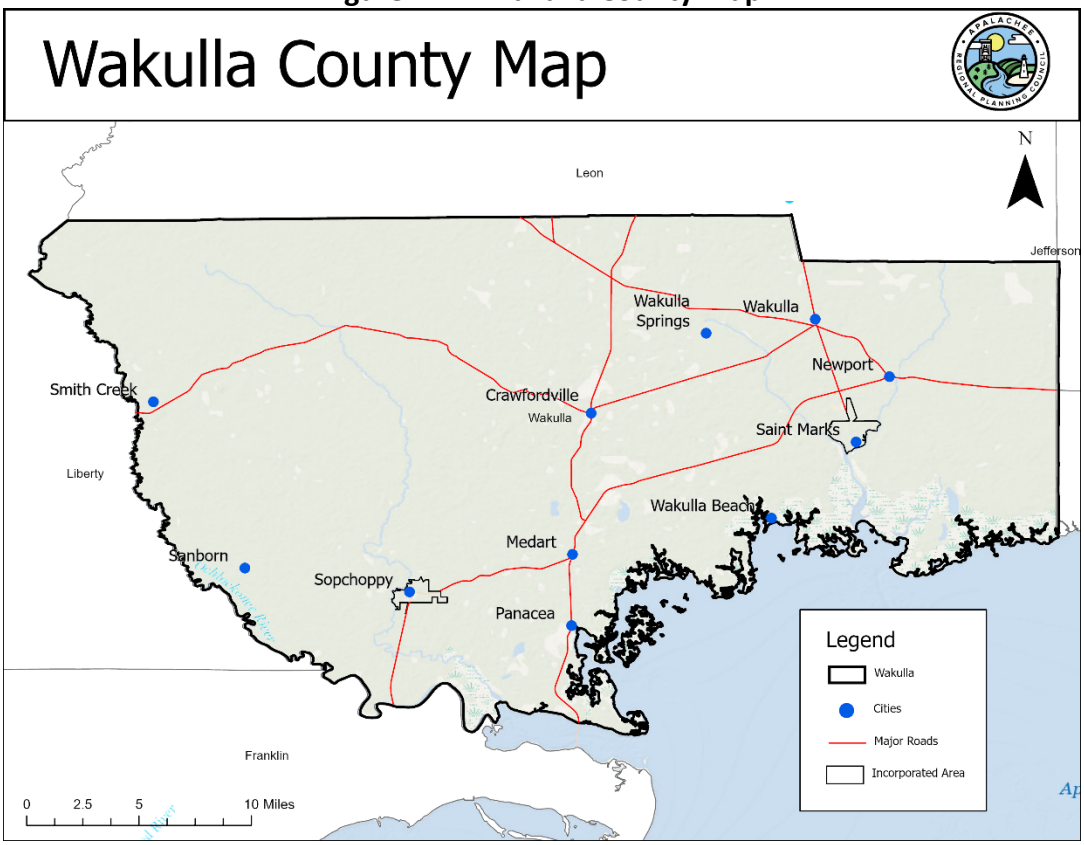
- List of current LMS Working Group members was updated.
- Synopsis of the LMS Working Group meetings held during 2020 was added.
- Schedule for the 2021 LMS plan process was updated.

Chapter 2: Risk Assessment and Vulnerability Analysis

2.1 Wakulla County Profile

Wakulla County is located in Northwest Florida and is bordered on the south by Franklin County and the Gulf of Mexico, on the east by Jefferson County, on the north by Leon County, and on the west by Liberty County. The community of Crawfordville is the county seat. Wakulla County was established from a portion of Leon County in 1843 and the name is believed to come from the Timucuan Indian word for "spring of water" or "mysterious water". It is a reference to Wakulla Springs, one of the world's largest freshwater springs. There are two incorporated municipalities: Sopchoppy and St. Marks.

Figure 2.1: Wakulla County Map



The following table is a list of pertinent special population demographics for Wakulla County from the U.S. Census Bureau. Additional relevant census data is contained in Appendix 4.

Table 2.1 Populations at Risk Demographics, Wakulla County, 2020

Jurisdiction	Total Pop	Minority	Over 65	Disabled	Poverty	Lang. Isol.
Wakulla County	32,976	5,712	4,520	4,286	4,122	2,968
St. Marks	363	18	50	70	47	18
Sopchoppy	506	104	64	118	81	9

Source: http://www.bebr.ufl.edu/population, http://city-data.com

Table 2.2: Wakulla County and Municipal Jurisdictional Profile, 2020

Jurisdiction	Geographic Size	Density (sq/mi)	Growth Trend (2000 – 2019)	Median Household Income	Employment	Development Trends
Wakulla County	607 sq/mi	54	25%	$58,163	2.9% Unemployment Public administration (19%) Health care and social assistance (16%) Educational services (11%) Retail trade (7%) Finance and insurance (6%) Professional, scientific, and technical services (5%) Administrative and support and waste management services (4%)	• The County's unincorporated areas are not considered to be fully developed. • Development of vacant and unused land is occurring • Expansion, re-development and reconstruction of existing properties is happening at a consistent basis. • Potential development will face hazards, especially along Wakulla's long exposure to the Gulf of Mexico.
St. Marks	1.9 sq/mi	114	14.7%	$34,083	2.9% Unemployment Construction (15.4%) Public administration (13.8%) Professional, scientific, technical services (10.6%) Accommodation & food services (9.8%) Educational services (8.9%) Health care (7.3%) Agriculture, forestry, fishing & hunting (5.7%)	• The community is not considered to be fully developed. • Little to no development is occurring or has occurred in the last two years. • Potential development will face hazards identical to those of the City of St. Marks.
Sopchoppy	1.52 sq/mi	297	11%	$40,081	2.9% Unemployment Public administration (18.0%) Educational services (9.9%) Construction (9.3%) Health care (8.7%) Chemicals (6.2%) Finance & insurance (6.2%) Administrative & support & waste management services (5.6%)	• The community is not considered to be fully developed. • Development of vacant and unused land is occurring very rapidly or much faster than planned. • Expansion, re-development and reconstruction of existing properties are numerous in many locations. • Potential development will face hazards identical to those the community currently faces.

Source: http;//www.city-data.com

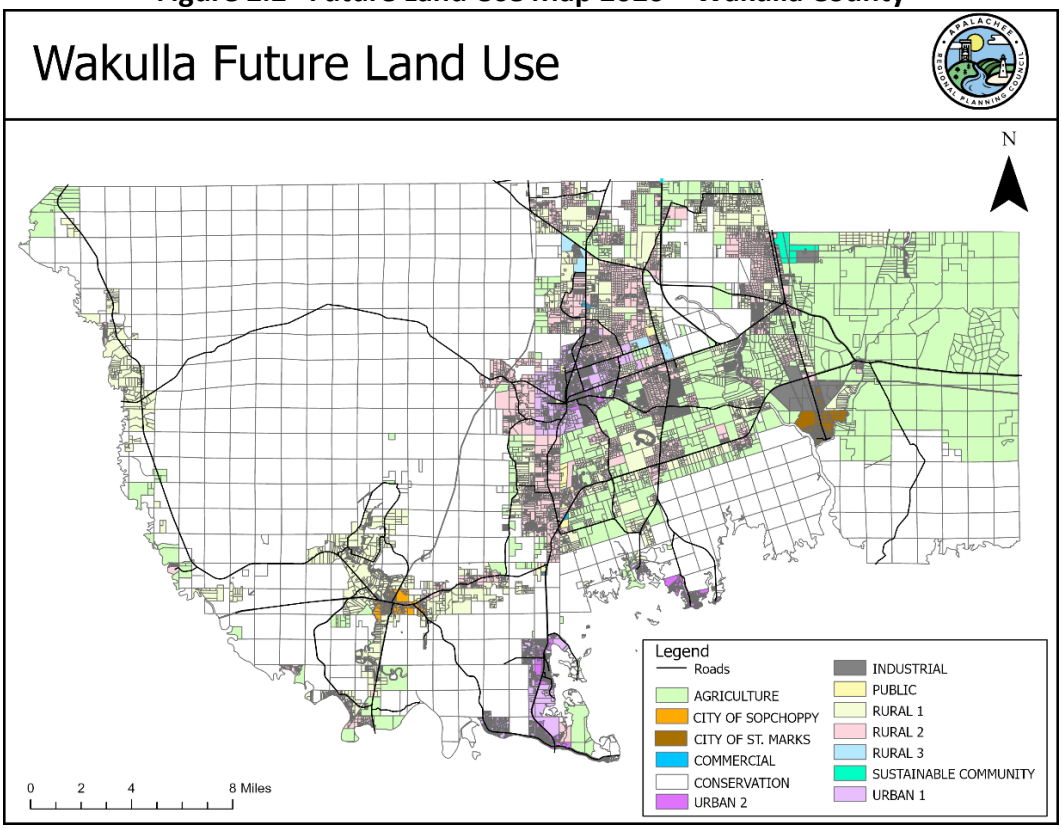
2.2 Land Uses and Future Development Trends

Wakulla County is in a rural area with a 2019 population of approximately 32,976 persons. This represents a growth in population of 7.1% since 2010, compared to a statewide growth in population of 12.8% for the same period of time. The Wakulla County Chamber of Commerce encourages new business and expects growth to continue in the next 10 years.

Wakulla County encompasses 607 square miles, with an overall density of 54 persons per square mile. Over 62% of the land in Wakulla County is categorized as public lands and approximately 19% is designated as agricultural use, this represents over 81% of land use in the county.

Recently, most of the growth has been around the unincorporated communities, particularly Crawfordville and the north central section of the county as shown on the FLUM below, however within the last 5 years (2015-2020) no major development has occurred throughout the county, or its municipalities to cause significant increases in vulnerability to hazards listed in this plan. These are the areas of the county that are expected to continue to be subject to future growth and development in terms of new structures and residents. Crawfordville and this section of the county are vulnerable to hurricanes and tropical storms, tornadoes, hail and thunderstorms, wildfire, and hazardous materials spills. These areas are not vulnerable to coastal and riverine erosion, or dam and levee failure. There is no way to determine the number and value of future structures at risk currently.

Figure 2.2 Future Land Use Map 2020 – Wakulla County



Source: Wakulla County Planning and Zoning Department

One of the factors conducive to development is the presence of central water and sanitary sewer infrastructure. The Wakulla County Comp Plan states that the central sanitary sewer and water systems shall be limited to the urbanizing areas, as shown on the FLUM. With the exception of the Community of Panacea, the majority of the developed areas in Wakulla County are inland away from the coast and coastal high hazard areas. In addition, the areas on the FLUM designated as Conservation, Publicly Owned Conservation, and Privately Owned Conservation are areas that provide natural functions and cannot be built on. They serve as water recharge areas and floodways that disperse floodwaters.

Roads and transportation are two of the other factors leading to growth and development. As roads develop and expand, residential property development follows along with industry and infrastructure. Tables 2.3 and 2.4 detail the Florida Department of Transportation's five-year work plan through 2025 for Wakulla County. County, roadway resurfacing, widening, and other improvements will encourage future development.

Table 2.3: Florida DOT Five-Year Work Program, 2020 – 2025 for Wakulla County

Description	Type of Work
AARON STRICKLAND RD FROM US 319 CRAWFORDVILLE HWY TO LAUDERDALE LN	WIDEN/RESURFACE EXIST LANES
CR 22 OVER SOPCHOPPY RIVER BRIDGE NO. 590029	BRIDGE REPLACEMENT
CR 372 SURF ROAD FROM SILVER ACRES DRIVE TO SR 30 (US 98)	RESURFACING
CR 375 SMITH CREEK RD FROM MACK LAKE RD TO FOREST ROAD 13	WIDEN/RESURFACE EXIST LANES
CR 375 SMITH CREEK ROAD FROM SYFRETT CREEK TO MACK LAKE ROAD	RESURFACING
FH 356 LAWHON MILL RD OVER UNSIGNED STREAM BR NO. 594005	BRIDGE REPLACEMENT
FIRE ESCAPE RD FROM SAN MARCOS STATE PARK TO PORT LEON DR	RESURFACING
MLK RD FROM SR 61 (US 319) CRAWFORDVILLE RD TO CR 365 SPRING CREEK RD	RESURFACING
OLD WOODVILLE RD FROM LEON COUNTY LINE TO SOUTH SPRINGWOOD BLVD	FLEXIBLE PAVEMENT RECONSTRUCT.
SR 267 BLOXHAM CUTOFF FROM WAKULLA SPRINGS PARK TO ST MARKS TRAIL	BIKE PATH/TRAIL
SR 30 (US 98) COASTAL HWY FROM S OF TOWER ROAD TO SR 61 (US 319)	BIKE PATH/TRAIL
SR 30 (US 98) CORRIDOR WAKULLA COUNTY SIGN REPAIR HURRICANE MICHAEL	EMERGENCY OPERATIONS
SR 30 (US 98) FROM E OF SR 61 (US 319) TO W OF WAKULLA RIVER BRIDGE	RESURFACING
SR 30 (US 98) FROM W OF SR 363 WOODVILLE HWY TO LIGHTHOUSE RD	BIKE PATH/TRAIL
SR 369 (US 319) FROM NORTH OF SR 267 TO LEON COUNTY LINE	ADD LANES & RECONSTRUCT
SR 369 (US 319) FROM SOUTH OF EAST IVAN ROAD TO NORTH OF SR 267	ADD LANES & RECONSTRUCT

SR 377/375 (US 319) SOPCHOPPY HWY FROM N OF BEASLEY RD TO SR 30 (US98)	RESURFACING
SR 61 (US 319) FROM NORTH OF ALASKA WAY TO LOST CREEK BRIDGE	ADD LANES & RECONSTRUCT
WAKULLA CO MAINT & COMPENSATION OF TRAFFIC SIGNALS ON STATE ROADS	TRAFFIC SIGNALS
WAKULLA COUNTY SENIOR CITIZEN TRANSIT NON-URBANIZED AREA 5311	OPERATING/ADMIN. ASSISTANCE

Source: https://fdotewp1.dot.state.fl.us/fmsupportapps/WorkProgram/WorkProgram.aspx

Table 2.4: Florida DOT Five-Year Work Program Cost Summary, 2021-25

	2021	2022	2023	2024	2025
Highways:					
Prelim. Engineering	$1,204,341			$630,000	
Right of Way	$632,372		$2,571,058		
Construction	$13,059,716	$7,795,241	$5,991,172	$3,474,907	$4,942,064
Operations	$40,165	$44,791	$49,707	$50,954	$52,483
Logistics: Transit					
Operations	$640,000				
Grand Total:	**$15,576,594**	**$7,840,032**	**$8,611,937**	**$4,155,861**	**$4,994,547**

Source: Florida Department of Transportation, Office of Work Program
https://fdotewp1.dot.state.fl.us/fmsupportapps/WorkProgram/Support/SummTotals.ASPX?RF=WP&D=03&CD=59&FY=FALSE|FALSE|FALSE|FALSE|FALSE|FALSE&BP=Y

2.3 Hazard Identification

As part of updating the Wakulla County LMS, the LMS Working Group reviewed existing emergency management materials and conducted an analysis based on recent disasters and local knowledge of the county. This allowed the Working Group to determine which natural and manmade disasters presented the greatest threat to the county, and to assess the county's vulnerability to each of those threats. The Wakulla County Hazard Identification and Vulnerability Assessment represent that effort.

This information was gathered by using both primary and secondary research materials, which includes, but is not limited to, reports from local, state, and national agencies, as well as mass media accounts, state and local weather records, and conversations with key personnel and residents in Wakulla County and its municipalities. This analysis includes assessment of the possible severity and magnitude of the hazards as well as the potential impact of damage within the County from future hazards. This information will serve as the basis for prioritizing mitigation measures based on the potential frequency and the likely extent of damage from known hazards

The Wakulla County LMS Working Group discussed all the following hazards, and mechanisms for ranking them. Their ratings used the methodology described below.

Impact Ranking was defined as follows:
High – Extremely important. High impact to the municipality
Medium – Moderately important. Moderate impact to the municipality

Low – Low importance. Low impact to the municipality
X – No impact. Of no importance to the municipality

Probability was defined as follows:
High – Occurrence at least once every two years
Medium – Occurrence at least once every five years
Low – Occurrence less frequently than every five years
X – Event has never happened and is not expected to occur

Magnitude was defined as follows:
High – the entire municipality is potentially affected by an event
Medium – Most of the municipality is potentially affected by an event
Low – Only a specific area of the municipality is potentially affected
X – event has never occurred, nor is it expected to occur

Table 2.5: Hazards - Priority Ranking, Probability, and Magnitude, Wakulla County

Hazard	Impact Ranking			Probability			Magnitude		
	Uninc.	St. Mk.	Sopch.	Uninc.	St. Mk.	Sopch.	Uninc.	St. Mk.	Sopch.
Coastal Storms Hurricanes and T Storm	H	H	H	H	H	H	H	H	H
Coastal Storm Surge	H	H	H	H	H	H	H	H	H
Tornadoes	M	M	M	L	L	L	M	M	M
Thunderstorms	M	M	M	H	H	H	M	M	M
Wildfires	M	M	M	H	H	H	M	M	M
Flood	H	H	H	H	H	H	M	H	M
Coastal Erosion	H	M	X	M	L	X	L	L	X
Dam Failure	L	X	X	L	X	X	L	X	X
Hazardous Material	L	L	L	M	M	M	L	L	L
Terrorism	L	L	L	L	L	L	L	L	L
Sinkholes	M	M	L	M	M	L	L	L	L
Infectious Disease / Pandemic	H	H	H	L	L	L	H	H	H

Source: Wakulla County Local Mitigation Strategy Working Group

2.3.1 Hazards Not Included in the LMS

For purposes of hazard identification, the following hazards were not included based on the recommendation of the LMS Working Group as these events have never occurred or would have little to no impact if they did. These include:

- ***Drought/Heat wave:*** It was the consensus of the LMS Working Group that heat waves and droughts have virtually no impact on the county and are therefore deleted from the list of active hazards. Because of Wakulla County's high-water table, the threat of water

wells going dry in a drought is not probable which is why drought was removed as a hazard.

- ***Earthquakes:*** Wakulla County is not in a seismic zone and the county has never experienced an earthquake. If one were to occur, it would be of such a small magnitude, that it probably would cause little if any damage. Therefore, earthquakes were removed as a hazard from the LMS.

- ***Civil Disturbances:*** Wakulla County has never experienced any type of civil disturbance. If a civil disturbance were to occur, it is estimated it would not be a significant event or cause significant damages.

- ***Riverine Erosion:*** Wakulla County has four rivers and several streams and conveyances. While the LMS Working Group has not put forth projects mitigating the impacts of riverine erosion, it is still a potential threat to private and public property. The threat and risks are considered to be low.

- ***Tsunami***: If Wakulla County were to ever experience a tsunami, it would have the same effect as storm surge from a tropical system. Since the impact of a tsunami is the same as a hurricane surge it is not necessary to address it as a hazard.

- ***Winter Storms:*** Wakulla County rarely experiences severe winter storms and has never experienced any severe impacts from the winter weather that does occur.

2.4 Vulnerability Analysis

Wakulla County has approximately 14,000 residential structures. Over 95% are vulnerable to a 100-year flood event, and over 98% to a 500-year flood event. Other hazards pose similar threats. A Category 3 hurricane storm surge, under the right conditions, can virtually cover the entire county. Most of the county is covered by forests, making wildfire in the Wildfire Urban Interface, where the majority of Wakulla County residents live, a serious threat. Wakulla County also experiences a fair number of thunderstorms that produce hail and lightening on a consistent basis. Wakulla County has had 77 sinkholes open up since 1975. In all, Wakulla County is highly vulnerable to a host of natural and manmade hazards, as will be explained in the remaining sections of Chapter 2.

The following general vulnerability data for Wakulla County comes from the State of Florida Hazard Mitigation Plan. The table below provides a summary of the total value of structures in the county. This information is used as a base for determining the economic vulnerability to certain hazards in the county.

Table 2.6: Value of Wakulla County Structures ($M)

Value of Structures in Wakulla County

County	Residential	Commercial	**Industrial**	Agriculture	Religious	Government	Education	Total
Wakulla	$793,479,563	$46,873,525	$17,822,325	$79,337,146	$20,130,275	$24,150,432	$24,941,665	$1.49B

Source: Wakulla County Property Appraiser 2020

2.5 Hurricanes and Tropical Storms /Coastal Storm Surge

Hurricanes and tropical storms are low-pressure systems in the tropical and sub-tropical zones with cyclonic surface wind circulation. A hurricane is a tropical storm or cyclone in the Atlantic Basin with winds that have reached an average 1-minute sustained speed of 74 miles per hour or more. Tropical storms have an average 1-minute sustained wind speed between 39 and 73 miles per hour. Hurricane winds blow in a counterclockwise spiral around a relative calm center, known as the eye. The eye is generally 20 to 40 miles wide, and the storm may extend outward, up to 500 miles in diameter. As a hurricane nears land, it can bring heavy rains, high winds, tornadoes, and storm surge. The typical rainfall from a hurricane is between 6 to 12 inches. Hurricanes can last for more than two weeks over open waters and can run the entire length of the eastern seaboard. The official hurricane season runs from June 1 through November 30. Major hurricanes are those hurricanes classified as Category 3 or higher.

Impacts from hurricanes and tropical storms include high winds, heavy rain, storm surge, coastal and inland flooding, and tornadoes. Any or all of these can cause damage to buildings and infrastructure. They can also result in death or injuries as the result of flooding, collapsing buildings, electrocution from downed power lines, fires from natural gas line breaks, etc. The following are events impacting Wakulla County, and the damages they caused. They are indicative of future impacts to the county:

Table 2.7: Impacts of Hurricanes and Tropical Storms in Wakulla County

Year	Event	Impacts
1998	Hurricane Earl	Hurricane Earl land fell in Bay County, yet the impacts were felt in Wakulla County. Throughout Wakulla County, high winds and coastal flooding damaged 216 homes and businesses. Significant wind and flood damage was reported at Live Oak Island, Spring Creek, Ochlocknee, Oyster Bay, Panacea, Medart, Sopchoppy, and St. Marks. Power was disrupted for 1,000 customers and the St. Marks Wastewater facility was offline. The event caused $775K in damages to Wakulla County.
2004	Hurricane Ivan	Hurricane Ivan made landfall near Gulf Shores Alabama, yet the impacts were felt in Wakulla County. Over 5 inches of rainfall caused localized flooding of several homes in St. Marks and surrounding areas. Downed trees blocked some roads until they could be removed.
2005	Hurricane Dennis	Dennis made landfall in Gulf Breeze, Fl. Its impacts were felt in Wakulla County. The town of St. Marks was inundated with 12 feet of storm surge, submerging the businesses and all roads in and out of the area. The Aucilla, St. Marks, and Ochlockonee rivers all flooded areas near the shore. Area wide, over 75,000 residents lost power. Wakulla County was declared a federal disaster area, with over $8M in damages.
2005	Hurricane Katrina	Hurricane Katrina impacted South Florida, then again in Louisiana. As it passed by Wakulla County, it dropped over 3 inches of rainfall, flooding many lowlying areas in the south part of the County. Wakulla County experienced a 5 foot storm surge, which inundated many coastal roadways. The county sustained over $200K in damages.

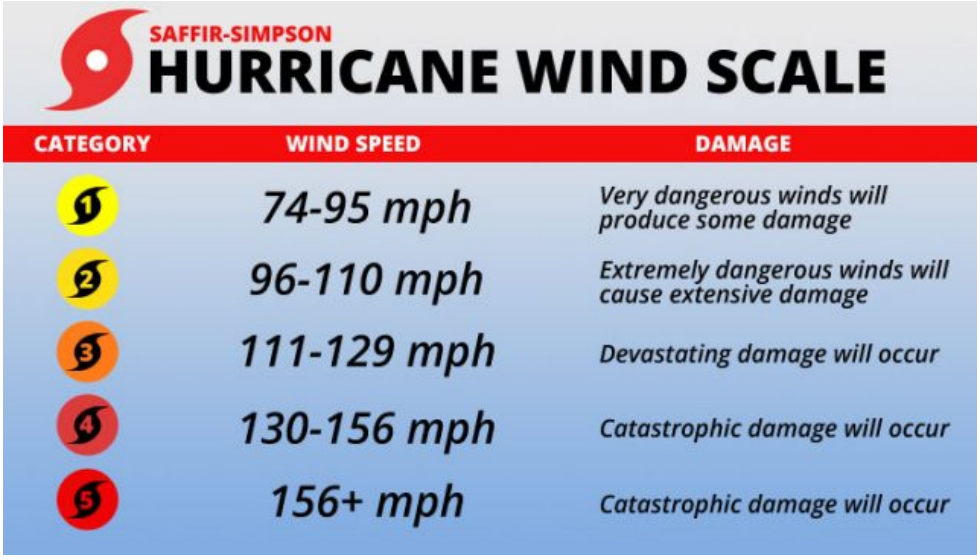
2008	Tropical Storm Fay	TS Fay made several landfalls in Florida, the closets being Carrabelle, Fl. Fay produced record amounts of rainfall in Wakulla County. Numerous trees and power lines were down throughout the county. Numerous county roads were closed, and several dirt roads were washed out. U.S. Highway 319 at State Road 375 (Painted Bridge Road) in Sopchoppy was closed. Flooding along the St Marks River set a record with a stage of 13.88 feet, or 2.1 feet above the previous record stage. The Ochlockonee River south of the C.H. Corn Hydro dam rose to flood stage in the western part of the county. Storm tides of four feet on the morning of the 24th at St Marks caused flooding of several buildings in St Marks, with four to six inches of water near the time of high tide. Twenty-nine homes were damaged and two were destroyed by fallen trees and flooding. Seven homes were inaccessible due to high water.
2012	Tropical Storm Debby	Tropical Storm Debby caused extensive flooding in Wakulla County during late June 2012 making landfall near Steinhatchee, Florida with winds of 40 mph (65 km/h). Once inland, the system continued to weaken while crossing Florida, and dissipated shortly after emerging into the Atlantic on June 27. The storm dropped immense amounts of precipitation near its path. Rainfall peaked at 28.78 inches (731 mm) in Curtis Mill, Florida, located in southwestern Wakulla County. The Sopchoppy River, which reached its record height, flooded several structures in Wakulla County. The flooding included the Sopchoppy River, Ochlockonee River and several areas within the flood zone throughout the county including areas near Sopchoppy, Fairway Court, Donaldson Williams Road, and Otter Lake road. Additional low-lying areas were impacted by localized flooding throughout the county. Areas west of Sopchoppy were inaccessible for several days due to road and bridge closures.
2016	Tropical Storm Colin	TS Colin moved towards the United States (U.S.) and on June 6, 2016 made landfall – the first storm to do so since 2013 – in Florida early Monday morning. TS Colin had a maximum wind speed of just above 50 M.P.H and had highest sustained winds of 40 M.P.H. coming closer to land, all while bringing heavy rains to Wakulla County and the State of Florida. Those heavy rains poured onto Wakulla County, roughly five inches, and then moved past the county, eventually being declared “post-tropical” on June 7, 2016 as it moved on the Atlantic Ocean.
2016	Hurricane Hermine	Hurricane Hermine impacted the Florida big bend in early September with significant storm surge along the coast and strong winds inland which downed numerous trees and power lines. The following inundation values (height above mean higher high water) were estimated along the coast. Spring Creek Entrance: 5.91 ft, Town of Saint Marks: 5.08 ft, Saint Marks Lighthouse: 6.28 ft. The Wakulla River at Wakulla Springs also had its 2nd highest crest on record behind Hurricane Dennis (2005) at 7.49 ft NGVD29. Rainfall generally ranged from 3-8 with minimal impacts from inland flooding. Inland wind impacts were significant. There were 133 trees down on roadways across the county and 115 power lines down. One home or business was destroyed with 4 sustaining major damage. There were an additional 43 with minor damage and 11 others affected. Approximately 14,759 customers lost power in the county. Public assistance damage values were listed at $1,198,687. Additional individual assistance damage values were estimated at around $841,000 based on the numbers of homes and businesses damaged or destroyed.

2017	Hurricane Irma	Hurricane Irma brought numerous impacts to the Florida Big Bend, southwest Georgia and southeast Alabama including widespread downed trees and power lines, roads blocked by trees, power outages, and trees on homes. U.S. Highway 98 was blocked from SR267 to SR363 because of downed trees. A total of 98 trees were felled with 50 of those entangled in lines. All 98 downed trees were blocking roadways or presented a danger to traffic on roadways. Three trees fell on structures and two on vehicles. There were 8700 power outages and 317 evacuated to shelters. There were 10 homes damaged in total with 6 having major damage and 1 destroyed.
2018	Hurricane Michael	Hurricane Michael made its way through the Florida Panhandle in October 2018, making direct landfall in Mexico Beach, FL as a category 5 hurricane. Most severe damages occurred west of Wakulla County However, Wakulla County still received major impacts from the storm. These impacts most notably include high winds and storm surge which caused severe inundation of coastal roadways. In addition to flooding, 100% of the county experienced power outages due to downed trees and power lines. Down trees also caused roadways to be blocked for significant periods of time.

2.5.1 Saffir-Simpson Hurricane Wind Scale

The Saffir-Simpson (SS) Hurricane Scale is used to predict as well as classify hurricanes using central pressure and wind speed. This scale is shown below.

Table 2.8: Saffir-Simpson Hurricane Scale



2.5.2 Historical Events

According to the National Oceanic and Atmospheric Administration (NOAA), there have been a total of 68 tropical storms or hurricanes passing within 65 miles of Crawfordville, Florida between 1851 - 2019. Of these 67 events, 46 were considered tropical storms, 10 were Category 1

hurricanes, 8 were Category 2 hurricanes, 1 was a Category 3 hurricane, and 2 were considered a Category 5 Hurricane. None of the cyclones were classified as Category 4 Hurricanes. Table 2.9 is a historical list tropical storms and hurricanes with their dates, names, wind speeds, barometric pressures, and categories. Between 2015 and 2019, Wakulla County was been impacted by four storms including, Tropical Storm Colin, Hurricanes Hermine, Irma and Michael. All four of these storms passed within 65 miles of Crawfordville, FL.

Table 2.9: Tropical Systems Passing within 65 Miles of Crawfordville, Florida

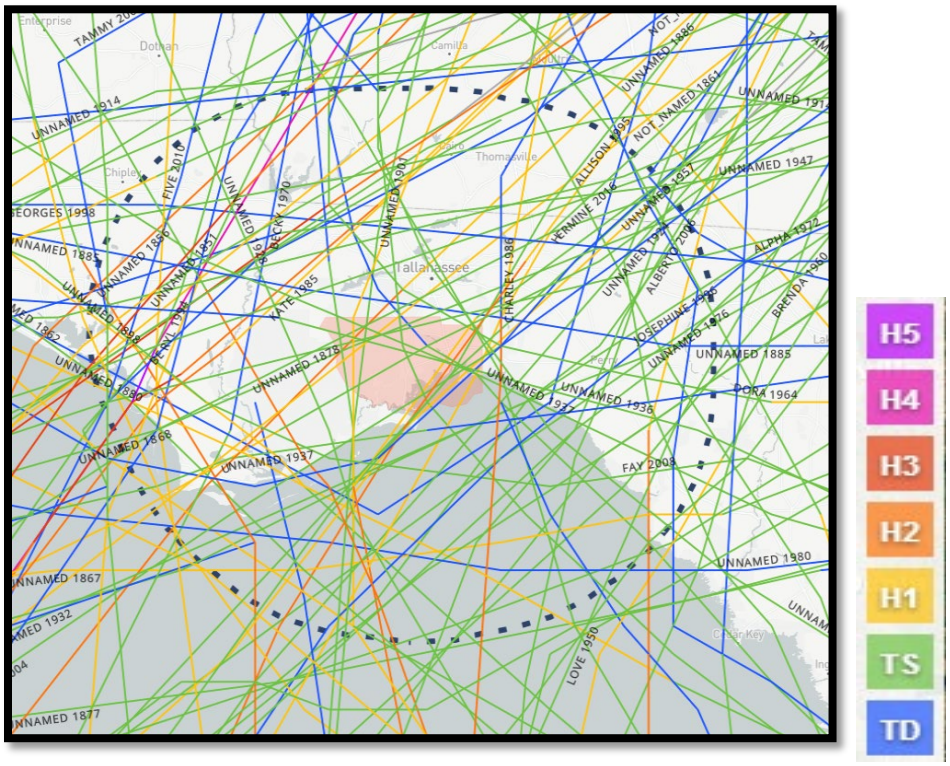
Year	Month	Day	Storm Name	Wind Speed (mph)	Pressure (mb)	Category
1851	8	24	Not Named	104	Unknown	2
1852	10	9	Not Named	104	Unknown	2
1867	10	6	Not Named	92	Unknown	1
1868	10	4	Not Named	69	Unknown	TS
1871	8	26	Not Named	46	Unknown	TS
1871	10	5	Not Named	69	Unknown	TS
1873	9	19	Not Named	81	Unknown	1
1875	9	27	Not Named	58	Unknown	TS
1877	9	20	Not Named	69	Unknown	TS
1877	10	3	Not Named	104	Unknown	2
1878	10	10	Not Named	58	Unknown	TS
1880	9	8	Not Named	58	Unknown	TS
1880	8	30	Not Named	81	Unknown	1
1885	8	31	Not Named	58	Unknown	TS
1885	9	21	Not Named	58	Unknown	TS
1886	6	21	Not Named	98	Unknown	2
1886	6	30	Not Named	98	Unknown	2
1893	6	15	Not Named	69	Unknown	TS
1894	10	9	Not Named	121	Unknown	3
1898	8	2	Not Named	63	Unknown	TS
1898	8	3	Not Named	81	Unknown	1
1899	8	1	Not Named	98	Unknown	2
1899	8	2	Not Named	69	Unknown	TS
1901	6	13	Not Named	40	Unknown	TS
1901	9	28	Not Named	46	Unknown	TS
1902	6	14	Not Named	58	Unknown	TS
1907	6	29	Not Named	58	Unknown	TS
1907	9	28	Not Named	52	Unknown	TS
1909	6	30	Not Named	40	Unknown	TS
1924	9	15	Not Named	63	Unknown	TS
1924	9	29	Not Named	63	Unknown	TS
1924	9	15	Not Named	86	Unknown	1
1928	8	9	Not Named	40	Unknown	TS
1928	8	14	Not Named	58	Unknown	TS

Year	Month	Day	Storm Name	Wind Speed (mph)	Pressure (mb)	Category
1929	9	30	Not Named	69	Unknown	TS
1932	9	15	Not Named	52	Unknown	TS
1933	8	20	Not Named	46	Unknown	TS
1933	9	5	Not Named	52	Unknown	TS
1936	8	22	Not Named	40	Unknown	TS
1937	8	31	Not Named	40	Unknown	TS
1937	9	20	Not Named	46	Unknown	TS
1938	10	24	Not Named	46	Unknown	TS
1939	8	12	Not Named	69	Unknown	TS
1939	8	12	Not Named	75	Unknown	1
1941	10	7	Not Named	69	Unknown	TS
1941	10	7	Not Named	86	Unknown	1
1953	9	20	Not Named	63	Unknown	TS
1957	6	8	Not Named	40	Unknown	TS
1964	9	11	Dora	63	Unknown	1
1966	6	10	Alma	69	970	2
1970	7	22	Becky	46	Unknown	TS
1972	6	20	Agnes	52	Unknown	TS
1985	11	21	Kate	98	967	2
1995	6	5	Allison	69	990	TS
1996	10	7	Josephine	69	983	TS
1998	9	3	Earl	81	987	1
2004	8	12	Bonnie	52	1002	TS
2004	9	6	Frances	63	982	TS
2004	9	27	Jeanne	46	981	TS
2006	6	13	Alberto	63	995	TS
2008	8	23	Fay	52	996	TS
2013	6	5	Andrea	63	992	TS
2016	6	5	Colin	57	987	TS
2016	8	28	Hermine	80	981	1
2017	8	30	Irma	155	914	5
2018	10	6	Michael	161	919	5

Source: National Oceanic and Atmospheric Administration - https://coast.noaa.gov/hurricanes/#map=4/32/-80

Figure 2.3 indicates the tracks of the tropical systems passing within 65 miles of Wakulla County, Florida.

Figure 2.3: Tracks of Tropical Systems Passing within 65 Miles of Wakulla County, FL [1851-2020]



Source: National Oceanic and Atmospheric Administration https://coast.noaa.gov/hurricanes/#map=4/32/-80

Of these events, a number have resulted in Presidential Disaster Declarations for Wakulla County, as shown in Table 2.10 below. This list includes hurricanes, tropical storms, or severe weather that has caused significant wind and water damages, resulting in millions of dollars of damages to Wakulla County. These declarations have resulted in federal and state reimbursements for damages or for providing shelters for victims of disasters in other areas of the country.

Table 2.10: Presidential Disaster Declarations, Wakulla County

Declaration	Year	Event	Date(s)	Primary Damage
FEMA-4399	2018	Hurricane Michael	October 11, 2018	Flood/Wind
FEMA-4337	2017	Hurricane Irma	September 10, 2017	Wind
FEMA-4280	2016	Hurricane Hermine	September 28, 2016	Flood/Wind
FEMA-4068	2012	Tropical Storm Debbie	July 26, 2012	Flood/wind
FEMA-1831	2009	Severe Storms	April 21, 2009	Wind
FEMA-1785	2008	Tropical Storm Fay	August 24, 2008	Flood
FEMA-3220	2005	Hurricane Katrina	September 5, 2005	Host Shelter Costs
FEMA-1595	2005	Hurricane Dennis	July 10, 2005	Flood, Debris
FEMA-1561	2004	Hurricane Jeanne	September 26, 2004	Wind Debris

Declaration	Year	Event	Date(s)	Primary Damage
FEMA-4399	2018	Hurricane Michael	October 11, 2018	Flood/Wind
FEMA-4337	2017	Hurricane Irma	September 10, 2017	Wind
FEMA-4280	2016	Hurricane Hermine	September 28, 2016	Flood/Wind
FEMA-1551	2004	Hurricane Ivan	September 16, 2004	Flood, Debris
FEMA-1545	2004	Hurricane Frances	September 4, 2004	Flood, Debris
FEMA-1539	2004	Hurricane Charley	August 13, 2004	Host Shelter Costs
FEMA-1381	2001	Tropical Storm Allison	July 17, 2001	Flood, Debris
FEMA-1249	1998	Hurricane Georges	September 28, 1008	Flood, Debris
FEMA-1204	1998	Ground Hog Day Storm	February 2, 1998	Flood, Debris
FEMA-1195	1997-98	El Nino Flood Events	12.25.97 to April 24, 1998	Flood
FEMA-1069	1995	Hurricane Opal	October 4, 1995	Flood, Debris
FEMA-1062	1995	Hurricane Erin	August 8, 1995	Wind/Flood Damage
FEMA-1035	1994	Tropical Storm Alberto	July 11, 1994	Flood, Debris
FEMA-982	1993	Winter Storm	March 14, 1993	Flood, Debris
FEMA-756	1985	Hurricane Kate	November 22, 1985	Flood, Debris

Source: Federal Emergency Management Agency, https://www.fema.gov/disasters

2.5.3 Probabilities of Hurricanes and Tropical Storms Striking Wakulla County

Each year, Colorado State University (CSU) makes predictions on the number of tropical storms, hurricanes, and intense hurricanes that will arise in the Atlantic Basin. Using these predictions, the Tropical Meteorology Research Project at CSU along with the GeoGraphics Laboratory at Bridgewater State College produce probability statistics for individual counties. The data shown in Table 2.11 represents the 2020 tropical storm landfall probabilities for different types of tropical cyclones in Wakulla County as well as the state probabilities (climatology in parentheses) based on actual occurrences. Table 2:12 shows the 50-year probabilities.

Table 2.11: 2020 1 Year Hurricane Probabilities

County Name	1 or More Named Storms Making Landfall in the County	1 or More Hurricanes Making Landfall in the County	1 or More Intense Hurricanes Making Landfall in the County	Tropical Storm-Force (>= 40 mph) Wind Gusts in the County	Hurricane-Force (>= 75 mph) Wind Gusts in the County	Intense Hurricane-Force (>= 115 mph) Wind Gusts in the County
Wakulla	**3.8% (2.4%)**	**1.7% (1.1%)**	**.2% (.1%)**	**32.3% (21.9%)**	**9.8% (6.3%)**	**2.5% (1.6%)**

Source: http://hurricanepredictor.com/County.aspx

Table 2.12: 50 Year Probability – Wakulla County

County Name	1 or More Named Storms Making Landfall	1 or More Hurricanes Making Landfall	1 or More Intense Hurricanes Making Landfall	Tropical Storm-Force (>= 40 mph) Wind Gusts	Hurricane-Force (>= 75 mph) Wind Gusts	Intense Hurricane-Force (>= 115 mph) Wind Gusts
Wakulla	**71.1%**	**41.2%**	**5.4%**	**>99.9%**	**96.5%**	**55.4%**

Source: http://hurricanepredictor.com/County.aspx

2.5.4 Vulnerability

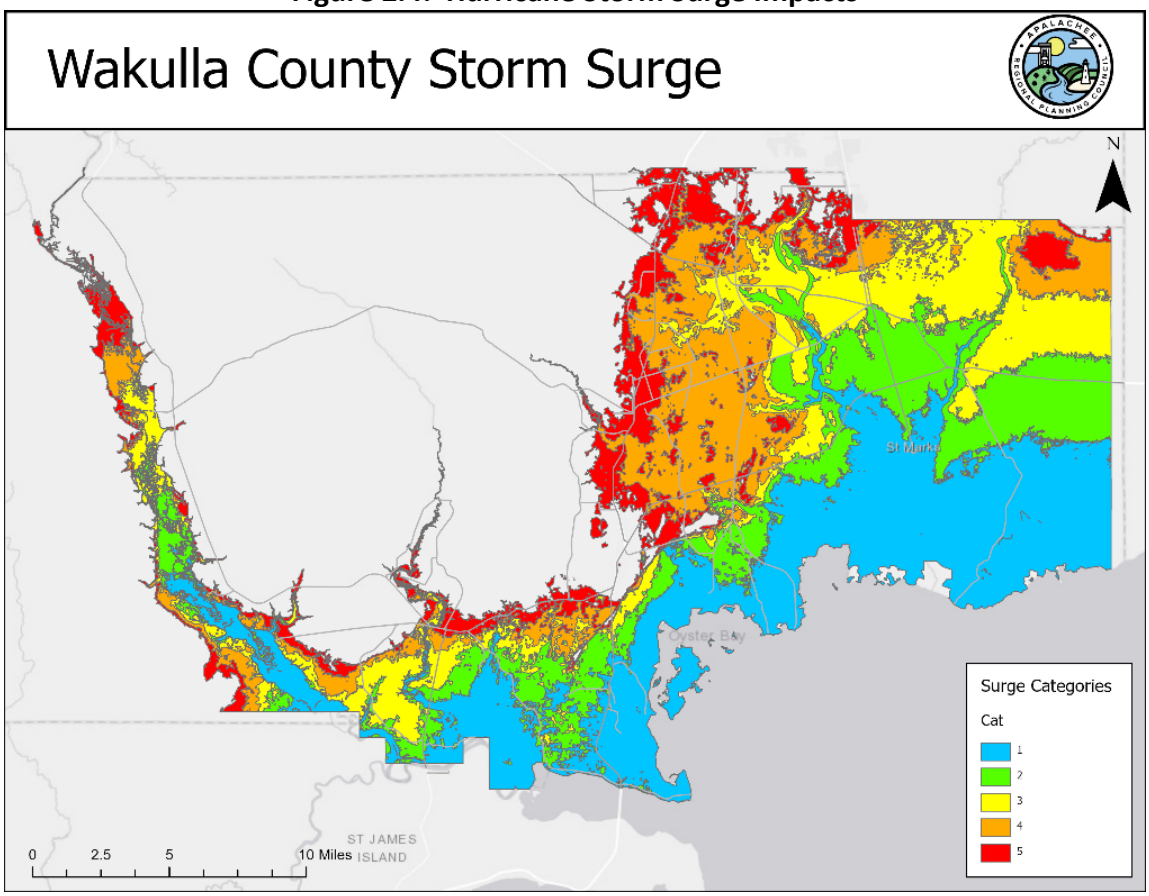
Wakulla County is extremely vulnerable to hurricanes for the following reasons and is the cause for its highest concern over all other hazards, as notated in Table 2.5. Hurricanes produce three major hazards in Wakulla County including storm surge, wind, and flooding. This is why this hazard is profiled in this LMS and is the cause of greatest concern for its residents.

- 100% of Wakulla County residents are vulnerable to hurricane wind impacts often resulting in structural damages.
- Approximately 85% of all residents are vulnerable to a Category 3 or higher hurricane storm surge and would have to evacuate their homes.
- 80% of the County is in the 100-year flood plain and highly vulnerable to flooding. Flooding will result in displacing large numbers of the County residents for a period; can result in potable water issues, mold infestations, damages to structures.
- A storm surge from any category of hurricane requires the evacuation of the entire county. The expected storm surge will inundate much of the transportation system, making ingress and egress for first responders virtually impossible once the surge occurs.
- The entire County is heavily forested, meaning hurricane winds will cause extensive amounts debris, damaging homes, businesses, and blocking transportation routes. Private property debris removal costs can be extensive.
- Tables 2.14-2.18 provide estimates of damages the County can expect per hurricane category.

All the critical facilities designated by the LMS Committee are vulnerable to all categories of hurricane force winds. Some facilities, due to their proximity to the coast, are more vulnerable to storm surge than those inland. *Appendix 3* lists the locations of the County's critical facilities.

Figure 2.4 displays the winds, storm surge water depths, and impacts for various categories of hurricanes. Depending on a hurricane's strength and projected landfall, the vulnerable areas, facilities, and populations will vary. Obviously, the stronger the storm, the more potential for damages. The City of St. Marks, being near the Wakulla coastline, is very vulnerable to high winds and storm surge, both of which have impacted the city on numerous occasions. Storm surge modeling indicates that the City of Sopchoppy would also be impacted by a storm surge from a Category 3 and higher hurricane. All of Wakulla County is susceptible to hurricane induced rainfall, which has caused flooding in previous storms.

Figure 2.4: Hurricane Storm Surge Impacts



The following tables provide information on the amount of potential damage each jurisdiction in Wakulla County is vulnerable to. The exposure values and loss potentials listed in the following tables are different from the value of structures provided by the Wakulla County Property Appraiser and listed in Table 2.6. "Exposure value" refers to the absolute potential loss in an identified hazard area, when accounting the existing and future assets of an area. The exposure value is calculated using Spatial Hazard Estimation and Loss Database (SHELDUS), which aggregates property damage data National Centers for Environmental Information Storm Data and Unusual Weather Phenomena and the USDA Cause of Loss Historical Data. This allows for potential damage for each category of storm that includes more information than the value of the structure to be represented. This includes the value of businesses, insurance value, damage to utilities and the value of loss from agriculture. The "loss potential" refers to structures including those listed in Table 2.6 as well as farm sheds, government-maintained roads, and structures in parks, affected by the hazard. The two factors were used in conjunction with the property appraiser data to calculate the final values for each category of hurricane.

Table 2.13: Structures at Risk from Category 1 Hurricane

Type	Wakulla County			St. Marks			Sopchoppy			Countywide	
	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Exposure Value	Loss Potential
Single F. Res.	1,184	7,842	15.00%	79	127	62.20%	1	120	0.80%	$500,487,621	$25,997,357.50
Mobil Home	296	3,888	7.60%	33	46	71.10%	0	48	0.00%	$97,115,403	$23,702,033.99
Multi F. Res.	45	300	15.00%	0	12	0.00%	0	0	0.00%	$5,476,208	$464,879.09
Commercial	122	582	20.90%	51	69	73.10%	0	34	0.00%	$43,611,596	$2,617,995.43
Agriculture	20	958	2.00%	1	1	100.00 %	0	30	0.00%	$32,217,832	$17,534,657.30
Gov./Inst.	45	294	15.30%	12	15	80.00%	4	39	10.30%	$148,250,105	$6,522,999.27
Total	**1,712**	**13,864**	**12.30%**	**176**	**270**	**65.00%**	**5**	**281**	**1.80%**	**$827,158,765**	**$76,839,923**

Source: ARPC GIS Department, using SLOSH, SHELDUS and Wakulla County Property Appraiser's data

Table 2.14: Structures at Risk from Category 2 Hurricane

Type	Wakulla County			St. Marks			Sopchoppy			Countywide	
	Structures in Zone	Total Structures	Pct.	Exposure Value	Exposure Value	Pct.	Structures in Zone	Total Structures	Pct.	Exposure Value	Loss Potential
Single F. Res.	1,759	7,842	22.40%	123	123	100.00%	1	120	0.80%	$800,780,194	$87,980,205.25
Mobile Home	642	3,888	16.50%	45	45	100.00%	0	48	0.00%	$155,384,645	$64,079,601.15
Multi F. Res.	68	300	22.70%	12	12	100.00%	0	0	0.00%	$8,761,934	$1,489,529.35
Commercial	197	582	33.70%	67	67	100.00%	0	34	0.00%	$69,778,554	$8,898,766.11
Agriculture	115	958	12.10%	1	1	100.00%	0	30	0.00%	$97,322,796	$61,337,548.02
Gov./Inst.	73	294	24.80%	15	15	100.00%	4	39	10.30%	$237,200,169	$23,148,996.85
Total	**2,854**	**13,864**	**20.60%**	**263**	**263**	**100.00%**	**5**	**281**	**1.80%**	**$1,369,228,292**	**$246,934,647**

Source: ARPC GIS Department, using SLOSH, SHELDUS and Wakulla County Property Appraiser's data

Table 2.15: Structures at Risk from Category 3 Hurricane

Type	Wakulla County			St. Marks			Sopchoppy			Countywide	
	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Exposure Value	Loss Potential
Single F. Res.	2,251	7,842	28.70%	123	123	100.00%	5	130	3.80%	$1,201,170,291	$221,950,063
Mobile Home	948	3,888	24.40%	45	45	100.00%	4	48	8.30%	$233,076,967	$141,751,845
Multi F. Res.	68	300	22.70%	12	12	100.00%	0	0	0.00%	$13,142,901	$3,526,678
Commercial	223	582	38.30%	67	67	100.00%	0	34	0.00%	$134,667,831	$20,759,119
Agriculture	222	958	23.10%	1	1	100.00%	2	30	6.70%	$833,097,062	$145,173,403
Gov./Inst.	87	294	29.50%	15	15	100.00%	4	39	10.30%	$355,800,253	$58,706,991
Total	**3,799**	**13,647**	**27.80%**	**263**	**263**	**100.00%**	**15**	**281**	**5.30%**	**$2,770,955,305**	**$591,868,099**

Source: ARPC GIS Department, using SLOSH, SHELDUS and Wakulla County Property Appraiser's data

Table 2.16: Structures at Risk from Category 4 Hurricane

Type	Wakulla County			St. Marks			Sopchoppy			Countywide	
	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Exposure Value	Loss Potential
Single F. Res.	4,859	7,842	61.90%	123	123	100.00%	42	130	32.30%	$1,631,560,388	$525,881,682
Mob. Home	2,274	3,888	58.40%	45	45	100.00%	18	48	37.50%	$341,769,290	$293,212,721
Multi F. Res.	97	300	32.40%	12	12	100.00%	0	0	0.00%	$18,523,968	$7,951,455
Comm.	296	582	51.00%	67	67	100.00%	7	34	20.60%	$194,657,108	$52,682,808
Agri.	426	958	71.00%	1	1	100.00%	5	30	16.70%	$1,103,027,062	$376,699,952
Gov./Inst.	154	294	51.60%	15	15	100.00%	18	39	46.20%	$584,400,338	$143,505,979
Total	**8,106**	**13,864**	**59.40%**	**263**	**263**	**100.00%**	**90**	**281**	**32.00%**	**$3,873,938,154**	**$1,399,934,597**

Source: ARPC GIS Department, using SLOSH, SHELDUS and Wakulla County Property Appraiser's data

Table 2.17: Structures at Risk from Category 5 Hurricane

Type	Wakulla County			St. Marks			Sopchoppy			Countywide	
	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Exposure Value	Loss Potential
Sgl. F. Res.	6,327	7,842	80.60%	123	123	100.00%	129	130	99.20%	$2,001,950,486	$975,790,760
Mob. Home	3,061	3,888	78.70%	45	45	100.00%	48	48	100.00%	$388,461,613	$382,924,162
M F. Res.	280	300	93.40%	12	12	100.00%	0	0	0.00%	$21,904,835	$14,501,001
Comm.	504	582	86.60%	67	67	100.00%	33	34	97.10%	$259,546,386	$95,247,726
Agri.	590	958	61.50%	1	1	100.00%	30	30	100.00%	$1,124,389,122	$675,807,623
Gov./Inst.	233	294	79.20%	15	15	100.00%	39	39	100.00%	$634,704,887	$266,256,962
Total	**10,997**	**13,864**	**80.50%**	**263**	**263**	**100.00%**	**279**	**281**	**99.30%**	**$4,430,957,329**	**$2,410,528,234**

Source: ARPC GIS Department, using SLOSH, SHELDUS and Wakulla County Property Appraiser's data

2.5.5 Extent of Hurricanes and Storm Surge

Storm surge is defined as the abnormal water level rise directly related to the increased winds and lower pressures associated with a storm. Other factors like the size of the storm, the direction and speed of motion, and shape of the coastline can affect the eventual size of the storm surge. The combination of storm surge and the normal astronomical tide is known as storm tide. Should a hurricane make landfall at high tide, the resultant storm tide could be as much as five feet higher than the storm surge, especially in our part of the Gulf of Mexico.

Another important term is inundation, or water height above ground level. Inundation is how the National Weather Service explains the potential impact from storm surge. Inundation involves examining the overall storm tide compared to the elevation of the surrounding land area. The models used by the National Weather Service take into account the elevation of each grid point used in the model to produce an inundation forecast.

When evaluating storm surge using SLOSH data, the range of maximum surge heights (high and low) represent height above sea level in the NAVD88 datum as referenced to the immediate coast of the Apalachee Regional Planning Council area.

Table 2.18 Potential Storm Surge Heights* and Evacuation Zones (In Feet above NAVD88)

*Max Surge Heights	Franklin	Gulf	Wakulla	Jefferson	Leon
6 – 8’	A	A	A	N/A	N/A
9 – 15’	B	B	B	A	N/A
16 – 20’	C	B	C	B	N/A
21 – 26’	Evacuated	C	Evacuated	B	N/A
26 – 30’	Evacuated	Evacuated	Evacuated	C	C
30’+	Evacuated	Evacuated	Evacuated	D	D

* Surge heights represent the maximum values from selected SLOSH MOMs

According to the National Oceanic and Atmospheric Administration (NOAA) between 1950 and 2019 Wakulla County has experienced a total of 15 Coastal Storm Surge events causing an estimated $110,551,000 of property damages. In addition to coastal storm surge, coastal erosion is another by-product of this hazard that affects the coastline of Wakulla County and has a high probability of occurrence with each storm that impacts the County.

2.5.6 Future Development and Hurricanes

The population of Wakulla County continues to grow in recent years, with a 7.1% overall increase in population between 2010 – 2019. Over 62% of the land in the county is classified as conservation with large tracts of land in wildlife and conservation management areas, including the Apalachicola National Forest, Edward Ball Wakulla Springs State Park, St. Marks Wildlife Refuge, and others. According to the Future Land Use Map (Figure 2.2), over 81% of the county will remain in conservation and/or agricultural use in the future. Consequently, this limits the amount of land available for growth in the county. With its lower cost of living, Wakulla County has attracted a number of people who wish to work in Tallahassee but want to live in a more rural and/or coastal setting. This continued growth will increase the vulnerability to hurricane damages and has been contemplated in the Wakulla County Comprehensive Plan.

2.6 Tornadoes

Every year, Wakulla County experiences severe thunderstorms that occasionally result in tornadoes. A tornado is a violent rotating column of wind characterized by a twisting funnel

extending from a cloud. Tornadoes are usually spawned by thunderstorms and are produced when cool air overrides a layer of warm, moist air, forcing it to rise rapidly. Damages are the result of high winds as well as the wind-blown debris. Tornado season in the U.S. generally occurs from March through August, but tornadoes can happen in any month of the year. Statistically, tornados occur more frequently between the hours of 3:00 p.m. and 7:00 p.m.

Impacts from tornadoes include damage to buildings and infrastructure due to high winds and flying debris. Deaths and injuries can result from collapsing buildings, flying debris, and downed power lines. The following are historical impacts caused by selected tornadoes in Wakulla County.

Table 2.19: Impacts of Tornadoes in Wakulla County

Year	Event	Impacts
1983	F1	A F1 tornado touched down in the town of Sopchoppy for one mile. Two homes were extensively damaged, roofs were blown off and structural damaged occurred, along with downed power lines and trees over roadways.
1989	F1	A F1 tornado lifted a mobile home 20 feet into the air and completely destroyed it in Otter Creek. Another F1 tornado impacted Sopchoppy, demolishing a home and barn, and damaging 3 other nearby homes. One person was injured, as were several farm animals.
2000	F1	An F1 tornado touched down just west of U.S. Highway 319 and a few miles north of State Road 267, near the Buck Miller Road area of Riversink. One mobile home was destroyed. The tornado then skipped over to Dillan road and destroyed several mobile homes which were demolished by fallen trees. Numerous trees and power lines were down. Estimated damages exceeded $175K.
2005	F1	A tornado touched down just northwest of Crawfordville . Of the 33 structures affected, 26 homes were damaged, two were destroyed, the Ivan Assembly of God Church was damaged, and four businesses along U.S.319 were damaged. There were several reports of downed trees and power lines. Damage estimates exceeded $1.25M
2012	EF1	The tornado first touched down along Forest Road 313. The most significant damage occurred along Stokely Road near the intersection of David Kinsey Road. Damage in and near this location was consistent with EF1. Two homes reported damage as a result of fallen trees. Damage to these homes was estimated from moderate to major. Numerous power lines were down and residents reported power outages lasting longer than seven hours. The event resulted in over $50K in damages.

Tornado intensity is measured by the Enhanced Fujita Scale for Tornadoes, provided below.

Table 2.20: Enhanced Fujita Scale for Tornadoes

All FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165

4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

2.6.1 Historical Events

All of Wakulla County is susceptible to tornadoes. Although Wakulla County has yet to record a major tornado, there have been several F-0 – F-2 events. However, due to the speed with which tornadoes develop and the unpredictability of their paths, tornado warnings must be disseminated quickly to inform residents to seek shelter. Mobile homes in the county are particularly susceptible to tornado-related damage. Table 2.22 lists the tornados recorded in Wakulla County from 1950 to April of 2019.

Table 2.21: Tornado Events, Wakulla County, 1950 – 2019

	Location or County	Date	Time	Magnitude	Deaths	Injuries	Property Damage ($)	Crop Damage ($)
1	**Wakulla**	4/25/1964	2:45 PM	F2	0	2	250,000	0
2	**Wakulla**	3/21/1974	9:25 AM	F1	0	0	250,000	0
3	**Wakulla**	1/8/1975	12:44 PM	F0	0	0	0	0
4	**Wakulla**	5/11/1976	2:00 PM	F0	0	0	0	0
5	**Wakulla**	4/23/1983	2:50 AM	F1	0	0	25,000	0
6	**Wakulla**	12/28/1983	8:00 AM	F1	0	0	25,000	0
7	**Wakulla**	6/8/1989	5:30 PM	F1	0	1	25,000	0
8	**Wakulla**	6/10/1989	9:21 PM	F0	0	0	0	0
9	**Wakulla**	6/10/1989	9:21 PM	F0	0	0	0	0
10	**Panacea**	10/29/1993	Unknown	F0	0	0	0	0
11	**Sopchoppy**	9/22/2000	7:45 AM	F0	0	0	5,000	0
12	**Hilliardville**	9/22/2000	8:55 AM	F1	0	0	175,000	0
13	**Crawfordville**	12/5/2005	1:10 PM	F1	0	0	1,300,000	0
14	**Crawfordville**	4/22/2006	4:21 PM	F0	0	0	10,000	0
15	**Crawfordville**	7/29/2012	4:40 PM	F1	0	0	50,000	0
16	**Smithcreek**	3/3/2019	8:06 PM	F1	0	0	5,000	0
17	**Newport**	3/3/2019	8:42 PM	F0	0	0	0	0
18	**Smithcreek**	4/19/2019	7:35 AM	F0	0	0	0	0
	Totals:				**0**	**3**	**$2,123,000**	**0**

Source: National Climatic Data Center, http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

2.6.2 Probability

According to the historical record maintained by the National Climatic Data Center, Wakulla County has a very low probability of ever receiving an F3 – F5 tornado event. None have ever occurred in the county. The county does have a relatively moderate risk of receiving an F0 - F1 event (one every 3.2 years). This is the same for the City of St. Marks and Sopchoppy.

2.6.3 Vulnerability

Tornadoes have occurred in Wakulla County and the county is vulnerable to their impacts and must be planned for. Tornadoes are dangerous in that they produce very high, concentrated

winds that will destroy most things in its pathway. Although historically Wakulla County has not had a tornado any larger than a F2, they have resulted in 3 deaths, and over $2,000,000 in property damages. Therefore, the LMS Committee considers tornadoes a threat, that must be taken seriously (see Table 2.5). Potential vulnerability to buildings is identified in Table 2.22. 100% of all residents are vulnerable to tornadoes. Additionally, appendix 3 lists the counties critical facilities that could be of risk during these types of events.

For Wakulla County, the following factors add to the overall vulnerability of the county to tornadoes:

- According to 2014-2018 American Community Survey data, there are 3,673 occupied mobiles homes in Wakulla County, which equates to roughly 9,200 residents. Mobile homes are historically more vulnerable to tornadic winds than brick and mortar homes. According to the NOAA, Florida ranks first in the number of tornadoes per square mile in the nation. Although the majority of these events are EF0's, they can still cause wind related damages to all structures and personal injuries.
- Over 80% of Wakulla County is heavily wooded. Over 95% of the resident population lives in the wildfire urban interface, meaning they live in highly wooded areas. Tornadoes cause wind related damages to trees, ergo over 95% of all residents in Wakulla County are vulnerable to wind driven debris damage caused by tornadoes.
- Wakulla County is predominately located in 100-year flood zone (see Figure 2.9) meaning virtually no one has basements or sellers for protection when a tornado warning is given. This makes the population extremely vulnerable based on lack of a safe shelter spaces to evacuate to.
- Based on the requirements of the NFIP, all coastal construction in the V Zone must be elevated above the 100-year flood event to prevent storm surge impacts. Yet, elevating coastal homes makes them much more vulnerable to tornado winds. This adds an extra level of vulnerability to newer constructed coastal homes in Wakulla County. Added to this, Wakulla County over 60% of its ad valorem tax base from coastal properties, making the county sensitive to any impacts on its coastal properties.

Table 2.22 below provides an estimation of the impact an F-2 tornado could have in Wakulla County. It is a countywide summary of potential vulnerability, and not an estimate of a single event. This natural hazard has been designated as a medium impact hazard by the LMS Working Group.

Table 2.22: Value of Structures by Use for Tornado Risk, Wakulla County											
Building Type	Wakulla County			St. Marks			Sopchoppy			Countywide	
	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Structures in Zone	Total Structures	Pct.	Exposure Value*	Loss Potential*
Sgl. F. Res.	1,184	7,842	15.00%	79	127	62.20%	1	120	0.80%	$500,487,621	$25,997,357.50
Mob. Home	296	3,888	7.60%	33	46	71.10%	0	48	0.00%	$97,115,403	$23,702,033.99
M F. Res.	45	300	15.00%	0	12	0.00%	0	0	0.00%	$5,476,208	$464,879.09
Comm.	122	582	20.90%	51	69	73.10%	0	34	0.00%	$43,611,596	$2,617,995.43
Agri.	20	958	2.00%	1	1	100.00%	0	30	0.00%	$32,217,832	$17,534,657.30
Gov./Inst.	45	294	15.30%	12	15	80.00%	4	39	10.30%	$148,250,105	$6,522,999.27
Total	**1,712**	**13,864**	**12.30%**	**176**	**270**	**65.00%**	**5**	**281**	**1.80%**	**$827,158,765**	**$76,839,923**

Source: ARPC GIS Department, using SLOSH, SHELDUS and Wakulla County Property Appraiser data
** Estimates are based on the impacts of a Category 1 hurricane, given an F0 – F1 tornado are similar in intensity*

2.6.4 Extent of Tornado Impacts

Wakulla County has experienced 18 tornado events since 1950, 95% of which were either F0 or F1 events. There was one F2 tornado in 1964. Wakulla County could theoretically receive a F2 or F3 event, but it would be highly unlikely. All of Wakulla County is susceptible to tornadoes. It is expected any tornado impacting Wakulla County would be either an F0 or F1 in intensity, and no more than 1,000 feet in duration. Although the entire county is susceptible to tornadoes, the most likely impact areas would be unincorporated Wakulla County or the Apalachicola National Forest. The most significant damages would occur should a tornado tract through St. Marks. Sopchoppy or Crawfordville.

2.6.5 Future Development and Tornadoes

Given that tornadoes can hit anywhere in the county, all areas are equally vulnerable. As the county and its municipalities grow, more people and their supporting infrastructure will be vulnerable to tornado damages and injury. The biggest risk is to the more densely populated areas of Wakulla County. As the county continues to grow, tornado impacts will increase but given the nature of this hazard, growth patterns will not be adjusted.

2.7 Thunderstorms

Thunderstorms are formed as warm moist air rises over colder drier air, causing the water vapor to condense. Thunderstorms are capable of producing heavy rains, lightning, hail, strong winds, and tornadoes. All of Wakulla County and its municipalities are vulnerable to thunderstorm winds and hail events. Tables 2.24 and 2.25 identify the hail and thunderstorm wind events reported to NOAA between 1950 and December 31, 2019 Table 2.25 indicates that 23 hail events have been reported. These events occurred throughout Wakulla County and in the Cities of St. Marks and Sopchoppy. As shown in Table 2.24, 37 thunderstorm wind events have been reported. These events also occurred throughout Wakulla County and in both St. Marks and Sopchoppy. Both Wakulla County and the Cities of St. Marks and Sopchoppy can expect to experience one to two severe thunderstorms a year in the future.

Impacts from hail and thunderstorm wind events include damage to buildings, infrastructure, and agricultural crops from lightning, hailstones, and high winds. Deaths and injuries can result from lightning strikes and hailstones, as well as from flying debris. The following is a sample of the types of impacts thunderstorms have had in Wakulla County:

Table 2.23: Thunderstorm Impacts in Wakulla County

Date	Thunderstorm Impacts
4.20.15	A line of strong thunderstorms caused substantial wind damage to several facilities in Wakulla County. The event brought down trees, impacting power lines.
10.14.14	An unseasonably strong upper level trough and cold air brought a round of strong to severe thunderstorms to Wakulla County. This resulted in downed trees across the county.
7.3.14	Large scale flow around Hurricane Author caused an unstable environment over Wakulla County, causing severe thunderstorms. Trees were blown down on Shadeville Road. $12K in damages.
1.11.14	A strong cold front moved through the area on January 11th. Limited instability precluded a more widespread outbreak of severe storms, but low-level winds and shear were very strong, and some storms did produce straight line wind damage with mainly trees and power lines being blown down. Gadsden and Wakulla counties were hit the hardest with numerous instances of trees and lines being blown down. Talquin Electric had over 7000 customers without power at its peak. Max wind speed was 55kts, resulting in $60K in damages to Wakulla County

2.7.1 Historical Events

The following Table displays the number of thunderstorms that have occurred in Wakulla County between 2015 – 2019. Between 1950 – 2019 there were 79 total thunderstorms that produced damages. Just between 2015 – 2019, 23 recorded thunderstorms caused approximately $249,000 in damages. For a complete list of all thunderstorms, please refer to: https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA#

Table 2.24: Thunderstorm Winds (2015-2019)

Location	Date*	Time	Type	Mag	Dth	Inj	PrD	CrD
CRAWFORDVILLE	02/25/2015	20:50	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
CRAWFORDVILLE	04/20/2015	09:28	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
HILLIARDVILLE	06/22/2015	15:25	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
BETHEL	06/22/2015	15:29	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
IVAN	06/30/2015	17:07	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CRAWFORDVILLE	06/30/2015	17:07	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BETHEL	06/30/2015	17:08	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

IVAN	06/30/2015	17:10	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
SHADEVILLE	06/30/2015	17:12	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
CRAWFORDVILLE	06/30/2015	17:12	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00 K
SHADEVILLE	06/30/2015	17:19	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00 K
SHADEVILLE	07/05/2015	12:15	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
PANACEA	07/12/2015	17:40	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
HYDE PARK	07/15/2015	14:20	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00 K
WAKULLA	07/19/2015	18:10	Thunderstorm Wind	50 kts. EG	1	0	75.00K	0.00 K
CRAWFORDVILLE	07/22/2015	16:00	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00 K
SHADEVILLE	07/22/2015	16:30	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00 K
BETHEL	08/07/2015	17:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
SHADEVILLE	08/07/2015	18:12	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
PANACEA	08/07/2015	18:30	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
CRAWFORDVILLE	01/15/2016	06:24	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
SOPCHOPPY	02/15/2016	22:52	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
ARRAN	02/15/2016	22:57	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
TULLY	02/15/2016	23:00	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
ARRAN	02/15/2016	23:00	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
CRAWFORDVILLE	02/15/2016	23:00	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00 K
TULLY	02/15/2016	23:02	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
CRAWFORDVILLE	02/15/2016	23:05	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
SHADEVILLE	02/15/2016	23:10	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00 K
HYDE PARK	02/15/2016	23:10	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
BETHEL	02/15/2016	23:10	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K

SHADEVILLE	02/15/2016	23:10	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
WAKULLA	02/15/2016	23:12	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
HYDE PARK	02/15/2016	23:12	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
WAKULLA SPRINGS	02/15/2016	23:12	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
WAKULLA	02/15/2016	23:12	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
HYDE PARK	02/15/2016	23:12	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
CRAWFORDVILLE	02/15/2016	23:15	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
ST MARKS	02/15/2016	23:15	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
NEWPORT	02/15/2016	23:15	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
SPRING CREEK	02/24/2016	03:31	Thunderstorm Wind	63 kts. MG	0	0	0.00K	0.00 K
SHADEVILLE	02/24/2016	03:34	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
PANACEA WAKULLA ARPT	03/03/2016	23:35	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00 K
CRAWFORDVILLE	05/03/2016	15:00	Thunderstorm Wind	50 kts. EG	0	0	35.00K	0.00 K
BUCKHORN	05/20/2016	07:20	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
HILLIARDVILLE	05/20/2016	07:25	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
VEREEN	05/20/2016	07:40	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
WAKULLA	06/12/2016	16:31	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
HILLIARDVILLE	06/12/2016	17:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
MEDART	06/12/2016	17:57	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
HILLIARDVILLE	07/15/2016	14:45	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
CURTIS MILL	01/22/2017	15:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
CRAWFORDVILLE	01/22/2017	15:04	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
TULLY	01/22/2017	15:10	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
MEDART	01/22/2017	15:15	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00 K

BETHEL	02/07/2017	19:00	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00 K
VEREEN	02/07/2017	19:00	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
SHADEVILLE	02/07/2017	19:04	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00 K
HYDE PARK	05/12/2017	19:24	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00 K
CRAWFORDVILLE	07/07/2017	14:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
HILLIARDVILLE	07/07/2017	14:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
VEREEN	10/16/2017	15:22	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00 K
HILLIARDVILLE	03/19/2018	03:43	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
VEREEN	04/15/2018	07:25	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
PLUM ORCHARD	04/15/2018	07:33	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
BETHEL	05/17/2018	13:57	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
SHADEVILLE	05/17/2018	14:03	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
SURF	06/28/2018	17:19	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
HILLIARDVILLE	07/14/2018	14:20	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
SOPCHOPPY	07/14/2018	14:48	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
CRAWFORDVILLE	07/21/2018	12:30	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
SHADEVILLE	09/03/2018	14:50	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
VEREEN	09/03/2018	14:50	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00 K
CRAWFORDVILLE	09/03/2018	14:52	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00 K
WAKULLA SPRINGS	11/01/2018	15:40	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
WAKULLA SPRINGS	03/03/2019	20:30	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00 K
IVAN	03/03/2019	20:40	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00 K
WAKULLA	03/03/2019	20:40	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
SOPCHOPPY	04/19/2019	07:55	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00 K

NEWPORT	04/25/2019	22:59	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
PLUM ORCHARD	04/25/2019	23:14	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
CRAWFORDVILLE	06/25/2019	16:00	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00 K
SHADEVILLE	08/10/2019	17:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
WAKULLA SPRINGS	08/24/2019	20:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00 K
				Totals:	1	0	249.00 K	0.00 K

*Source:*https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Thunderstorm+Wind&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2015&endDate_mm=12&endDate_dd=31&endDate_yyyy=2019&county=WAKULLA%3A129&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

** The same event may be listed several times, but impacted different jurisdictions. The total number of independent thunderstorms to impact Wakulla County between 2015-2019 is 37.*

The following table displays the number of weather events that caused hail to occur. Most commonly associated with a severe thunderstorm, hail can average in size in Wakulla County from .5 inches to 2.0 inches in diameter. Historically, hail has not produced significant damages to county infrastructure or crops. Hail normally results in automobile damages reported to private auto insurance companies. A large hail event can damage many vehicles and cause significant amount of damages to private property.

Table 2.25: Hail Events - 1970 – 2020 Wakulla County

County		Date	Time	Type	Size	Dth	Inj	Damages	Crops
Wakulla Co.	FL	05/08/1971	14:50	Hail	1.50 in.	0	0	0.00K	0.00K
Wakulla Co.	FL	05/06/1974	13:35	Hail	1.75 in.	0	0	0.00K	0.00K
Wakulla Co.	FL	05/25/1980	12:35	Hail	1.75 in.	0	0	0.00K	0.00K
Wakulla Co.	FL	03/06/1983	22:30	Hail	1.75 in.	0	0	0.00K	0.00K
Wakulla Co.	FL	03/06/1983	23:10	Hail	1.75 in.	0	0	0.00K	0.00K
N Of Crawfordville	FL	06/10/1995	13:15	Hail	0.88 in.	0	0	0.00K	0.00K
Spring Creek	FL	08/15/1995	19:15	Hail	1.00 in.	0	0	1.00K	0.00K
Crawfordville	FL	08/15/1995	19:20	Hail	0.75 in.	0	0	1.00K	0.00K
Crawfordville	FL	06/01/1997	13:00	Hail	0.75 in.	0	0	0.00K	0.00K
Medart	FL	02/22/1998	10:15	Hail	0.75 in.	0	0	0.00K	0.00K
Wakulla	FL	07/21/2000	00:15	Hail	0.75 in.	0	0	0.00K	0.00K
Crawfordville	FL	06/01/2002	17:55	Hail	1.75 in.	0	0	0.00K	0.00K
Crawfordville	FL	07/20/2002	13:50	Hail	0.75 in.	0	0	0.00K	0.00K
Sopchoppy	FL	02/03/2006	17:45	Hail	1.00 in.	0	0	0.00K	0.00K

County		Date	Time	Type	Size	Dth	Inj	Damages	Crops
Crawfordville	FL	02/03/2006	18:02	Hail	0.88 in.	0	0	0.00K	0.00K
Wakulla	FL	02/03/2006	18:03	Hail	0.88 in.	0	0	0.00K	0.00K
Crawfordville	FL	04/22/2006	16:25	Hail	1.75 in.	0	0	0.00K	0.00K
Crawfordville	FL	05/24/2006	14:22	Hail	1.75 in.	0	0	0.00K	0.00K
Crawfordville	FL	07/01/2007	17:50	Hail	1.00 in.	0	0	0.00K	0.00K
Sopchoppy	FL	07/22/2007	16:23	Hail	0.88 in.	0	0	0.00K	0.00K
Panacea	FL	08/11/2007	17:15	Hail	0.75 in.	0	0	0.00K	0.00K
Hyde Park	FL	04/02/2009	17:53	Hail	0.75 in.	0	0	0.00K	0.00K
Port Leon	FL	05/29/2009	15:00	Hail	0.75 in.	0	0	0.00K	0.00K
St Marks	FL	05/29/2009	15:15	Hail	0.75 in.	0	0	0.00K	0.00K
Sopchoppy	FL	01/21/2010	08:25	Hail	1.00 in.	0	0	0.00K	0.00K
Crawfordville	FL	01/21/2010	08:37	Hail	1.75 in.	0	0	0.00K	0.00K
Wakulla Springs	FL	01/21/2010	10:40	Hail	1.00 in.	0	0	0.00K	0.00K
Ivan	FL	05/22/2012	16:50	Hail	1.00 in.	0	0	0.00K	0.00K
Panacea	FL	05/30/2012	14:05	Hail	0.75 in.	0	0	0.00K	0.00K
Crawfordville	FL	03/23/2013	08:47	Hail	1.00 in.	0	0	0.00K	0.00K
Wakulla Springs	FL	03/23/2013	09:00	Hail	1.00 in.	0	0	0.00K	0.00K
					Totals:	0	0	2.00K	0.00K

Source: https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA#

2.7.2 Probability

According to the 2018 State of Florida Hazard Mitigation Plan, Wakulla County will probably receive between 5.3 – 18 thunderstorms a year that cause some type of damages. Some of these thunderstorms will produce lightening, and/ or hail. Historically, there have been 108 thunderstorm events since 1960, which averages approximately two events per year of any significant consequence. Yet, the potential is there for many more to occur, causing limited amounts of damage.

2.7.3 Vulnerability

Wakulla County includes thunderstorms as a potential hazard because of their frequency, and potential to cause damage to property, and threaten lives. Although historically, thunderstorms have not caused any significant damages to structures, nor caused any deaths in Wakulla County, the threat still remains based on each storm's potential. Tables 2.27 and 2.28 identify the vulnerability of structures to thunderstorms. In addition, Wakulla County considers thunderstorms a serious threat based on the following facts:

- Thunderstorms frequently occur in Wakulla County. On average, the county will experience six severe thunderstorms a year that cause moderate damages. During the

summer months, the county can experience daily thunderstorms that include high winds and lightning.

- Wakulla County has a large boating population. St. Marks and Shell Point have marinas, and boat launches are located in several more locations that egress the Gulf of Mexico, and the internal freshwater rivers. This means Wakulla County can have many boaters on open water at any given time, making them extremely vulnerable to a thunderstorm, and the lightning they produce.
- 95% of all residents in Wakulla County live in close proximity to forested lands. Thunderstorm winds will often cause tree damage to improved property, structures, and people.
- 80% of the county is in the 100-year flood plain and highly vulnerable to flooding. Thunderstorms can cause excessive rainfall over short periods of time, causing localized flooding. Flooding can result in temporarily displacing county residents and result in damages to structures.

The following data roughly estimates the potential threat of damage from thunderstorms and hail. The threat is defined in terms of the chances that a thunderstorm or lightning will cause economic damage or a loss over $500. Wakulla County is at a medium to high risk for thunderstorm and/or hail damage.

100% of the population and all of the structures in Wakulla County, St. Marks and Sopchoppy are vulnerable to thunderstorms, lightning, and hail. The following Tables display this.

Table 2.26: Structures at Risk from Hail and Thunderstorm, Wakulla County ($M)

County	Annual Events	Residential	Commercial	Medical.	Industrial	Agr.	Gov./Inst.
Wakulla	3.5-9.5	10,739	268	86	60	764	62
Value of Structures ($M)		$1,682.75	$146.11	$78	$13	$154	$46

Source: Wakulla County Property Appraiser data

Table 2.27: Structures at Risk to Thunderstorm Damage, St. Marks and Sopchoppy

	St. Marks		Sopchoppy	
Use Type	**Number**	**Amount**	**Number**	**Amount**
Single Family Res.	185	$28,975M	180	$28,192M
Commercial	70	$38,134M	35	$19,067M
Agriculture	1	$202K	33	$6,651M
Gov./Institutional	16	$11,871M	39	$2,893M
Total:	263	$79,182M	287	$56,803M

Source: Wakulla County Property Appraiser data

2.7.4 Extent

Thunderstorms can produce damaging hail and high winds. The extent of high winds are similar to that of a F0 to F1 tornado or Category 1 hurricane. Wakulla County can expect thunderstorms of this magnitude throughout the county in the future. The most severe winds caused by a thunderstorm event in Wakulla County is recorded at speeds of 80 knots, however an event with wind speeds averaging 50 knots is more likely to occur. When hail occurs, it will on average be .75 inches in diameter. The entire county can expect to receive both thunderstorms and hail events in the future.

2.8 Wildfires

All of Wakulla County is susceptible to wildfires, due to the extent of forests in the county. Wildfires fall into three classifications. A surface fire is the most common type, burning along the forest floor, moving slowly, and killing or damaging trees. A ground fire usually starts by lightning and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the treetops. Dense smoke is usually a sign of wildfires and can be seen and smelt for miles. Wildfires represent potentially significant disasters in Florida, due to its year-round mild climate and potentially high levels of combustible material in forested areas. When these conditions are combined with people and/or lightning, the stage is set for large, destructive wildfires.

Impacts from wildfires include the destruction of buildings and infrastructure as well as smoke and water damage to buildings. Fire and smoke inhalation can cause deaths and injuries. Entire ecosystems can be altered in the short and medium term. Agricultural crops and livestock can be destroyed or damaged. Populations may need to be evacuated for periods of time when a fire is not fully contained. Smoke may also disrupt traffic and cause roads to be closed. In Wakulla County, wildfires have resulted in the loss of several homes, especially those located in the wildland urban interface areas. They have also caused utility pole destruction, disrupting electrical and telephone service until the poles could be replaced. The smoke from wildfires has resulted in several hospitalizations of elderly residents who are on respirators, or have diminished lung capacities from asthma, COPD, or other respiratory ailments. The smoke has also, at times, caused the closing of major roadways because of extremely poor visibility.

Florida's typical forest fire season is during the dry part of the year, between January and May, but the highest number of naturally caused fires occurs in July, coinciding with the height of the thunderstorm season. According to the U.S. Fire Administration, lightning only accounts for 1 in 7 wildfires in the U.S. Most causes were manmade and included arson, carelessness, debris/ trash burning, spark-emitting equipment, and other sources. Because much of Wakulla County is forested, a major portion of the county is vulnerable to wildfires, although the threat to the population is not considered significant.

2.8.1 Historical Events

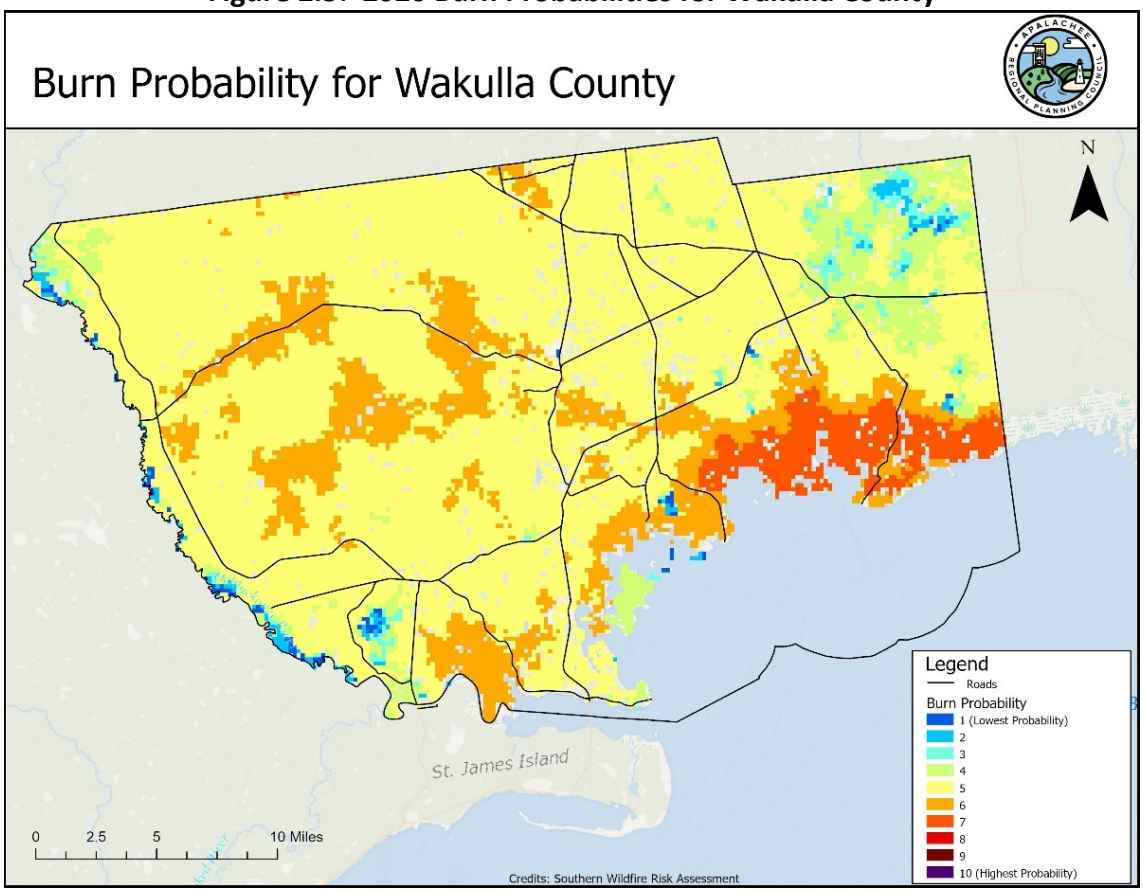
According to DOF, between January 1, 2016 and January 1, 2020, Wakulla County had 48 wildland fire events burning 283 acres, ranging in size from 0.1 to 145 acres, the vast majority of which were attributable to manmade causes. Wakulla County can expect to see an event of this magnitude again, given the large area of forestlands susceptible to wildland fires. *Appendix 5* lists these historical events. The average size of these events is less than 10 acres per event.

Given that the majority of Wakulla County is forested lands, the probability of a wildfire igniting is very high, as evidenced by the map below. This map describes Wakulla County's "Burn Probability" (BP), which displays the annual probability of an area burning given current landscape conditions, percentile weather, historical ignition patterns and historical fire prevention and suppression efforts.

2.8.2 Probability

In Wakulla County, wildfires can be expected to occur in the forested areas of the county. Figure 2.5 identifies the location of these areas and provides the probability of their occurrence based on available fuel sources. Wakulla County, through the Florida Forest Service, does adhere to a schedule of prescribed burning in an attempt to reduce fuel loads in these locations.

Figure 2.5: 2020 Burn Probabilities for Wakulla County

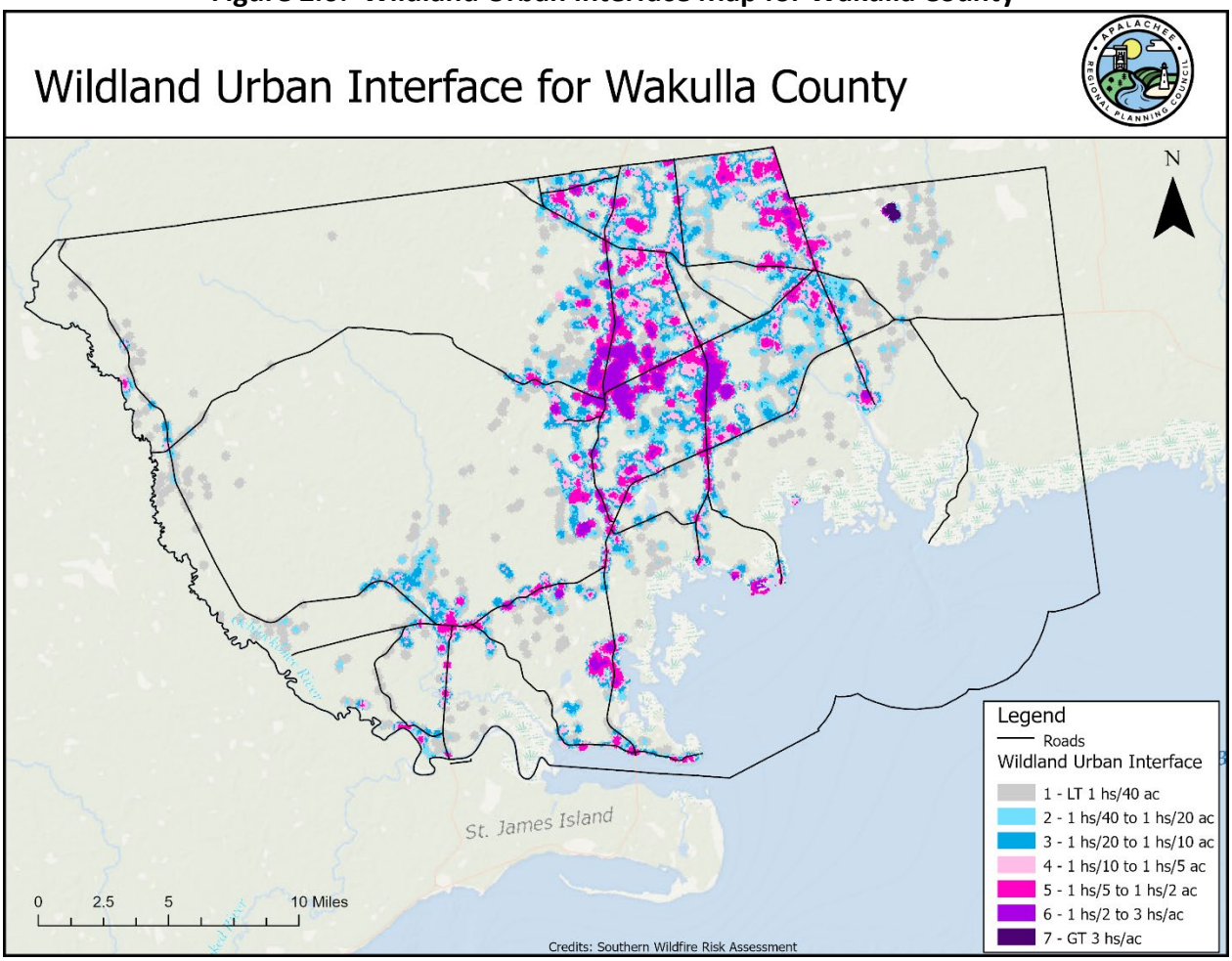


2.8.3 Vulnerability

Much of Wakulla County is very susceptible to fires and regardless of the cause of the fire; the resulting danger and damages are the same. Although injuries and loss of life are possible with wildfires, there is usually adequate warning time to evacuate the impacted populations. Thus, the primary vulnerability is to buildings, timber, and agriculture and the related economic impacts. Based on the historic record shown in Appendix 5, the number of acres burned per incident has been as high as 185 acres, although most of the events were less than 10 acres.

The following data, from the 2015 Southern Wildfire Risk Assessment Report demonstrates how vulnerable Wakulla County is to wildfires. Figure 2.6 represents the "Wildland Urban Interface" (WUI).

Figure 2.6: Wildland Urban Interface Map for Wakulla County



Source: ARPC; Southern Wildfire Risk Viewer - https://southernwildfirerisk.com/Map/Public/#whats-your-risk

Table 2.28: Legend - WUI Map for Wakulla County

Wildland Urban Interface for Wakulla County, FL		WUI (Wildland Urban Interface) Population*	% of WUI Pop	WUI Acres	% of WUI Acres
1	LT 1 house (hs)/40 acres (ac)	629	2.0%	34,836	37.5%
2	1 hs/40 ac to 1hs/20ac	857	2.6%	13,115	13.8%
3	1 hs/20 ac to 1 hs/10 ac	1,957	5.8%	15,086	16.2%
4	1 hs/10 ac to 1 hs/5 ac	4,113	12.3%	13,428	14.4%
5	1 hs/5 ac to 1hs/2 ac	8,510	25.4%	11,608	12.5%
6	1hs 2 ac to 3 hs/1 ac	11,194	33.4%	4,688	5.0%
7	3 hs/1 ac	6,169	18.4%	190	0.2%
Total		**33,479**	**100%**	**92,951**	**100.0%**

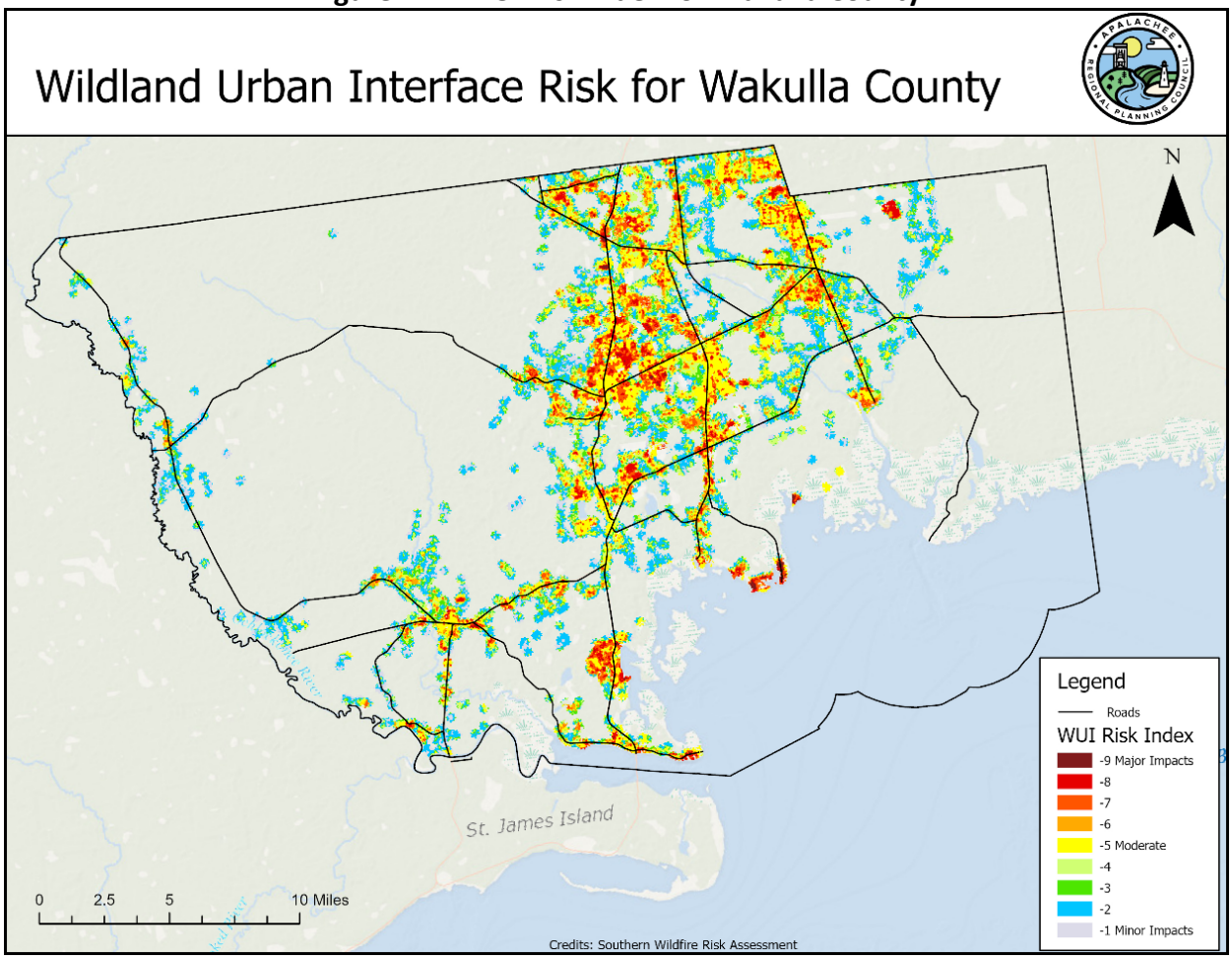
*Source: [http://www.southernwildfirerisk.com/map/index/public] *adjusted to 2019 estimated population figures*

As more people move into rural counties, such as Wakulla, they chose to live in forested areas, creating a wildfire hazard. This increase of population greatly impacts the WUI, making it an excellent indicator of the risk and vulnerability a community may have with wildfires. The WUI is described as the area where structures and other human improvements meet and intermingle

with undeveloped wildland or vegetative fuels. In Wakulla County, it is estimated that 100% of the population is vulnerable to because they live within the WUI.

Displayed another way, the following represents the WUI vulnerability for Wakulla County:

Figure 2.7: WUI Risk Index for Wakulla County



Source: Southern Wildfire Risk Assessment http://www.southernwildfirerisk.com/map/index/public

Table 2.29: Legend – WUI Risk Index Map

Class	Acres	Percent
-9 Major Impacts	307	0.3 %
-8	3,499	3.8 %
-7	8,547	9.4 %
-6	5,445	6.0 %
-5 Moderate	17,737	19.5 %
-4	13,141	14.5 %
-3	10,592	11.7 %
-2	23,073	25.4 %
-1 Minor Impacts	8,561	9.4 %
Total	**90,902**	**100.0 %**

The **WUI Vulnerability Index** layer is a rating of the potential impact of a wildfire on people and their homes. The WUI represents housing density (houses per acre) consistent with Federal Register National standards. The location of people living in the Wildland Urban Interface and rural areas is key information for defining potential wildfire impacts to people and homes.

This data shows that over 14% of the acres and roughly 19,000 residents (52%) live in a WUI zone of ***major*** concern. And this situation will only grow over time, as more people move to Wakulla County as the bedroom community to the larger Tallahassee/Leon County metroplex.

The WUI Risk index map displays the increase in major impacts that can be seen nearer to each jurisdiction as more human made structures begin to interface with areas prone to wildfire. To further expound upon this, as is displayed: the land in and around Crawfordville holds a value of up to -9 (major impacts), Panacea up to -9, Sopchoppy up to -9, and St Mark's again up to a class of -9.

2.8.4 Extent

Wakulla County can expect to have several localized wildfire events every year, with the average size being approximately 3.75 acres. Given the extent of the forested lands in Wakulla and the wildland urban interface, residential homes can expect to be impacted.

2.8.5 Future Development and Fires

Given that nearly 98% of Wakulla County's population resides in unincorporated areas, most of the future growth can be expected in these areas. With this growth, there will be a greater urban interface with forested lands. This increase in urban interface areas will put higher levels of the population, structures, and infrastructure at risk from fires. Also, given that most fires are manmade, the population growth in the county will most likely increase the number of wildfires in the county. Therefore, the risks due to fire are likely to increase in the future.

2.9 Floods

Floods are the most common and widespread of all the natural disasters. Many communities have experienced flooding after heavy thunderstorms or tropical storms. Floods can be slow or fast rising but generally, floods develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chances of an emergency, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation, such as engaging in floodplain management activities, will reduce the damages to homes and agricultural, should a flood occur.

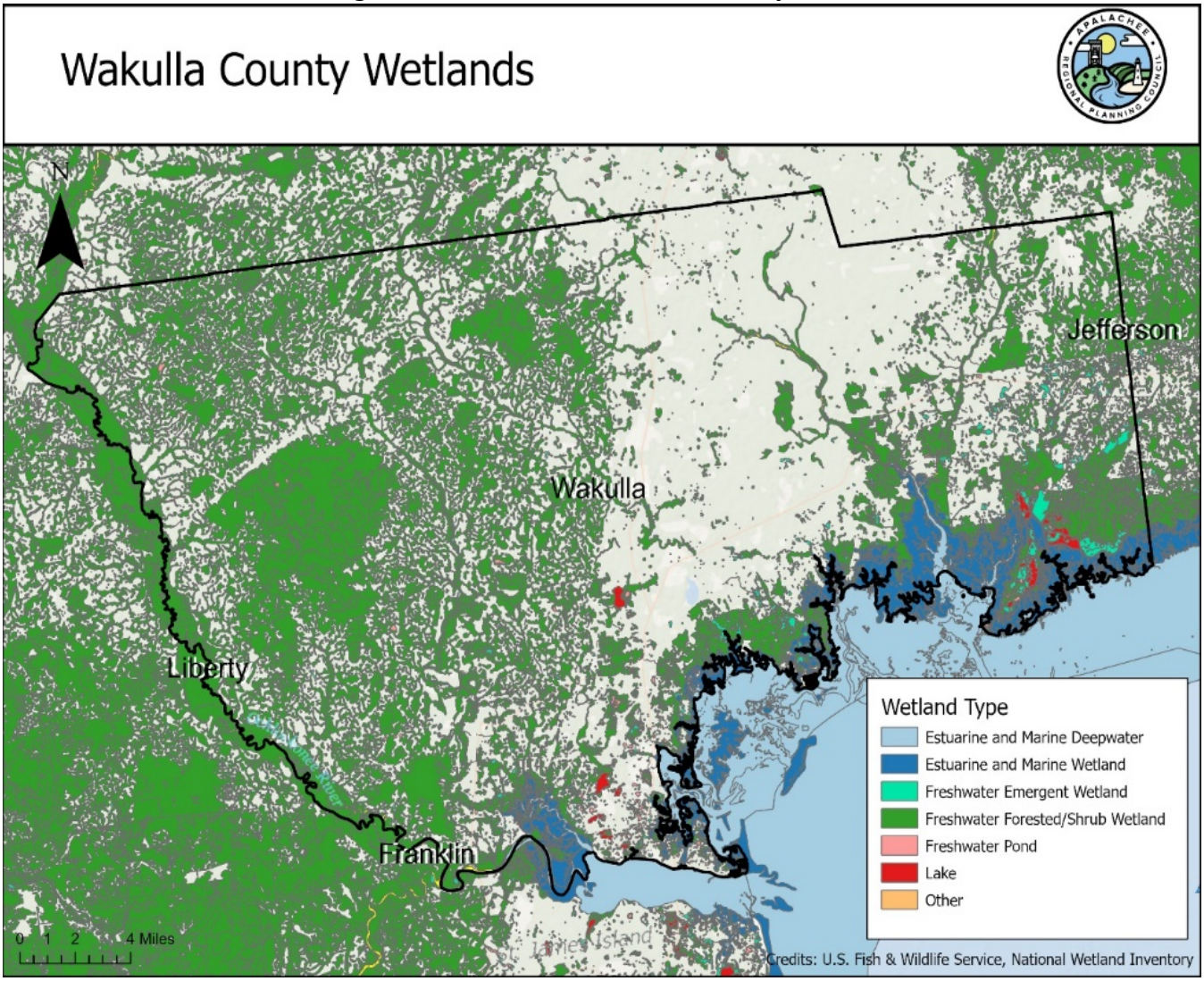
Florida is affected by tropical weather systems nearly every year. Although storm surge has the greatest potential for loss of life with tropical systems, recent research indicates that inland flooding has been responsible for most of the flooding fatalities during the last 30 years in the United States.

Flooding refers to the general or temporary condition of partial or complete inundation of normally dry land areas with surface water from any source. Floodplains are defined as any land areas susceptible to water inundation from any source. Flooding is a natural aspect of the earth's hydrologic cycle, but it is because of their frequency, floods are the most destructive category of natural hazards in the United States.

Impacts from flooding In Wakulla County has resulted in the loss of life and damages to personal property, crops, businesses, utilities, and transportation infrastructure. Additional losses and economic hardships have occurred when supplies or supply routes are damaged or destroyed. In every flooding event in Wakulla County, drinking water supplied by private wells has been temporarily compromised resulting in a boil water notice from the Health Department. Additionally, several critical facilities have been impacted, to include chemical and waste storage facilities, wastewater treatment facilities, and solid waste disposal sites. These events resulted in a hazard to public health. Flood waters in Wakulla County also result in a serious issue of mold. Given the warm climate Wakulla County experiences often, mold can become a life-threatening issue, and an expense issue. Residents have had furniture, drywall, insulation, air conditioning ducts removed because of mold spores that become a serious health issue. Flood inundated roadways have resulted in extensive paved, and dirt road repairs.

In Florida, variations of flooding occur due to severe thunderstorms, tropical storms, and seasonal rains. Impacts to Wakulla County include both riverine flooding and flooding caused by the excessive rainfall that inundates low-lying areas throughout the county. Because the county borders the Gulf of Mexico, it is also highly susceptible to storm surge and coastal flooding from tropical storms and hurricanes. These impacts can result in water damage to buildings and infrastructure as well as deaths and injuries due to flooding.

Figure 2.8: Wetlands, Wakulla County



Wakulla County's low-lying topography, combined with its climate, makes it highly vulnerable to inland or riverine flooding associated with a river's watershed, the natural drainage basin that conveys rainwater runoff. Riverine flooding occurs when the flow of runoff is greater than the carrying capacities of the natural drainage systems. When rainwater is not absorbed by soil or vegetation, it seeks surface drainage lines following the natural topography.

Although Wakulla County historically experiences moderate rainfall, the primary causes of flooding are tropical cyclones. Wakulla County is also subject to flooding from heavy rains in South Georgia and Alabama, which contain the headwaters for the rivers and streams that go through Wakulla County. The Ochlockonee River, which is the western border of the county, is a regular source of flooding. A significant amount of the county is categorized as wetlands and therefore is more susceptible to flooding. Figure 2.8 displays the areas considered wetlands in

Wakulla County. Figure 2.9 show the FIRM designations for the county and the extent of the county susceptible to flooding.

2.9.1 Historical Events

Wakulla County has recorded floods on several occasions in the recent past. Each event resulted in extended periods of flooding. It should be noted that the amount of property damages listed for some of the events in Table 2.31 include amounts from other counties.

Extents of the historical floods varied from one event to the next and no consistent measure of extents was used. Reports of previous events included measures such as: 50 homes underwater, St. Marks River was one foot above flood stage, Sopchoppy River crested at 30 feet, and roads were underwater for upwards of two weeks.

Table 2.30: Historical Flood Events, Wakulla County, 1950 – 2020

Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
WAKULLA (ZONE)	3/10/1998	0	Flood	0	0	275000	$0.00
WAKULLA (ZONE)	3/7/2003	600	Flood	0	0	150000	$0.00
WAKULLA CO.	12/2/2009	1420	Flood	0	0	0	$0.00
COUNTYWIDE	9/6/2000	700	Flash Flood	0	0	75000	0
COUNTYWIDE	9/22/2000	900	Flash Flood	0	0	1000000	0
NORTH PORTION	8/6/2001	2000	Flash Flood	0	0	250000	0
COUNTYWIDE	3/3/2002	200	Flash Flood	0	0	20000	0
NORTH PORTION	9/14/2002	1100	Flash Flood	0	0	10000	0
SOUTHWEST PORTION	1/2/2006	1440	Flash Flood	0	0	1000	0
PORT LEON	8/23/2008	1200	Flash Flood	0	0	500000	0
SOPCHOPPY	1/21/2010	400	Flash Flood	0	0	0	0
SMITH CREEK	6/25/2012	1112	Flash Flood	0	0	8790000	0
VEREEN	12/23/2014	1925	Flash Flood	0	0	0	0
CRAWFORDVILLE	11/19/2015	500	Flash Flood	0	0	20000	0
CURTIS MILL	5/21/2018	700	Flash Flood	0	0	0	0
Totals:				**0**	**0**	**$383,721,000**	**$0.00**

SLOSHSource: National Climatic Data Center, NOAA
https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

2.9.2 Flooding Probability

Flooding occurs in Wakulla County and will continue to happen due to tropical cyclones, thunderstorms, winter storms, and seasonal rains. There is frequent flooding along the Ochlockonee River as well as in the City of St. Marks, which lies at the convergence of the St. Marks and Wakulla Rivers, making it susceptible to riverine flooding.

The City of St. Marks is also susceptible to storm surge flooding, as was experienced with Hurricane Michael in 2018. The City of Sopchoppy also experiences occasional riverine flooding

caused by the Sopchoppy River. Both Cities are highly susceptible to flooding. Based on historical records, each City can expect to flood once every five to eight years. Wakulla County will experience the same probabilities.

2.9.3 Vulnerability

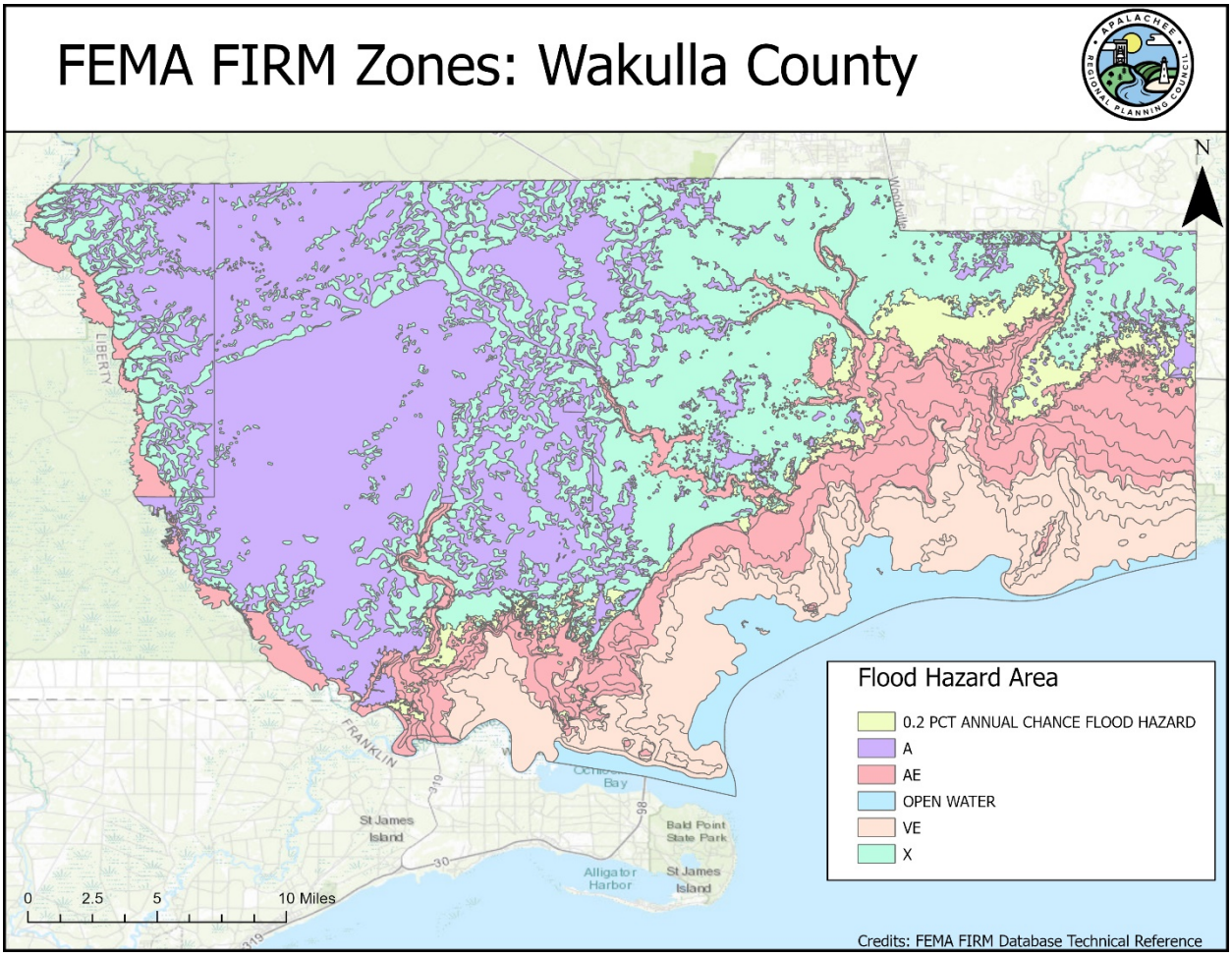
Virtually all land areas in Wakulla County are subject to flooding, given the right circumstances. The following Flood Insurance Risk Maps display the extreme vulnerability to flooding Wakulla County has. These maps were recently updated, and are maintained by the Northwest Florida Water Management District at:
https://maps.nwfwmdfloodmaps.com/esri-viewer/map.aspx?cty=wakulla.

To better understand the zone designation on each map, the following explanation of the flood zone designations are given. These are relatively new definitions of the flood zones. They correspond to the following Figures.

Table 2.31: FEMA FIRM Map Zone Descriptions

Zone	Description
A	Area with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30 yr. mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	Area with a 1% chance of flooding and a 26% chance of flooding over the life of a 30 yr. mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
VE	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30 yr. mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
X	Area that is determined to be outside the 100- and 500-year floodplains.

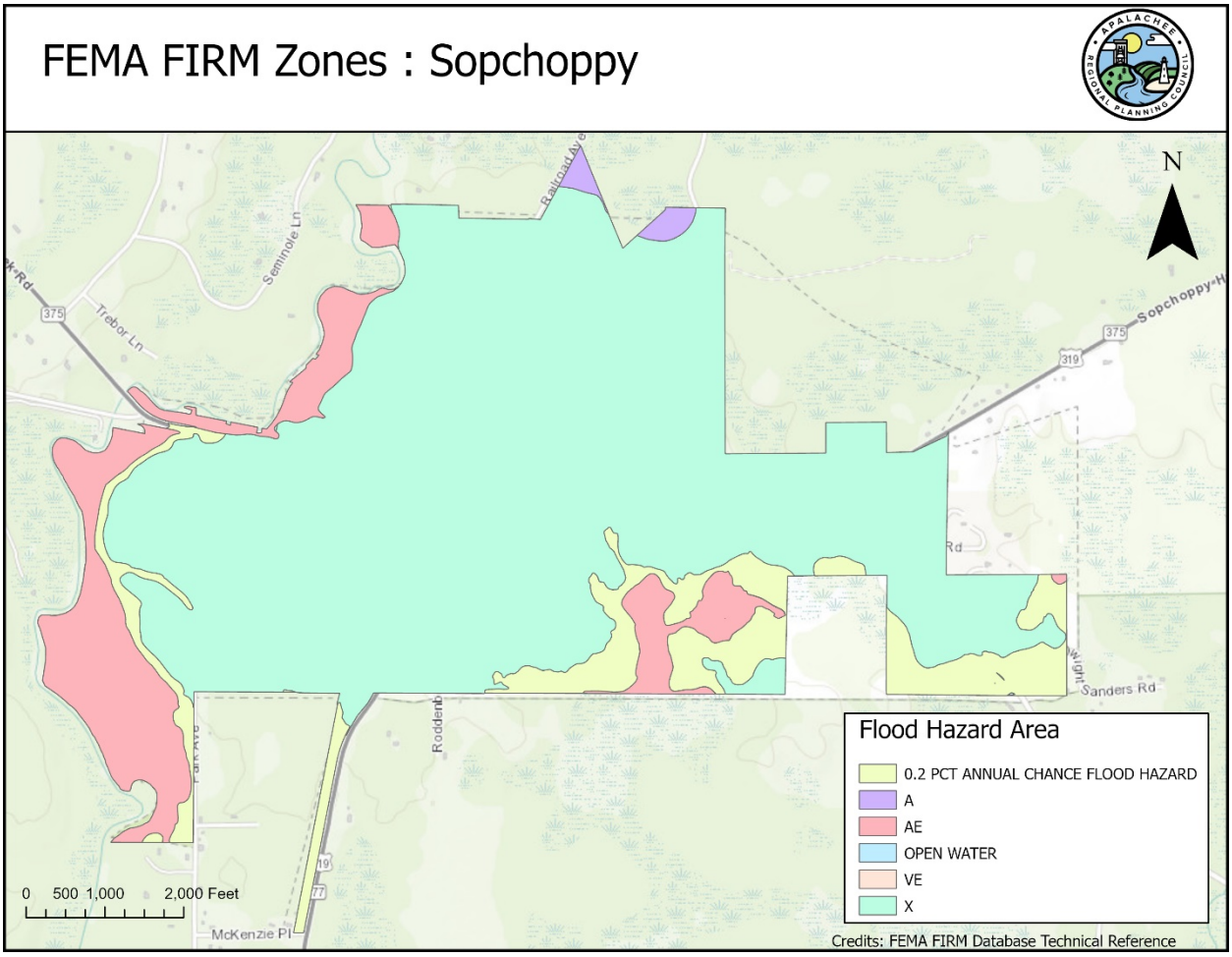
Figure 2.9: FEMA FIRM Zones, Wakulla County



Source: https://maps.nwfwmdfloodmaps.com/esri-viewer/map.aspx?cty=wakulla

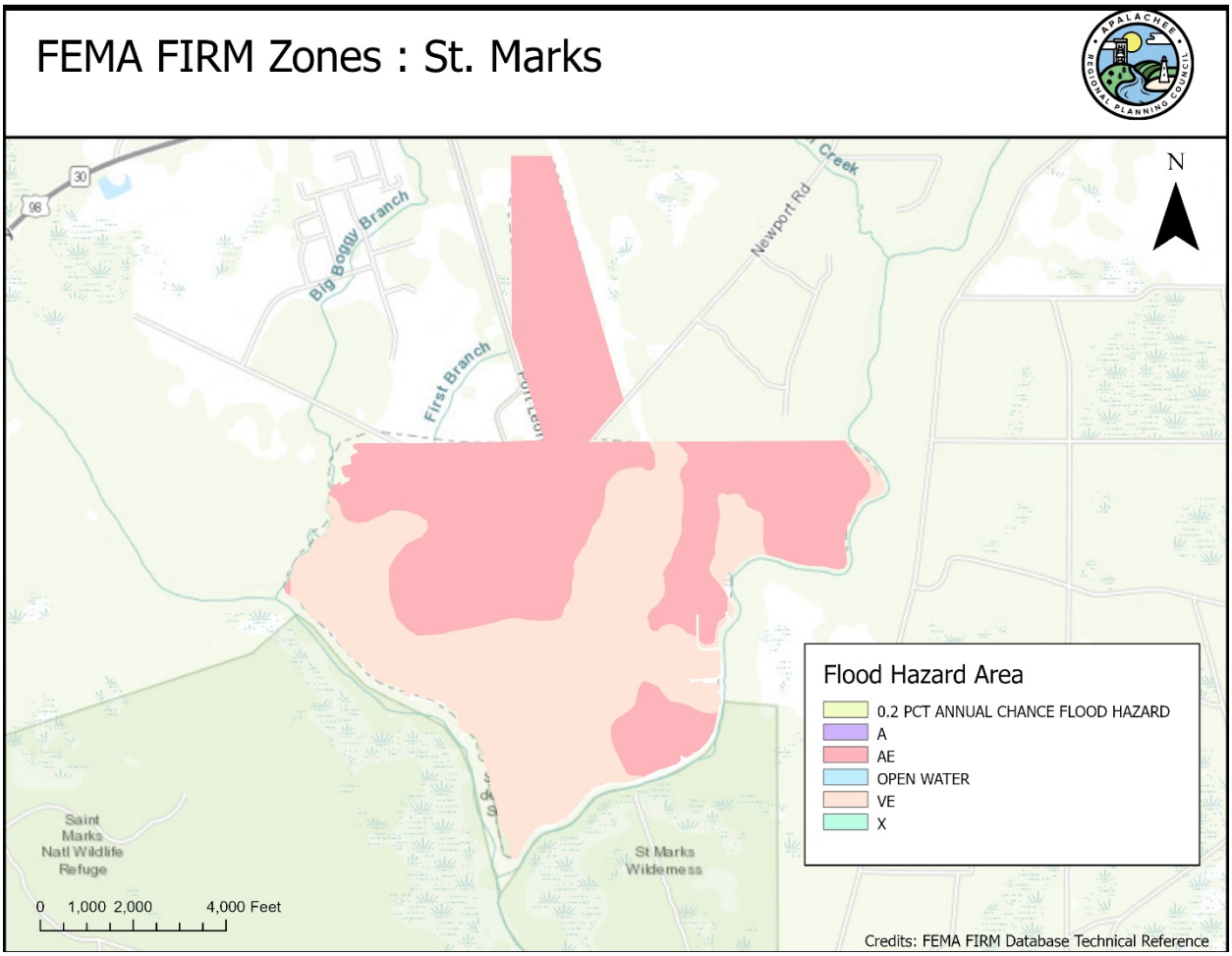
In addition, as the threat of sea level rise continues, the area located in the pink is the most susceptible to ever rising sea levels. This is a concern expressed by the LMS Committee. All of the color-coded areas in Wakulla County are prone to increased sea levels. The LMS Working Group will continue to monitor this potential situation.

Figure 2.10: FEMA FIRM Zones Hazards, St. Marks



Source: *https://maps.nwfwmdfloodmaps.com/esri-viewer/map.aspx?cty=wakulla*

Figure 2.11: FEMA FIRM Zones Hazards, Sopchoppy



Source: https://maps.nwfwmdfloodmaps.com/esri-viewer/map.aspx?cty=wakulla

The Tabled below demonstrated how vulnerable Wakulla County is to flooding events. Over 95% of the value of all residential structures in the county are vulnerable to losses from a 100-year flooding event or hurricane storm surge. This is highly significant. These percent of figures would be higher for the City of St. Marks given its proximity to the Gulf of Mexico, and approximately the same for the inland City of Sopchoppy.

Table 2.32: Inland Flood Hazard Building Economic Count – Wakulla County

Floodplain	Residential	Commercial	Medical	Industrial	Agric	Education	Government
100	4,437	162	11	50	625	5	84
500	780	55	0	3	227	0	29

Source: State Hazard Mitigation Plan, Appendix E

Table 2.33: Value of Structures in the Floodplain – Wakulla County *($Millions)*

Floodplain	Residential	Commercial	Medical	Industrial	Agric	Education	Government
100	$512,916,231	$24,519,195	0	$18,739,895	$294,802,919	$2,907,288	$56,354,288.00
500	$76,760,890.00	$4,415,249.00	$0.00	$132,484.00	$121,626,248.00	$0.00	$20,660,612.00

Source: State Hazard Mitigation Plan, Appendix E

2.9.4 Extent of Flooding

Wakulla County is predominately flat, highly susceptible to sheet flooding. In addition, the coastal areas are susceptible to high storm surges from hurricanes. Hurricane induced flooding from a Cat 3 event can result in up to 17 feet of storm surge, up to a Cat 5 which will result in over 24 feet impacting most of the county, causing flooding of all of St. Marks with up to 15 feet of water. Flooding from non-hurricane weather events, such as a stalled cold front, can produce up to 20 inches of rainfall, resulting in several feet of standing water in low-lying areas, inundating both roadways and flooding homes and businesses. In addition, flooding caused by another state (I.e. Georgia/Alabama) can cause the Ochlockonee River to flood, causing several feet of standing water in Sopchoppy, and the unincorporated areas of the county.

2.9.5 Critical Facilities

The list of critical facilities (Appendix 3) identifies each facility by address. Given that most of the critical facilities are located in a 100-year flood zone, they are susceptible to flooding impacts. This is especially true of the water wells used by Wakulla County for the water system.

2.9.6 Future Development and Floods

A large portion of Wakulla County is in a 100-year flood zone. The Wakulla County COMP Plan is very specific in terms of development in the flood plain. Future development will not be allowed in such areas unless it is built to current codes and standards that mitigate flood damages (i.e. built above the base flood elevations, cause no rise in surrounding flood elevations, etc.) as clearly defined in the Wakulla County COMP Plan. The Ochlockonee, Wakulla, Sopchoppy, and St. Marks Rivers will occasionally flood. Development along the shores of these rivers will continue be at risk to future floods and future development will need to remain conscious of this threat to property and lives. The county has in place strong codes, ordinances, and a COMP Plan that is very protective of the flood-vulnerable areas.

2.10 Coastal Erosion

Erosion is a process that involves the gradual wearing away, transportation, and movement of soil and land. However, not all erosion is gradual. It can occur quickly as the result of a flash flood, coastal storm, or other event. Erosion is a natural process, but its effects can be exacerbated by human activity.

Impacts include the loss of land to the sea along the coastline. This loss of land can destroy or compromise buildings and infrastructure. Erosion is a problem in developed areas where the

disappearing land threatens development and infrastructure. Areas of high concern in Wakulla County are along Mashes Sands and Shell Point, both of which have historically experienced coastal erosion problems in the past especially after a tropical or winter storm. Impacts from previous tropical storms and hurricane impacts in these areas have resulted in beach cross over structures being destroyed, recreational facilities damaged, and in Shell Point, damage to those homes adjacent to the Gulf of Mexico. Coastal erosion has the constant potential to threaten improved properties and recreational areas in Wakulla County.

2.10.1 Historical Events

Most of the shoreline exposed to the Gulf of Mexico in Wakulla County is considered low energy shoreline, meaning there is not active wave action on the coastline. There are two locations that do experience wave action, Shell Point, and Mashes Sands. Shell Point has a significant resident population with homes and boat slips, while Mashes Sands is a park with some permanent infrastructure exposed to the elements.

Using NOAA's National Climatic Data Center Storm Events Database, the following events caused excessively high tides and coastal erosion in Wakulla County.

Table 2.34: Coastal High Tides / Erosion Events in Wakulla County 2016-2020

Date	Time	Type	Dth	Inj	Damages	Crop
6/6/2016	1300	Storm Surge/Tide	0	0	$ 5,000.00	0
9/1/2016	1900	Storm Surge/Tide	0	0	$ 841,000.00	0
10/7/2017	1300	Storm Surge/Tide	0	0	$ 50,000.00	0
10/10/2018	500	Storm Surge/Tide	0	0	$ 100,000,000.00	0
10/19/2019	430	Storm Surge/Tide	0	0	0	0
TOTAL			0	0	**$9.655M**	**$0.00**

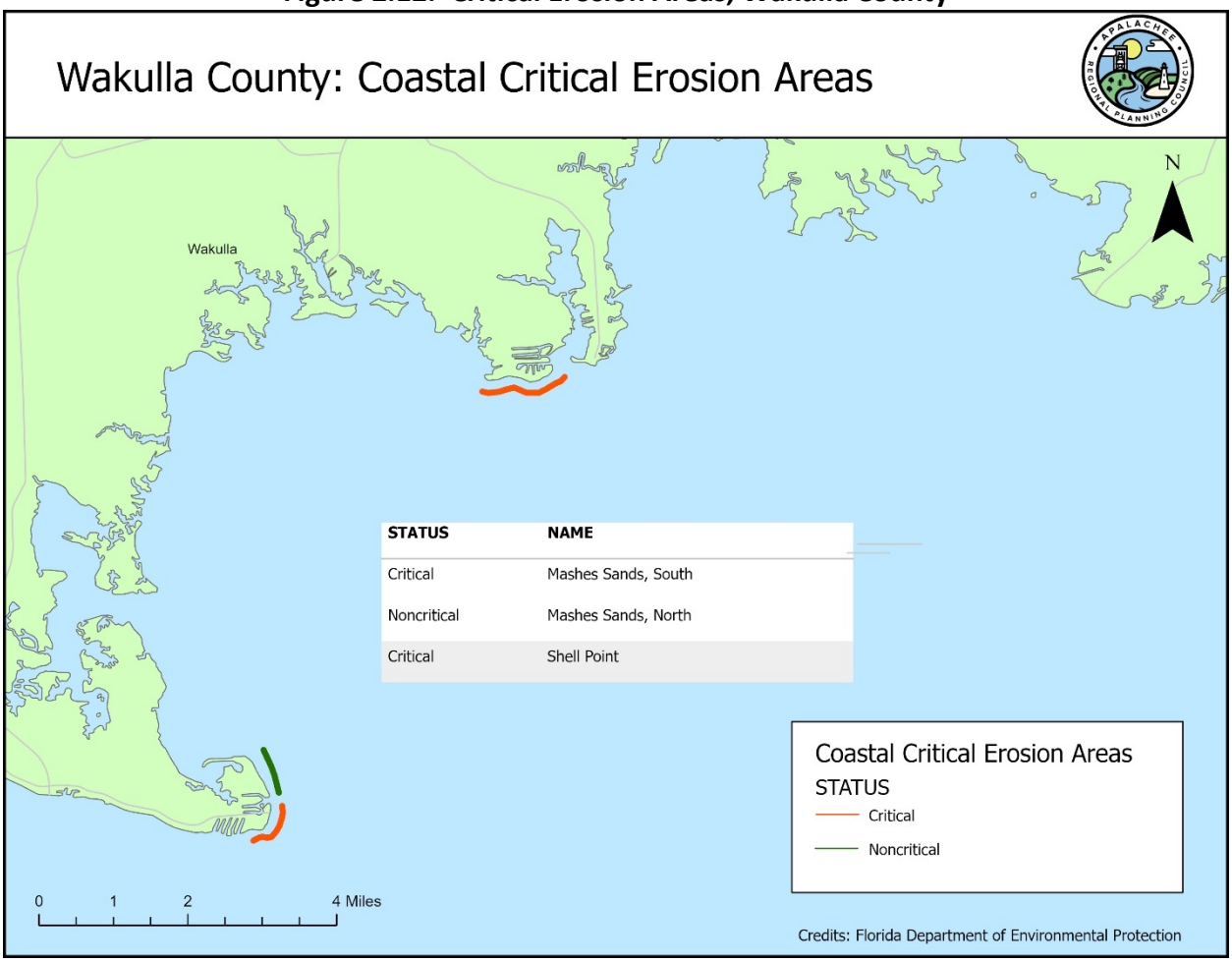
2.10.2 Probability

There is a medium probability that coastal erosion will seriously impact unincorporated Wakulla County and a large probability that coastal erosion will impact St. Marks. When it does occur, it happens in conjunction with severe winter storms, hurricanes, and other tropical events.

2.10.3 Vulnerability Analysis

According to the FDEP Bureau of Beaches and Coastal Systems' Critically Eroded Beaches in Florida report released June 2019, there are 1.7 miles of Wakulla County shoreline that are classified as beaches, of which 1.3 miles experience critical erosion.

Figure 2.12: Critical Erosion Areas, Wakulla County



Source: https://floridadep.gov/sites/default/files/FDEP-Critically-Eroded-Beaches-2019.pdf

The 1.0 miles of beach at Shell Point is considered critically eroded and threatens a county park and residential and commercial development. The southern 0.3 miles of Mashes Sand is classified as critically eroded and is a threat to recreational uses at the county park. The northern 0.4 miles of Mashes Sand beach is classified as non-critically eroded. Wakulla County can expect to lose 1 foot of beach shoreline in the critically sensitive areas each year. It is expected this magnitude of erosion will continue to occur.

The remainder of the Gulf of Mexico coastline is predominantly coastal wetlands, which are not susceptible to coastal erosion. The LMS working group considers this hazard to be a low threat to human life, but a high threat to improved property. Many homes and residents are vulnerable to coastal erosion, especially in the Shell Point community. This hazard must be closely monitored.

2.10.4 Extent

Under the right conditions, a hurricane can result in significant erosion along Mashes Sands and Shell Point. Wakulla County could realistically experience up to one foot of shoreline erosion per year impacting the area landward of the coastline in Mashes Sands. Shell Point could see the homes exposed directly to the Gulf of Mexico severely impacted by coastal erosion. This may vary, depending on the intensity of the coastal event causing the erosion.

2.11 Dam Failure

A dam or levee is a barrier that is constructed to contain the flow of water or keep out the sea. Dams provide water as well as hydroelectric power and create lakes for recreational purposes. More importantly, dams save lives by preventing or reducing floods. Dam failures are breaches in the impoundment structure causing flooding downstream. A dam failure can be anything from a small impoundment breach, to a complete, catastrophic failure of the impoundment structure.

Impacts from a dam breach include flooding of downstream properties, damage to buildings and infrastructure below the dam, human deaths, and injuries due to flooding below the dam site, and riverine erosion due to the sudden release of water from the dam. Given the area below the only dam that Wakulla County is vulnerable to, these impacts will be greatly minimized. Wakulla County has never experienced a dam failure, yet the general impacts described above *could potentially* happen.

Each dam listed in the National Inventory of Dams is assigned a Hazard Potential Rating. The ratings are described below:

1. **Low Hazard Potential**
   Dams assigned the low hazard potential classification are those where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

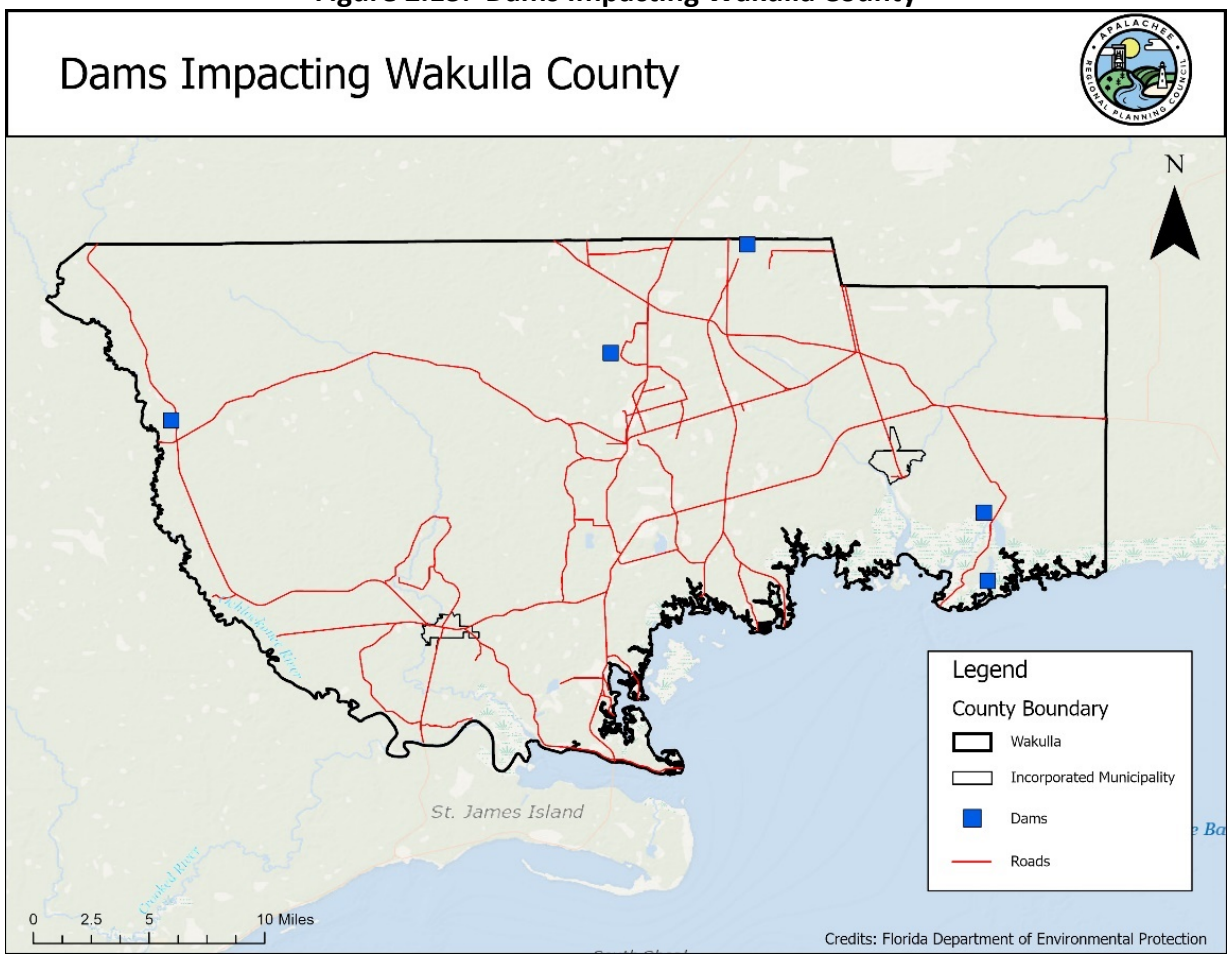
2. **Significant Hazard Potential**
   Dams assigned the significant hazard potential classification are those dams where failure or disoperation results in no probable loss of human life but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

3. **High Hazard Potential**
   Dams assigned the high hazard potential classification are those where failure or mis-operation will probably cause loss of human life.

2.11.1 Historical Events

There has never been a dam failure affecting Wakulla County and the only dam posing a high threat to Wakulla County is the Jackson Bluff Dam on the Ochlockonee River, upstream in Leon and Liberty Counties. It is rated as "High" by the National Inventory of Dams (NID) only because of the amount of water behind the dam. The normal storage capacity behind the dam is 150,000 acre-feet. It has the potential for flooding in Wakulla County in the event of a failure and subsequently impacting persons downstream from the dam. Because a dam failure has never impacted Wakulla County, there is no information available regarding the extents of the impact to the County. Given that the Ochlockonee River is predominantly within the Apalachicola National Forest, there are few permanent residents along the River, except for the area near Panacea.

Figure 2.13: Dams Impacting Wakulla County



2.11.2 Probability

According to the county, the probability of a dam break or failure impacting Wakulla County is extremely low. There is no history of a dam breaking in the county.

2.11.3 Vulnerability

A dam break at the Jackson Bluff Dam on the Ochlockonee River would impact those residents and structures near the River, which are few in number. There is currently no known way to assess the number of structures vulnerable to a dam failure. The LMS Working Group will continue to assess the limits of the data with respect to this hazard and continue to attempt to determine Wakulla County's vulnerability. Wakulla County has 4 recorded dams in the National Inventory of Dams database, maintained by the Army Corps of Engineers. There is no vulnerability posed for the Cities of St. Marks or Sopchoppy.

2.11.4 Extent

The extent of flooding caused by a levee or dam failure in Wakulla County from the only dam that can impact the county (Jackson Bluff Dam) is estimated to not exceed 5 feet of floodwater in the Ochlocknee River basin, of which only the lower 20% near the coast is inhabited. The rest of the flood plain lies in the national forest and is uninhabited. Therefore, it is reasonable to assume the lower 20% of the Ochlocknee River flood basin would experience flooding to a depth of 5 feet caused by a break of the dam at Jackson Bluff.

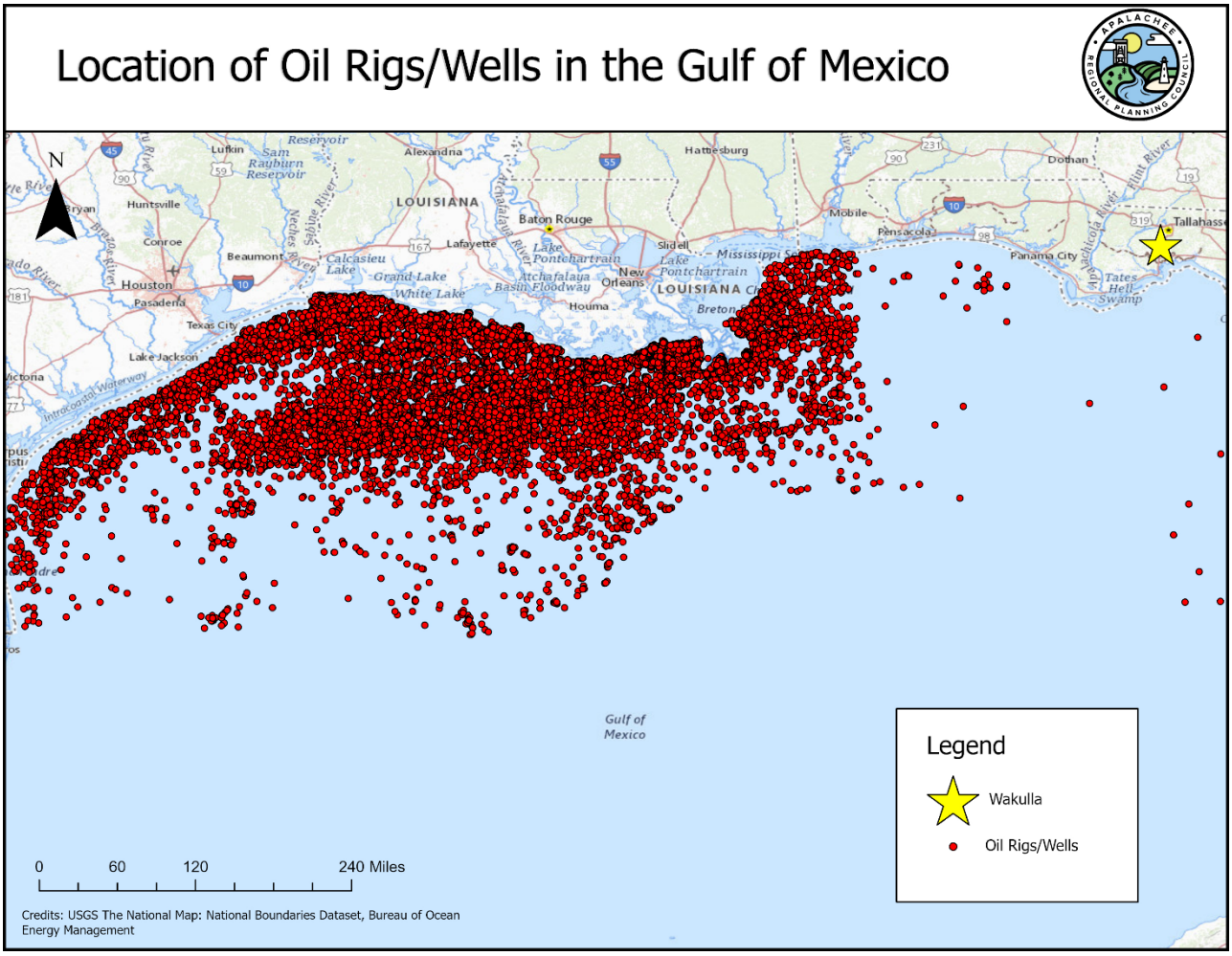
2.11.5 Future Development and Dam Failures

The Wakulla County COMP Plan has development restrictions in flood plains. Residents who decide to develop below the dam are fully cognizant of the threats they face. There are few development opportunities for areas vulnerable to a breach of the Jackson Bluff Dam, with most of the Ochlockonee River basin within the Apalachicola National Forest.

2.12 Hazardous Materials

As the Deepwater Horizon Oil Spill of April 2010 has borne out, an event hundreds of miles away can affect countless counties and communities throughout a region, with economic as well as ecological impacts felt in both the short and long term. The long-term impacts for Wakulla County are still unknown. The spill has impacted local fishermen, sports fishing industry, and decreased tourism in the county.

Figure 2.14: Location of all Oil Rigs/Wells in the Gulf of Mexico



Currently, there are several thousand oil wells in the Gulf of Mexico, many of them in deep water. Although this is a very rare event, the threat is real, and Wakulla County is highly vulnerable to oil spills from oil wells in the Gulf of Mexico.

Hazardous materials coordination is largely the responsibility of the County Emergency Manager, along with local facilities that store or use hazardous materials. The chief concern of the Working Group is the transportation of hazardous materials throughout the county by truck and along the St. Marks River by barge. Daily, a wide range of hazardous chemicals are shipped through the county over the roadways. The most shipped are petroleum-related products including gasoline, diesel, fuel oil, and LP gas. Other commonly transported substances include acids and chlorine. There is no advance notification of hazardous materials being transported. The transportation of hazardous materials via barge on the St. Marks River is no longer a major issue with the closing of the oil refinery in St. Marks.

In addition to the hazard created by the routine transport of chemicals in the county, a hazard also exists from facilities storing large quantities of extremely hazardous substances (EHS) at their

facilities. There are 20 Section 302 EHS facilities in the county that store dangerous chemicals above the minimum threshold planning quantity designated by the U.S. Environmental Protection Agency (EPA). This includes chlorine gas, which is used for water treatment and purification. It should be noted that the safety and security precautions in place at facilities storing these chemicals greatly reduce the potential for a significant release. Table 2.36 lists those sites (address withheld) and the substances located on the premise of each facility. A complete list, quantities, and points of contact for each facility is maintained by Wakulla County Emergency Management.

Impacts from hazardous material spillages include human deaths and injuries due to inhalation or exposure to the chemicals, destruction and/or long-term contamination of the ecosystems at the spill site, and the long-term disposal of hazardous and contaminated materials from the spill site. Spills can also decrease property values for an extended period of time and decrease property tax revenues. In Wakulla County, the impacts from the BP Oil spill are notated above. The impacts from other hazardous material spills in the county have been relatively minor. Table 2.34 identifies all past hazardous materials spills. For the most part, they are small petroleum-based spills, resulting in the need to clean up the spill. The cost of the spill cleanup is borne by the entity spilling the hazardous material. No evacuations have occurred in Wakulla County resulting in a hazardous materials spill.

Table 2.35: Hazardous Materials Sites, Wakulla County

Facility Name	302 Chemical	City
City of Saint Marks WWTP	Chlorine	St. Marks
City of Sopchoppy - Well 1	Chlorine	Sopchoppy
City of Sopchoppy - Well 2	Chlorine	Sopchoppy
City of Sopchoppy - Well 5	Chlorine	Crawfordville
City of Sopchoppy - Well 6	Chlorine	Crawfordville
City of Sopchoppy - Well 7	Chlorine	Crawfordville
City of SopChoppy, Eden Springs Well	Chlorine	Crawfordville
City of Sopchoppy, Wildwood Acres Well # 3	Chlorine	Crawfordville
City of Tallahassee - Purdom Generating Stn.	Sulfuric Acid	St. Marks
CSG Systems, Inc	Sulfuric Acid	Crawfordville
CenturyLink-Crawfordville	Sulfuric Acid	Crawfordville
Saint Marks Powder	Nitric Acid, Chlorine, Sulfur Trioxide, Sulfuric Acid	Crawfordville
Talquin Electric Oyster Bay WWTP	Sulfuric Acid	Crawfordville
Talquin Electric Shadeville Well and Tank	Chlorine	Shadeville
Talquin Electric-Songbird Well	Chlorine	Crawfordville
Talquin Electric Water System Wells 1&2	Chlorine	Crawfordville
Panacea Area Water System, Well # 3	Chlorine	Panacea
Panacea Area Water System, Well # 4	Chlorine	Panacea
Southern Water Services - Winco WTP	Chlorine	Crawfordville
Southern Water Services - WWTP	Chlorine	Crawfordville

Source: Wakulla County Emergency Management (2020)

Despite the routine shipment of hazardous chemicals through the county and the presence of large quantities of chemicals at a number of fixed sites, there have been relatively few incidents involving the release of hazardous substances within the county.

2.12.1 Historical Events

The following list is all the hazardous materials spills that occurred in Wakulla County and reported to the FDEM State Watch Office between 2016 – 2020. None of these events were a significant cause for concern.

Table 2.36: State Watch Office Incident Report for Wakulla County 2016 - 2020

Incident Occurred	Incident Type	Incident Name	Facility Name Scene Description	City
3/9/2016 0:00	Petroleum Spill	Potential Petroleum Release		Panacea
6/12/2016 0:00		Unknown Sheen	667 Port Leon Drive St Marks River adjacent to this address	
7/2/2016 0:00	Diesel	Traffic Crash With Mass Casualities		St. Marks
9/3/2016 0:00	Diesel	Abandoned Drum		Crawfordville
10/12/2016 0:00		Petroleum Release DRILL		St. Marks
11/1/2016 0:00		CR 365 Closure		Crawfordville
11/2/2016 0:00	Sheen	Unknown Sheen		
11/15/2016 0:00	Fuel/Oil	Submerged Vehicle		Panacea
11/18/2016 0:00	Gasoline	Sunken Vessel w/ Potential Release		
4/26/2017 0:00	Fuel from a sunken House Boat	Unknown Sheen	Lynn Brother's	St. Marks
9/9/2017 0:00	Gasoline	Damaged Fuel Pump	Chevron Gas Station	Crawfordville
1/21/2018 0:00	Unknown Sheen	Unknown Sheen		Crawfordville
11/19/2018 0:00	Unknown Oil	Abandoned Drum	3 miles east of the mouth of Ochlockonee Bay	
1/2/2019 0:00	Diesel	Abandoned Drum		Shell Point
2/15/2019 0:00	Diesel	SR-267 Full Closure w/ Diesel Release	SR-267 / Lonnie Raker Ln	Crawfordville
4/20/2019 0:00	Gasoline	Potential Gasoline Release	Reported Location	
6/15/2019 0:00	Gasoline	Gasoline Release	4192 Coastal Hwy	Crawfordville
6/28/2019 0:00	Marine gasoline	Gasoline Release		Panacea
8/9/2019 0:00	Motor Oil, transmission fluid	US 319 Road Closure w/ Petroleum Release	US 319 North of SR 267	Crawfordville

Source: FDEM State Watch Office Incident Reports 2016 – 2020 Wakulla County

2.12.2 Probability

During this reporting period, there have been no 302 chemical releases in Wakulla County. The hazardous materials spills that have occurred are typically small and contained very quickly. The county recognizes it historically averages 6 hazardous materials spills a year, virtually all of them involving a roadway. This makes the probability of a hazardous materials spill impacting residents high. Yet the magnitude of these events is very small. The probability of an incident occurring in St. Marks is much higher than for Sopchoppy, given the location of the Purdom Power Plant (St. Marks) and the shipments of oil needed for power production. Sopchoppy is on US Highway 319 and has the potential for hazardous materials spills, but relatively few have ever occurred.

2.12.3 Vulnerability Analysis

An accident involving transported hazardous materials would generally affect those who live and/or work along the major transportation corridors of US 98 (Panacea and Medart), US 319 (Sopchoppy and Crawfordville), SR 363 (St. Marks), and the St. Marks River (St. Marks and

Newport). This could pose a threat to the municipalities in Wakulla County with impacts to people ranging from a very few to over several thousand, depending on the hazardous materials involved, and the size of the spill. There are large quantities of 302 chemicals in Wakulla County located at the St. Marks Powder Company, and the Purdom Generating Station. Obviously, those located at St. Marks Powder Company pose the greatest vulnerability to the county because of the explosive nature of the materials used to produce gun powder and associated products.

2.12.4 Extent

A spill caused by a vehicle accident with a truck carrying hazardous materials in a populated area of Wakulla County (i.e. Crawfordville, St. Marks, Sopchoppy) will cause potential injuries, and some property damages. The spill is expected to be small, and quickly contained. If one of the facilities housing 302 hazardous materials has a release, the end results would be much more apparent. Depending on the accident, a 302 chemical release would impact the population living near the facility, and probably require an evacuation. An oil rig accident resulting in an oil spill would be much different. Wakulla County could experience tar balls along its shoreline, especially at Mashes Sands and Shell Point. The economic fallout from another offshore oil accident on tourism and fishing could be significant.

2.12.5 Future Development and Hazardous Materials

As the county and the municipalities grow and develop, the issue of hazardous materials may become more important. The LMS Working Group will continue to monitor the situation. The county has many policies and objectives in the COMP Plan that limit growth of hazardous materials purveyors, and limits the growth allowed in proximity to any facility with hazardous materials.

2.13 Terrorism

Under the Homeland Security Act of 2002, terrorism is defined as an activity that involves an act dangerous to human life or potentially destructive to critical infrastructure or key resources and is a violation of the criminal laws of the United States or any State 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.

Impacts – There have been no terrorist-related impacts in Wakulla County because there have been no terrorist events to date. The county has expended funds to prepare for such events, yet most of this funding has been through federal resources in the form of grants. If a terrorist event were to occur in Wakulla County, the impacts could include damage to critical infrastructure, death, injuries, community trauma, and more, depending on the target of the terrorists. It could occur anywhere in Wakulla County.

2.13.1 Historical Events

There have been no terrorist attacks within Wakulla County. There have been several events statewide that could have originated in Wakulla County, or any other rural county. Wakulla

County sponsors several annual festivals and holiday celebrations. The potential for a terrorist event is possible.

2.13.2 Probability

Given the rural nature of Wakulla County, and given it is not a major tourist mecca, the probability of a terrorist attack occurring in Wakulla County is extremely low.

2.13.3 Vulnerability

Wakulla County has a list of critical facilities that if disrupted, could have a large impact on the county. They are listed in *Appendix 3.* The water purification systems that use hazardous materials for the purification process is of some concern.

2.13.4 Extent

The LMS Working Group believes that an attack on the water system in Wakulla County would have the most impact. The water delivery system is on the list of critical facilities. A compromised water delivery system could impact hundreds of residents before it was identified.

2.14 Sinkholes

Sinkholes are a common feature in Florida's landscape. They are only one of many kinds of karsts landforms, which include caves, disappearing streams, springs, and underground drainage systems, all of which occur in Florida. Karsts is a generic term which refers to the characteristic terrain produced by erosion, associated with the chemical weathering and dissolution of limestone or dolomite, the two most common carbonate rocks in Florida. Dissolution of carbonate rocks begins when they are exposed to acidic water, with rainwater being slightly acidic.

Limestone in Florida is porous, allowing water to percolate through it and dissolve some of it away. Over time, this process creates extensive underground voids and drainage systems in much of the carbonate rocks throughout the state. Collapse of the overlying sediments into the underground cavities produce sinkholes.

A spring, such as Wakulla Springs, is a discharge of an underground system. Sinkholes can occur in streambeds, sometimes taking all the stream's flow, to create a disappearing stream. Dry caves are parts of karsts drainage systems that are above the water table.

Sinkholes can appear suddenly and anywhere in the county. **Impacts** include “swallowing” buildings and property as well as compromise below ground infrastructure, causing minor to total damage, depending on the sinkhole’s size and depth. Specific to Wakulla County, sinkholes have caused minor damage to residential homes and nearby structures (sheds, garages, boat storage structures). The county has expended funds to fill in sinkholes that have occurred on public lands that only posed a community threat or hazard. If the sinkhole has not caused a public hazard, then they are left alone. Sinkholes have impacted a few government facilities resulting in the

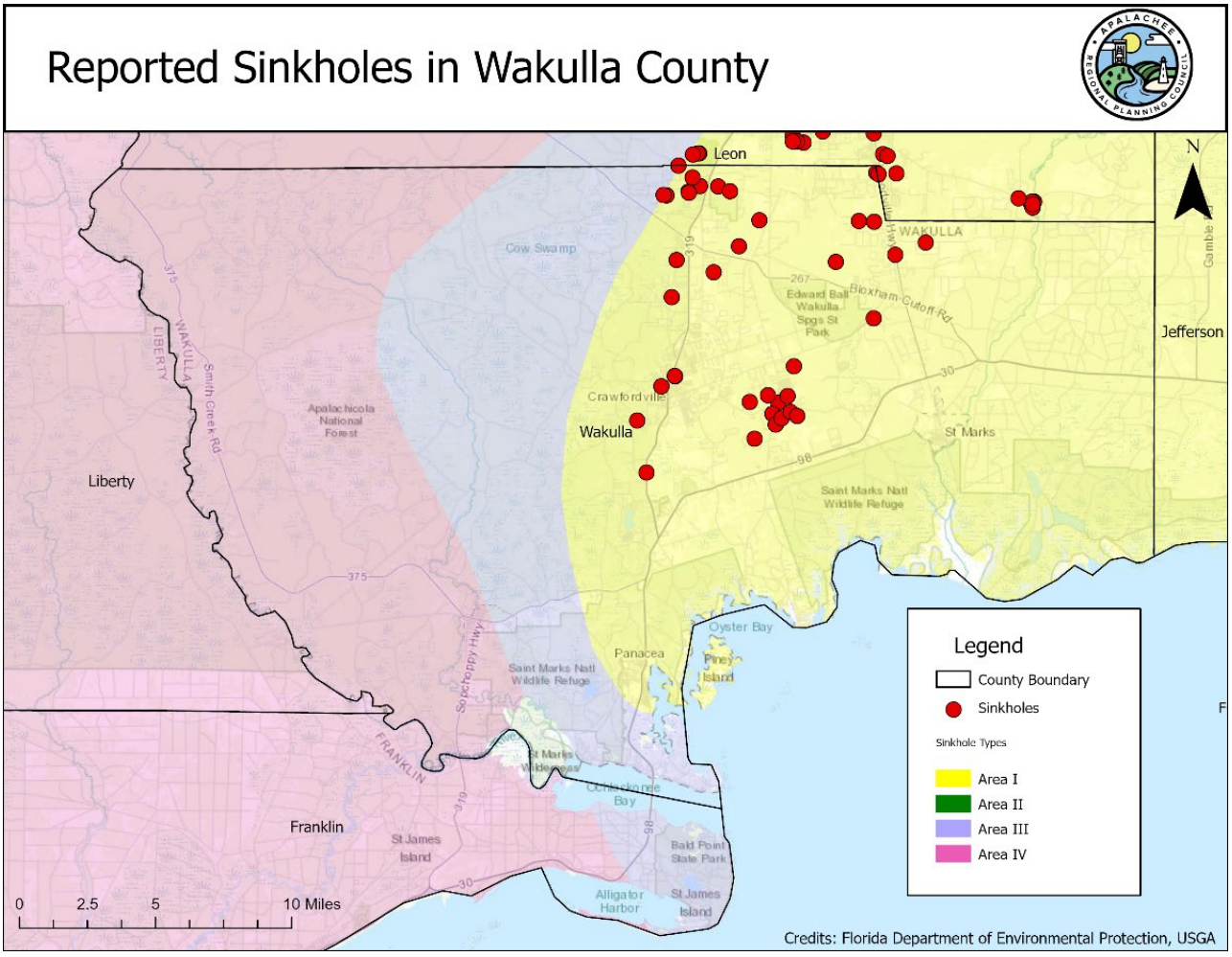
need for them to be shored up or moved. Sinkhole occurrences have also resulted in new construction setback requirements placed in the Wakulla County Comprehensive Plan.

2.14.1 Historical Events

The Florida Department of Environmental Protection (DEP) maintains a sinkhole database for the State of Florida, which contains 2,939 individual reports. Figure 2.33 is a map of the reported sinkholes in Wakulla County that was developed using the DEP database

According to the DEP database, there have been 77 reported sinkholes in Wakulla County since 1975 as shown in Table 2.38. Some of these sinkholes have caused localized damages to homes, streets, and other infrastructure.

Figure 2.15: Reported Sinkholes, Wakulla County



Source: FL Department of Environmental Protection, USGA; Apalachee Regional Planning Council

Table 2.37: History of Sinkholes, Wakulla County

FDEP Sinkhole Database - 2020								
	Event Date	LongDD	LatDD	County	Sink Length	Sink Width	Sink Depth	Sink Slope
1	1/30/1975	-84.1816	30.1996	WAKULLA	3	3	5	null
2	6/14/1976	-84.183329	30.211105	WAKULLA	75	75	15	null
3	3/24/1977	-84.384163	30.295272	WAKULLA	16	10	null	null
5	3/28/1978	-84.314996	30.179717	WAKULLA	2.5	2.5	2	null
6	1/10/1979	-84.2311	30.2327	WAKULLA	3	3	9	null
7	1/10/1979	-84.2311	30.2327	WAKULLA	2	2	6	null
8	3/13/1980	-84.39444	30.031939	WAKULLA	10	null	1	null
9	5/30/1980	-84.349996	30.276939	WAKULLA	1	1	2	null
10	4/24/1983	-84.326385	30.181939	WAKULLA	5	3	4	null
11	7/24/1985	-84.3444	30.2198	WAKULLA	9	9	8	90
12	7/24/1985	-84.3444	30.2198	WAKULLA	8	8	8	90
13	1/21/1986	-84.338885	30.205272	WAKULLA	25	25	15	45
14	1/27/1986	-84.263297	30.293689	WAKULLA	25	15	15	60
15	3/5/1990	-84.354718	30.252772	WAKULLA	2	2	12	90
16	4/12/1990	-84.332509	30.277736	WAKULLA	4	4	6	90
17	6/10/1997	-84.2507	30.2424	WAKULLA	6	6	5	60
18	7/5/1998	-84.343885	30.267494	WAKULLA	8	4	3	90
19	8/15/1998	-84.251663	30.261939	WAKULLA	5	5	20	90
20	9/4/1998	-84.3714	30.129	WAKULLA	30	8	3	null
21	8/1/1999	-84.334996	30.159994	WAKULLA	2	1	2	90
22	8/24/1999	-84.2533	30.2871	WAKULLA	4.1	3.4	4	90
23	9/14/1999	-84.3371	30.2546	WAKULLA	3	1.5	8	90
24	11/2/1999	-84.2488	30.2957	WAKULLA	11	8	6	90
25	11/12/1999	-84.3107	30.1921	WAKULLA	1.5	1	7	90
26	1/7/2000	-84.309163	30.189994	WAKULLA	null	null	null	null
27	6/7/2000	-84.2348	30.2621	WAKULLA	25	25	4	null
28	6/9/2000	-84.378329	30.294439	WAKULLA	1	1	null	null
29	9/2/2000	-84.244718	30.26805	WAKULLA	9	9	null	null
30	5/28/2001	-84.37444	30.294994	WAKULLA	20	20	20	null
31	9/13/2002	-84.3193	30.2156	WAKULLA	4	4	8	null
32	9/19/2002	-84.3073	30.1717	WAKULLA	2.5	2	2	70
33	10/22/2002	-84.3862	30.176	WAKULLA	1.5	1.5	null	null
34	3/10/2003	-84.3124	30.2007	WAKULLA	1	1	6	null
35	6/17/2003	-84.3459	30.2258	WAKULLA	7	6	2	90
36	12/18/2003	-84.304302	30.232717	WAKULLA	18	13	8	90
37	4/3/2007	-84.399553	30.031319	WAKULLA	3	3	4	null
38	2/22/2008	-84.271739	30.286579	WAKULLA	null	null	null	null
39	5/16/2008	-84.368632	30.183789	WAKULLA	20	20	20	null
40	5/21/2008	-84.342096	30.248394	WAKULLA	3	4	3	null

41	1/1/2010	-84.32161	30.158023	WAKULLA	12	7.5	4.5	null
42	1/21/2010	-84.308504	30.165651	WAKULLA	3	3	3	null
43	1/21/2010	-84.308504	30.165651	WAKULLA	6	6	6	null
44	1/24/2010	-84.304996	30.168888	WAKULLA	15	8	15	null
45	1/26/2010	-84.299433	30.172234	WAKULLA	4	2	2.5	90
46	1/28/2010	-84.387943	30.139808	WAKULLA	5	8	null	null
47	2/9/2010	-84.324452	30.177514	WAKULLA	3	4	15	null
48	11/19/2010	-84.246923	30.299733	WAKULLA	null	null	null	null
49	5/28/2012	-84.235286	30.256123	WAKULLA	43	25	12	null
50	6/25/2012	-84.370746	30.191244	WAKULLA	25	15	6	85
51	6/26/2012	-84.248538	30.22227	WAKULLA	4.5	4.5	3.5	null
52	7/26/2012	-84.257656	30.274014	WAKULLA	30	15	6	null
53	3/3/2013	-84.248313	30.273783	WAKULLA	3.5	3.5	8	null
54	3/12/2013	-84.295365	30.170135	WAKULLA	3	3	3	null
55	8/29/2014	-84.378999	30.185799	WAKULLA	2	2	4	null
56	3/4/2015	-84.370446	30.19119	WAKULLA	null	null	null	null
57	3/19/2015	-84.31332	30.181206	WAKULLA	null	2	1	null
58	4/23/2015	-84.310543	30.171295	WAKULLA	1	1	10	null
59	11/19/2015	-84.30698	30.177183	WAKULLA	6	3	4	null
60	11/19/2015	-84.34698	30.246592	WAKULLA	6	6	2	null
61	11/19/2015	-84.24668	30.254491	WAKULLA	null	null	null	null
62	5/13/2016	-84.337	30.290563	WAKULLA	1	null	6	null
63	5/13/2016	-84.21742	30.263032	WAKULLA	null	null	null	null
64	1/4/2017	-84.3012	30.1809	WAKULLA	1	1	4	90
65	2/9/2017	-84.29737	30.196645	WAKULLA	2	2	6	90
66	4/7/2017	-84.33724	30.190653	WAKULLA	8	4	null	null
67	6/1/2018	-84.36012	30.29703	WAKULLA	22	20	20	90
68	7/1/2018	-84.34798	30.183945	WAKULLA	null	7	7	null
69	8/1/2018	-84.30745	30.168568	WAKULLA	8	8	8	null
70	null	-84.354163	30.173605	WAKULLA	null	null	null	null
71	null	-84.3624	30.2384	WAKULLA	2	2	3	90
72	null	-84.340552	30.226105	WAKULLA	15	15	8	90
73	null	-84.29444	30.136105	WAKULLA	75	75	null	45
74	null	-84.2614	30.2925	WAKULLA	25	15	15	90
75	null	-84.3171	30.1611	WAKULLA	60	40	30	30
76	null	-84.282496	30.300828	WAKULLA	60	30	15	70
77	null	-84.333716	30.254733	WAKULLA	30	15	10	null

Source: https://ca.dep.state.fl.us/mapdirect/?focus=fgssinkholes

2.14.2 Vulnerability Analysis

Figure 2.15 shows that the threat to Wakulla County from sinkholes. The western part of the county has a 200-foot layer of soil above the lime rock layers, resulting in a very low incidence of sinkholes. The middle section of the county has a 30 to 200-foot-thick layer of soil, consisting mainly of cohesive, clay sediments of low permeability. The majority of the county's sinkholes are in this section. These sinkholes vary in size and develop quickly. The eastern part of the county is an area with bare or thinly covered limestone. Here, sinkholes are few, but when they occur, they are generally shallow and broad and develop gradually.

Based on the data a from the risk assessment system, the following figure and tables detail the estimated vulnerability and damages associated with sinkhole hazards in Wakulla County.

Table 2.38: Structures at Risk from Sinkholes, Wakulla County

Zone	Total	Sgl. F. Res.	Mob. Home	M-F Res.	Comm.	Agric.	Gov./Inst.
Medium	10,483	5,843	3,057	250	438	699	196
Low	2,383	1,333	570	41	123	226	90
Total	**12,866**	**7,176**	**3,627**	**291**	**561**	**925**	**286**

Source: Wakulla County Property Appraiser data, and U.S. Geological Survey data

Sinkhole Risk - City of St. Marks

The entire City of St. Marks is in the medium risk zone for sinkholes.

Table 2.39: Population at Risk to Sinkholes, St. Marks

Zone	Total	Minority	Over 65	Poverty
Low	224	1	45	34

Source: U.S. Census Bureau data

Table 2.40: Structures at Risk to Sinkholes, St. Marks

Use Type	Number of Structures
Single Family Res.	115
Mobile Home	39
Multi Family Res.	12
Commercial	67
Agriculture	1
Gov./Institutional	15
Total:	**249**

Source: Wakulla County Property Appraiser data, and U.S. Geological Survey data

Sinkhole Risk for Sopchoppy
The entire City of Sopchoppy is in a low risk zone for sinkholes.

Table 2.41: Population at Risk, Sopchoppy

Zone	Total	Minority	Over 65	Poverty
Low	457	131	55	48

Source: U.S. Census Bureau data

Table 2.42: Structures at Risk to Sinkholes, Sopchoppy

Use Type	Number of Structures
Single Family Res.	132
Mobile Home	45
Multi Family Res.	0
Commercial	34
Agriculture	30
Gov./Institutional	39
Total:	280

Source: Wakulla County Property Appraiser data, and U.S. Geological Survey data

The overall probability that a sinkhole will occur in Wakulla County sometime in the near future is moderate, but the likelihood of this hazard causing significant damage is low. There have been 77 reported sinkholes in Wakulla County since 1975; with the possibility one could occur without notice at any given time. This hazard is considered a moderate priority.

2.14.3 Probability
The probability of a sinkhole occurring in Wakulla County is relatively high, given that there have been 77 sinkholes to open up since 1975, but the probability of damages is low, based on the lack of significant damages reported to date for any event. This equates to a new sinkhole opening up every 6.9 months, but this is highly contingent on rainfall amounts causing flooding, which can lead to increased sinkhole activity.

2.14.4 Extent
As seen in Table 2.37, sinkholes up to 75 feet in length and width and 30 feet in depth have been reported in Wakulla County. The most probable event to occur in Wakulla County is similar to the Crawfordville East sinkhole. It is 25ft wide and 25ft deep. Wakulla County can expect to experience an event of similar magnitude in the future. Such an event could cause damage to properties and a slight possibility of the loss of human life located on the site.

2.14.5 Future Development and Sinkholes
With there being a moderate threat from sinkholes, Wakulla County is aware of the hazard they present. Given the unpredictable nature of their appearance, growth is unaffected by the presence of sinkhole threats. Residents are encouraged to purchase sinkhole insurance to protect

their assets against any future occurrences. The Wakulla County COMP Plan has setback provisions to ensure no construction is located in close proximity to an existing sinkhole.

2.14.6 Municipalities in Wakulla County

The City of Sopchoppy has not had a reported sinkhole since 1970 and it lies in a low risk zone for sinkholes. The City of St. Marks has never had a sinkhole reported and it lies in a medium risk zone for sinkholes.

2.15 Infectious Disease/Pandemic

According to the World Health Organization, infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites, or 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. For more information on the classifications you can visit the CDC's website at: https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section11.html.

Impacts that can occur in conjunction with infectious diseases can range from the obvious physical illness, to social and economic impacts as well. In the currently ongoing COVID-19 Pandemic the economic impacts are proving to be quite severe nationwide, as well as in Wakulla County, as many businesses are being forced to close and people are unable to work. Socially, individuals are also 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.

2.15.1 Historical Events

Historically there have been three different influenza pandemics in the United States, occurring in 1918, 1957 and 1968. Most notable of these is the 1918 Spanish Flu which killed roughly 50 to 100 million people within a 9-month timeframe. While the probability for one of these to occur is low, it is difficult to predict the severity of these events until they occur.

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

Additionally, other infectious disease such as Swine Flu and Ebola have been presented within the US, but no impacts have been made to Wakulla County. The risk for these two viruses to occur within the county are low.

Beginning in April 2020, the COVID-19 Pandemic is ongoing in the United States and Wakulla county. The Pandemic is caused by the SARS-CoV-2 Novel Coronavirus which was first identified in Wuhan, China before rapidly spreading across the globe. Globally there have been more than 31 million confirmed cases and 972,000 deaths. As of September 23, 2020, there have been 1,106 confirmed cases and 9 deaths in Wakulla County. The virus affects the respiratory system and is most dangerous to those individuals 65 years of age or older or those with underlying medical conditions.

2.15.2 Probability

Peak flu season occurs between the months of October and April in the United States and Wakulla County. The probability of that occurring each year is almost 100%. 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.

2.15.3 Vulnerability

The influenza virus is most likely to affect children and people aged 65 an older with makes up about 20% or roughly 6,500 residents of Wakulla County. However, healthy individuals can still be infected with influenza, so although the most at-risk population makes up 20%, the entire population can be considered at risk. The most common way to reduce vulnerability to influenza is to receive a flu shot each year.

As for other infectious diseases, it is hard to identify the vulnerable populations until an event occurs, therefore the entire population of Wakulla County is potentially at risk to be affected by infectious disease.

2.15.4 Extent

Each year Wakulla County is impacted with infectious related to influenza virus, the overall impact is low. Although COVID-19 Pandemic is currently on-going, the risk of highly lethal infectious diseases to the county remain 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.

2.16 Summary of Hazard Profiles

Throughout Chapter 2, each municipality in Wakulla County is identified and their vulnerability and risk to each hazard has been identified. This included assessments for the Cities of St. Marks and Sopchoppy as well as for the county. This section provides a summary of those individual assessments. All the figures and tables included in Sections 2.4 – 2.14 identify the vulnerability and risk to the residents of Wakulla County, and the Cities of St. Marks and Sopchoppy.

- **Hurricanes and Tropical Storms / Coastal Storm Surge**
  Hurricanes and Tropical Storms are Wakulla County's largest threat because it is the most probably in happening, impacts virtually everyone in the county and all infrastructure, and

can have the largest impact on all aspects of life in the county. Depending on the hurricane's category, strength, and landfall location, the vulnerable areas, structures, and populations vary. Obviously, the stronger the storm, the more potential there is for damage to the county. The risks and vulnerability for its municipalities is not substantially different from the risks to the unincorporated portions of the county. St. Marks is the most vulnerable incorporated jurisdiction based on its proximity to the Wakulla and St. Marks Rivers and the Gulf of Mexico. Storm surge is the largest concern, followed by high winds.

- **Tornadoes**
  There is a medium probability that severe thunderstorms and/or tornadoes will impact any of the Wakulla County municipalities. However, the possibility of severely damaging tornadoes F3 or above is low. In recorded history, there has never been an F3 or above tornado in Wakulla County. However, there have been several tornadoes in the county over the past 60 years. Based on historical statistics, it can be expected that all of the jurisdictions in Wakulla County will continue to experience storms and tornados in the future. Some of the severe storms and tornadoes have the potential to caused significant damages. The damage is primarily caused by wind damage to roofs, and tree debris impacting transportation and power services. The other significant impact comes from flash flooding. Severe storm systems are frequent in nature even though tornadoes are relatively rare.

- **Wildfires**
  The areas around each municipality and the unincorporated communities are particularly susceptible to fires due to their larger populations and a greater density of buildings. This increases their vulnerability to fires when compared to more remote parts of the county. The probability of a fire occurring is relatively low for all three municipalities, but they are all highly vulnerable to a fire threat.

- **Floods**
  Given that the much of Wakulla County is in the 100-year flood plain, the county is highly susceptible to flooding. In the City of St. Marks, 100% of its residents and 100% of its structures are in the flood plain. In Sopchoppy, although few residents are in the 100-year floodplain, the surrounding areas are. Also, under certain circumstances, Sopchoppy would receive storm surge from a Cat 3 or higher hurricane.

- **Coastal Erosion**
  There is a medium probability that coastal erosion will seriously the community of Shell Point. Although both the Cities of St. Marks and Sopchoppy are located next to a river, neither city is concerned with the impact of riverine erosion on their residents or dwellings The LMS Working Group will continue to monitor the situation as it occurs, and it was ranked as a moderate priority for Wakulla County.

- **Dam or Levee Failure**
  There is only one dam that could impact Wakulla County, Jackson Bluff Dam, located at the on the Liberty and Leon County border. A failure of this dam would flood significant sections of Wakulla County, but this is an area primarily within the Apalachicola National Forest. The potential is low, the vulnerability low, and the overall impact is relatively low. There is no potential threat posed to the Cities of St. Marks or Sopchoppy by dams or levies.

- **Hazardous Materials**
  Each of the municipalities has a major roadway connecting them to the rest of the county. These roadways include US 98 (Communities of Panacea and Medart), US 319 (City of Sopchoppy and Community of Crawfordville), and SR 363 (City of St. Marks), all of which carry hazardous materials. The St. Marks River also carries hazardous materials by barge, impacting both the City of St. Marks and the Community of Newport. Yet, with all of this potential for risk, there have been relatively few hazardous materials incidents in Wakulla County or its municipalities. The vulnerability is low. The probability is moderate and overall impact would be low.

- **Terrorism**
  Although terrorism events in Wakulla County have never happened, and their probability of occurrence is very low, still the possibility is there. Wakulla County has community events and other common locations where residents could be impacted by an event. The water delivery system is dependent hazardous materials for purification and could be used in an event. Given the nationwide heightened awareness of terrorism as a viable event, Wakulla County continues prepare for such an event, no matter how unlikely it is to ever happen.

- **Sinkholes**
  Wakulla County has recorded 77 sinkholes that have occurred since records were kept beginning in 1975. The populated part of the county is over a large karsts formation, making sinkholes very probable. No injuries have been reported, and to date relatively minor damages have resulted, yet the probability is there for damages to occur.

- **Infectious Disease / Epidemic / Pandemic**
  Each year Wakulla County is impacted with infectious related to the influenza virus, the overall impact is low. Although COVID-19 Pandemic is currently on-going, the risk of highly lethal infectious diseases to the county remain 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.

2.17 Review and Updates to Chapter 2

Section 2 was reviewed by the LMS Working Group and updated as follows:

- Population estimates for Wakulla County have been updated to reflect the estimated 2019 U.S. Census data.

- Hazard priority rankings, probabilities, and magnitudes in Table 2.5 were revised to accurately reflect their relative risk and the LMS Working Group priorities. Infectious Disease / Pandemic was added to this table and ranked appropriately.

- The numbers of structures in the county has been updated based the Wakulla County Property Appraiser's database. Wherever possible, these numbers have been used to update the number of structures at risk for each hazard.

- Historically information for each of the hazard profiles has been updated to incorporate the latest data.

- List of Presidential Declarations covering Wakulla County has been updated.

- All necessary maps have been updated.

- FEMA FIRM maps for Wakulla County have been updated.

- Future Land Use Map (FLUM) for Wakulla County has been updated.

- Florida Department of Transportation 5 Year Work Program has been updated to 2025.

- Infectious Disease / Pandemic has been added as a new hazard.

Chapter 3: Mitigation Strategy

3.1 Mitigation Blueprint

Section 201.6(c)(3) of 44 CFR requires that "the plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. The section shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards."

The Wakulla County LMS Working Group reviewed and updated the mitigation goals and strategies designed to reduce the county's vulnerability and risks to the identified hazards in this document. The primary focus is in agreement with other principles found in existing county plans and ordinances. They include:

- Identify community infrastructure, assets, residents, and businesses that are vulnerable to natural disaster and man-made hazards within the county.
- Assess the level of risk to community assets from natural disasters and man-made hazards
- Maintain records of the costs of damage and repetitive losses to community assets
- Identify initiatives that reduce the cost and vulnerability of people, property, and resources within the county to natural disasters and man-made hazards.
- Establish mitigation as a factor in the decision-making process of local governments by considering the potential long-term consequences of government actions with respect to hazards.

Existing plans and documents that have already been developed by the county are crucial components to the overall hazard mitigation strategy. These documents include:

- 2016 version of the Wakulla County Local Mitigation Strategy (LMS)
- City of St. Marks Comprehensive Plan (Comp Plan) (See Appendix 9)
- City of Sopchoppy Code of Ordinances (See Appendix 9)
- Wakulla County Comprehensive Plan (Comp Plan) (See Appendix 9)
- Wakulla County Comprehensive Emergency Management Plan (CEMP)

These documents provide the blueprint for the 2021 Wakulla County Local Mitigation Strategy. All of these existing authorities, policies, programs, and codes are adopted official mechanisms for county government and can all be expanded and improved as required. The LMS Working Group is the lead entity for proposing new ideas to the County Commissioners for improving overall mitigation efforts.

From examining Wakulla County plans, ordinances, and policies, the following principles were determined to represent the core of local mitigation policies:

- Protect public health and safety (from identified hazards).
- Protect properties (from identified hazards).
- Manage public funds efficiently and effectively (for disaster response, recovery, and reconstruction).
- Maintain a sustainable economic base and workforce development.
- Promote community awareness of local hazards.
- Protect and enhance long-term viability of ecosystems.
- Protect and manage scenic, historical, natural, or recreational resources efficiently.
- Support and promote state and regional mitigation goals, initiative, and efforts.

3.2 NFIP Loss Statistics

Wakulla County and the cities of St. Marks and Sopchoppy participate in the National Flood Insurance Program (NFIP). The following represents data from the NFIP pertinent to Wakulla County. As can be seen, the amount of flood losses has not been large when averaged over the 32 years of records.

Table 3.1: NFIP Loss Statistics for Wakulla County

NFIP LOSS STATISTICS					
Name	**Total Losses**	**Closed Losses**	**Open Losses**	**CWOP* Losses**	**Total Payments**
St. Marks, Town of	150	132	0	18	$1,636,994.11
Sopchoppy, City of	2	2	0	0	$156,419.66
Wakulla County	1,147	937	2	208	$22,529,197.47
*Closed Without Payment Losses					

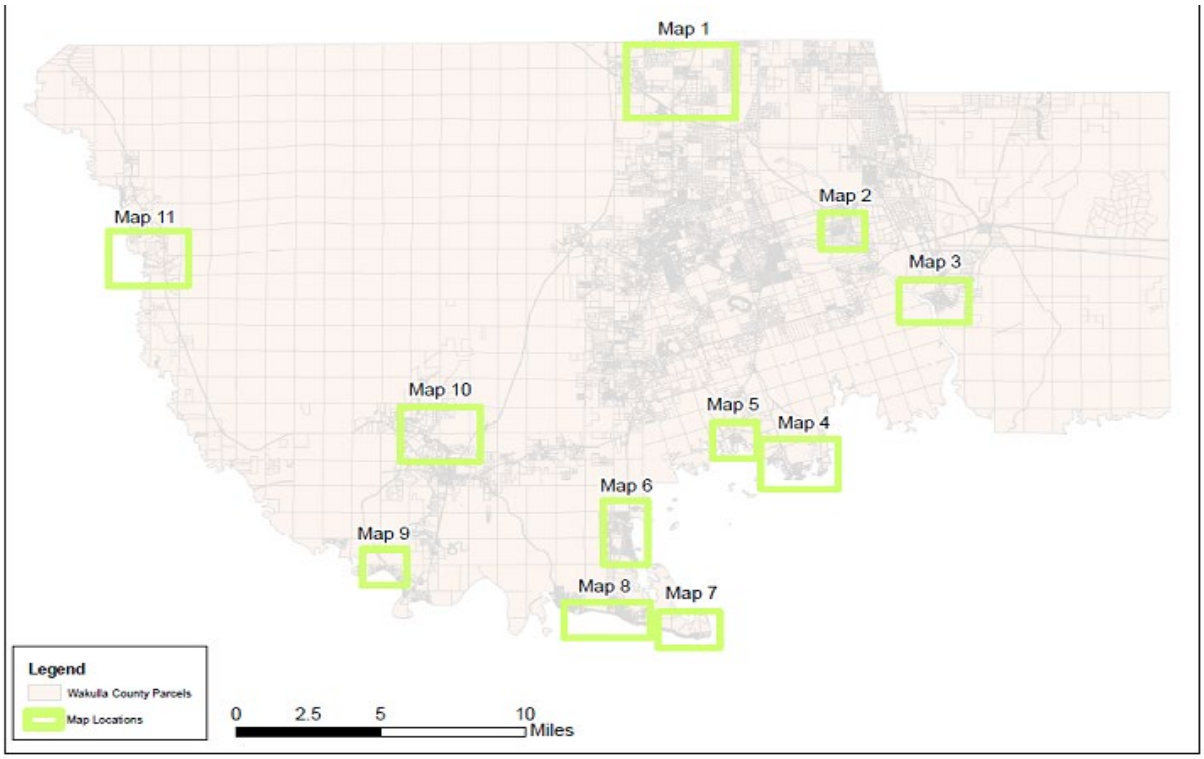
Source: Wakulla County Planning and Community Development

Wakulla County and its municipalities will continue to comply with the NFIP. The following efforts identify efforts to ensure compliance:

1. Incorporate NFIP provisions into the Wakulla County Land Development Regulations/ Comprehensive Plan, Future Land Use Map, and Zoning Regulations
2. Require freeboard requirements for new construction or reconstruction in accordance with the Florida Building Code and ASCE 24.
3. Assess and apply the 50% rule to all substantial damage and substantial improvements.
4. Enforce floodplain height requirements and free board.
5. Provide flood information at community events.
6. Require non-designated floodway setback requirements.
7. Require agricultural and silviculture interests to require permits for uses in the 100-year floodplain.
8. Prohibit industrial uses, high intensity agricultural uses within the 100-year floodplain of the Ochlocknee River.

As of August 2020, there were 105 repetitive loss properties in Wakulla County, according to FEMA records. The vast majority of these properties are located along the Gulf of Mexico coastline; Ochlocknee Bay; and the St. Marks River. Figure 3.1 shows the approximate locations of the repetitive loss properties in Wakulla County. Table 3.2 provides a general overview of the type of repetitive loss properties located in each of the Map Sections identified on the map.

Figure 3.1: Repetitive Loss Structures, Wakulla County - 2020



Source: Wakulla County and FEMA Repetitive Loss Data

Table 3.2: Repetitive Loss Structures in Wakulla County

Map #	Facility Type	# of Properties	Location		Map #	Facility Type	# of Properties	Location
1	Residential	2	Uninc Co/Crwfrdville		**5**	Residential	12	Uninc Co/Spring Creek
2	Residential	2	Uninc Co/Crwfrdville		**6**	Warehouse	1	Uninc Co/Panacea
3	Marina	2	Uninc Co/Crwfrdville		**6**	Residential	3	Uninc Co/Panacea
3	Camp	1	Uninc Co/Newport		**7***	Residential	15	Uninc Co/Ochlckne Bay
3	Club Facility	1	Uninc Co/Newport		**8**	Residential	10	Uninc Co/Ochlckne Bay
3	Commercial	2	Uninc Co/Newport		**8**	Marina	1	Uninc Co/Ochlckne Bay
3	Residential	6	Uninc Co/Newport		**8**	Restaurant	1	Uninc Co/Ochlckne Bay
3	Lodging	1	Uninc Co/Newport		**9**	Residential	1	Uninc Co/Sanborn
4*	Residential	40	Uninc Co/Shell Point		**10**	Residential	2	Sopchoppy
4	Restaurant	1	Uninc Co/Shell Point			**Total**	**104**	

** includes severe repetitive loss residential units*

**Uninc Co = Unincorporated Wakulla County*

In the past, Wakulla County has pursued Flood Mitigation Assistance (FMA) grant funds to reduce the number of repetitive loss properties. The County will continue to pursue FEMA grant funding through the FMA, Repetitive Flood Claims (RFC), and Severe Repetitive Loss (SRL) programs in an attempt to address mitigation of the repetitive loss properties in Wakulla County. In particular, Wakulla County wishes to reduce the number of properties on the FEMA Severe Repetitive Loss list, of which there were 9 severe repetitive loss properties, as of 2020. They are located on Figure 3.1 above in the area displayed as Map 4 (4 properties) and Map 7 (5 properties)

Per Part II Section 11.067 of the Wakulla County Land Development Code, the finish floor elevation of all new construction must be at least 18 inches above the base flood elevation in the developments of Wakulla Gardens, Magnolia Gardens, Greiner's Addition, Lake Ellen Terrace, Lake Ellen Proper, Lake Ellen Estates, and Wakulla River Estates. This requirement reduces the amount of vulnerability and exposure to homes in those particular developments.

3.3 Community Rating System Planning Requirements

Wakulla County and the City of St. Marks currently participate in the Community Rating System (CRS). Both Wakulla County and St. Marks have participated since October 1, 1993. As such, there are flood mitigation activities ongoing within the County and the City of St. Marks. The CRS offers a comprehensive program to assist communities to mitigate future flood-related damages.

3.4 Description of the Planning Process

Since the previous 2016 LMS was submitted and approved by FEMA, the Wakulla County LMS Working Group has met on a quarterly basis in a public forum and the group was chaired by the Wakulla County Planning and Community Development Director. The project list is updated on a regular basis and forwarded annually to the Florida Division of Emergency Management.

The Wakulla County Planning and Community Development Director, with the help of the Wakulla County Emergency Management Director, directed the update process and conducted the public meetings. The planning process remains open to public input as well as input from the Federal, State, and local entities, private industry, businesses, neighboring communities, academia, not-for-profit organizations, and other interested parties.

Invitees included:

- General Public
- Leon County Emergency Management
- Jefferson County Emergency Management
- Franklin County Emergency Management
- Liberty County Emergency Management
- City of Tallahassee, Florida State University
- Apalachee Regional Planning Council
- Florida Forest Service
- Florida Division of Emergency Management
- NW Florida Water Management District
- Capitol Area Chapter of the ARC

These agencies, the public and interested parties, were invited to the five public meetings via email notification. The LMS document was also posted on-line at the Wakulla County Planning and Community Development website for public review and comment. Through public notices (see Appendix 2), citizens were given opportunities to attend the LMS planning meetings and comment on the strategy, both during the drafting stage and prior to approval. The general public was given the opportunity to comment on the LMS prior to final Plan approval through the posting of the plan on the Planning Department's website with a general note on how to provide comments. All comments received were considered for inclusion into the final strategy. The Wakulla County LMS will be posted on the website until the next update.

3.5 Mitigation Goals and Objectives

The following Wakulla County Local Mitigation Strategy Goals and Objectives were developed under the auspices of the Wakulla County LMS Group and provide a mechanism to assist the County reduce its risk and vulnerability to known hazards. These goals reflect a thorough review of existing mitigation programs, plans, and activities. The following goals are the basis for the Wakulla County LMS:

1. Protect public health and safety (from identified hazards)
2. Protect properties (by reducing exposure to hazards)
3. Manage public funds efficiently and effectively (for disaster response, recovery, and reconstruction)
4. Maintain a sustainable economic base and workforce development
5. Preserve and enhance long-term viability of ecosystems
6. Protect and manage scenic, historical, natural, and recreational resources efficiently
7. Support and promote state and regional mitigation goals, initiatives, and efforts

3.5.1 Goals, Objectives, and Policies

1. Protect public health and safety (from identified hazards).

a. Promote community awareness of local hazards
   1) Educate communities and individuals on mitigation measures
   2) Educate government officials on mitigation measures
   3) Educate potential property buyers of local hazards

b. Promote community awareness of evacuation policies, routes, and procedures
   1) Identify populations at risk (for evacuation purposes)
   2) Improve traffic circulation during floods and evacuations

c. Improve water quality (potable and recreational uses)
   1) Expand sanitary sewer system
   2) Expand storm water retention and detention facilities

d. Coordinate with local and state health departments to support community awareness of the impact of a pandemic
    a. Seek opportunities for recreation and open spaces to promote community health during a pandemic crisis

2. Protect properties (by reducing exposure to hazards)

a. Update hazard maps as required.

b. Identify properties in hazard areas
    1) Direct growth and development away from flood-prone and other hazard areas
    2) Continuously update Future Land Use Map (FLUM) in Comprehensive Plan

c. Identify structures in hazard areas
    1) Promote owner awareness of mitigation practices for buildings
    2) Support mitigation of structures in hazard areas, especially repetitive loss properties
    3) Encourage property owners to purchase flood insurance

d. Protect buildings from flooding
    1) Support storm water mitigation projects in identified flood-prone areas
    2) Support raising buildings in flood-prone areas
    3) Pursue innovative funding techniques to mitigate damage in flood prone areas.

e. Protect buildings from high winds
    1) Support tie-down projects involving older mobile homes
    2) Support projects to retrofit older existing buildings

f. Support acquisition of severe repetitive loss properties for open space and recreational purposes

g. Provide information to the public on the fire risk of the urban/wildland interface near private property

3. Manage public funds efficiently and cost effectively (for disaster response, recovery, and reconstruction)

a. Use public funding to protect public services and critical facilities

b. Identify and pursue mitigation funding
    1) Track grant notices, deadlines, and requirements
    2) Pursue FEMA grants including HMGP, PDM, FMA, RFC, SRL (through Florida DEM)
    3) Pursue Community Development Block Grants

c. Maintain and update LMS project list and action plans annually

1) Solicit public input on potential mitigation projects
2) Prioritize mitigation projects according to greatest threat to life, health, and property
3) Perform cost benefit review on all mitigation projects submitted for grants

d. Maximize external funding for mitigation projects

e. Encourage mitigation efforts by property owners to protect own properties
   1) Educate and promote owner-initiated mitigation projects
   2) Encourage property owners to purchase flood insurance

f. Minimize public expenditures for infrastructure in flood-prone, storm surge, and other hazard areas

g. Update FEMA repetitive loss and severe repetitive loss list annually
   1) Pursue acquisition of severe repetitive loss properties for open space through grant programs

4. Maintain a sustainable economic base and develop workforce

a. Reduce risks in flood-prone and other hazard areas

b. Limit development in flood prone and other hazard areas

5. Preserve and enhance long-term viability of ecosystems

a. Improve water quality

b. Improve wildlife habitat

c. Support land conservation, acquisition, and protection

6. Protect and manage scenic, historical, natural, and recreational resources efficiently

a. Use acquisition programs to expand open space and recreational opportunities

7. Support and promote state and regional mitigation goals, initiatives, and efforts

3.6 Mitigation Projects List

Section 201.6(c)(3)(iii) of 44 CFR requires that the Local Mitigations Strategy identify, evaluate, and analyze a comprehensive range of specific mitigation projects being considered to reduce the effects of each hazard identified, with particular emphasis on buildings and infrastructure.

The Wakulla County LMS Working Group has identified 48 projects that will reduce the impacts of natural hazards. Refer to Appendix 7 for a complete list of the projects. There are several projects specific to the Cities of St. Marks and Sopchoppy and many of the remaining projects

have countywide (both incorporated and unincorporated areas) impacts and therefore, impact the two cities. Each of these projects has been evaluated and analyzed as well as compared to other potential actions. This evaluation and analysis focused on the protection of lives and property, the ability to reduce economic losses, evacuation, and on the cost effectiveness of the specific projects.

Appendix 8 is a list of the projects and actions that have been completed or deleted by the LMS Working Group, with their respective status noted.

At their quarterly meetings, the LMS Working Group reviews the project list and the action plans. As necessary, new projects are and re-prioritized to meet the ongoing and growing needs of the community. This update and modification process is part of the ongoing maintenance procedures for the LMS Working Group. After the projects are reviewed and added to the project list, the projects will undergo a cost benefit analysis to determine whether the projects will be funded. This cost benefit analysis occurs once all appropriate projects have been approved for funding.

3.7 Action Plan for Mitigation Projects List

Section 201.6(c)(3)(iii) of 44 CFR requires that a community develop an action plan describing how the actions identified will be prioritized, implemented, and administered by the local jurisdiction. This Section shall include the implementation timeline; the funding sources or other resources that will be used to implement the strategy, when possible; and the agency or personnel responsible for carrying out these actions. For FEMA program funding, these mitigation measures must be cost effective, environmentally sound, and technically feasible. The local jurisdictions and the State must prioritize the measures based on these criteria.

The LMS Working Group has established action plans for each of the projects that address the required mitigation. Specific focus was placed on the ranking and prioritization of the projects and identifying the lead agencies responsible for the implementation and administration of these projects. Refer to Appendix 7 for details on the implementation timelines and the lead agencies along with an estimated cost for each project, where costs have been identified.

Projects were numerically ranked using the STAPLEE method by the members of the LMS Working Group. The cost/benefit review of the projects weighed the costs against the benefits. Those projects whose costs exceeded the potential benefits did not make the project list. The STAPLEE methodology is found in ***Appendix 6*** for all the ongoing projects.

3.8 Funding Sources

As part of the 2020 LMS update, research was done to identify potential sources of funding for various types of mitigation. The following is a list of the primary funding sources discovered during this effort. The Wakulla County LMS Working Group will make every attempt to secure funding from any of these sources for identified mitigation projects.

- Hazard Mitigation Grant Program (HMGP)
- Florida Communities Trust (FCT)
- 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/Division of 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 (FRCP)

The most probable sources for funding for mitigation projects are the HMGP and the PDM programs. Because the funding sources are specific to mitigation, a more detailed explanation of these two programs is listed below.

3.8.1 Hazard Mitigation Grant Program (HMGP)

The Hazard Mitigation Grant Program 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 the Hazard Mitigation Grant Program are: 1) To prevent future losses of lives and damage to property due to disasters; 2) To implement state or local hazard mitigation plans; 3) To enable mitigation measures to be implemented during immediate recovery from a disaster; and 4) To provide funding for previously identified mitigation measures that benefit the disaster area.

3.8.2 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. The strength of the funding available has wavered through the years and has been significantly reduced from prior year’s levels.

3.9 Monitoring, Evaluating, Maintaining and Updating the LMS

The Wakulla County LMS Working Group including the County and cities of St. Marks and Sopchoppy recognizes that in order to be effective, the Wakulla County LMS needs to be reviewed, evaluated and updated on a regular basis. The following procedures fulfill this process:

a. The LMS Working Group meets quarterly to review the local mitigation strategy and projects to ensure it is current and reflects changing conditions within the community. This should provide adequate time to incorporate any needed revisions prior to the next grant cycles. The LMS Working Group will meet more frequently if needed, such as in a post-disaster environment.

b. The Chairperson of the LMS Working Group will be responsible for convening the Group.

c. The review of the LMS will include the recognition of completed projects and/or programs, the identification of new mitigation initiatives, an evaluation of the impact of recommended changes to city and/or county plans and ordinances identified during the local mitigation process; and an evaluation of any changes in the hazard identification and vulnerability assessment.

d. As needed, additional public and private sector interests will also be invited to participate in the review, as well as representatives from neighboring jurisdictions. Changes recommended by the LMS Working Group will be forwarded to the Wakulla County Emergency Management Office for consolidation into the CEMP. Wakulla County Planning and Community Development will forward recommended revisions to the County Commission and City Councils for review and determination of action. Any changes to the LMS will be made available to the public for review and comment.

e. An annual evaluation of the LMS will be conducted by the LMS Working Group in accordance with the funding grant cycles. The purpose of the evaluation will be to determine if the potential available funding will match any of the projects listed in the LMS. If the funding cycles do not, the LMS Working Group may adjust the LMS project list to take full advantage of any potential mitigation funding opportunities. Additionally, the annual evaluation will also consider the effectiveness of the LMS to be incorporated into other jurisdictional plans. This will help determine if the LMS mitigation strategies are being adopted by the various jurisdictions, thus enhancing Wakulla County and its municipalities ability to reduce their vulnerability to its known hazards.

The Wakulla LMS Working Group is committed to continuing the LMS process into the future. It is the intention of the Working Group to meet quarterly to discuss mitigation initiatives, evaluate progress made on each project and achieving its purpose and the prioritized goals, and review the overall strategy. Each of these meetings are public meetings, and notices for the public to attend appear in the local media outlets. If necessary, the LMS will be updated by the Working Group Chairperson at the end of each quarterly meeting to reflect any new initiatives agreed to

by the LMS Working Group. A report is prepared which summarizes the status of the LMS and its implementation annually. A strong emphasis on project successes and the integration of the LMS into the Comprehensive Plan will be the theme of the continued LMS development. Every five years, the LMS Working Group will incorporate the Comprehensive Plan changes in land use trends into the update of the vulnerability assessments.

The Wakulla County Planning and Community Development Department will continue to lead in scheduling the LMS Working Group efforts. Annually a new LMS Chairperson and Vice-Chairperson will be elected. A notice to the public and neighboring jurisdictions will be made before every meeting, and the results of the meetings will be submitted to the public and to the County Commission and City Councils. Special meetings of the LMS Working Group will be called, as needed.

Every five years the LMS must be reviewed and updated to include the most current data and historical events for the County. To meet this requirement, the process of reviewing, revising, and updating the Wakulla County LMS will begin in the year prior to the five-year mandated update deadline. The LMS Working Group, which is comprised of county and municipal government and agency officials as well as private citizens, will meet to determine the best method to accomplish the five-year update. The three jurisdictions represented in the LMS will participate in the process by attending planning meetings and providing information to update the project priority list, critical facilities list, and goals and objectives. The Wakulla County Board of County Commissioners, and the City Commissions of Sopchoppy and St. Marks formally recognize and approve of the planning process and have formally adopted the LMS by resolution.

It is the goal of the LMS Working Group to maintain the Strategy, ensure it has practical application, is consistent with guidelines set forth by the State of Florida and Federal agencies, and continues to support the mitigation goals and successes in Wakulla County.

3.10 Incorporation with Other Planning Mechanisms

The Wakulla County LMS is to be adopted by the Wakulla County Board of County Commissioners, and the Towns of St. Marks and Sopchoppy as an integral planning document used by the County and its municipalities along with the Comprehensive Emergency Management Plan (inclusive of the County and municipalities) and the Comprehensive Plans for the County and its municipalities. As these Plans are updated with future enhancements and modifications, the LMS be consulted to be sure that these changes consider the impacts of natural disasters and potential mitigation strategies.

Members of the LMS Working Group including the County, and the Cities of St. Marks and Sopchoppy will suggest mitigation opportunities when any action is proposed by the Town Councils, or the Board of County Commissioners using the following steps:

a. When one of the documents or plans identified above are due for an update, the plan will be reviewed by the LMS Working Group for recommendations to include mitigation actions or activities.

b. When an ordinance, code or revision to the Land Development Regulations (County and municipalities) are proposed, the chair of the LMS Working Group will provide recommendations, if warranted, to the governing body for consideration. If this occurs in a municipality, then the municipal member of the LMS Working Group will make the recommendation.

c. Upcoming plan reviews will be discussed at the LMS Working Group meetings on a regular basis to identify what plan is due for update, and when.

The LMS risk assessment was used as a basis to update the Wakulla County Comprehensive Emergency Management Plan, and in the development of the Wakulla County Logistics Plan, Disaster Housing Plan, Debris Management Plan, and the Continuity of Operations Plan. The information contained in the LMS was also used where appropriate in the update of the Wakulla County and municipal COMP Plans after the Evaluation and Appraisal Report (EAR) are issued. The LMS is shared with the Apalachee Regional Planning Council for possible inclusion in any documents they develop.

The LMS Working Group will continue as the lead agency for the promotion of mitigation against natural disasters. This group will continually monitor the situation in Wakulla County and its municipalities and propose new initiatives and projects, as required. These new initiatives will be considered in conjunction with the other planning mechanisms and their subsequent goals. The Wakulla County Comprehensive Plan and the FLUM specifically, will incorporate risks from the various hazards into the planning for future land use. Capital improvement plans will need to incorporate a study of potential impacts from natural hazards and prioritize any projects that will reduce the vulnerability to these hazards.

Currently the Wakulla County COMP Plan references the Wakulla County CEMP and the CEMP references the Wakulla County LMS. Ensuring the LMS, County and municipal COMP Plans, and the CEMP are synchronized will continue to be a primary focus of the LMS Working Group. There is a symbiotic relationship between growth management, represented through the COMP Plan, emergency management, represented through the CEMP, and hazard mitigation, represented by the Wakulla County LMS. The documents are complementary and need to stay in sync with each other. The COMP Plan's Future Land Use Element is especially important to employ mitigation strategies prior to development. The CEMP establishes a clear strategy for protecting lives and property from the impacts of these hazards, and the LMS provides direction on how to prevent these losses.

3.11 Continued Public Participation

Section 201.6(c)(4)(iii) of 44 CFR requires a discussion on how the community will continue public participation in the ongoing mitigation planning process. The community is encouraged to participate in the on-going mitigation planning process in Wakulla County. There will be three primary ways for the public to continue to participate in this LMS process.

1. LMS Working Group Meetings – The quarterly LMS Working Group meetings will be open to the public. Each meeting will be publicly advertised and held in a public and easily accessible location. Citizens and private organizations will be encouraged to attend these meetings and provide their comments and feedback.

2. Internet Correspondence – The adopted LMS is posted on the Wakulla County Planning and Community Development website and linked on the Wakulla County Emergency Management website for review. Comments and feedback can be emailed to the Emergency Management Office who will convey the information to the LMS Working Group.

3. Placement of Strategy in the Wakulla County Library – A copy of the LMS will be permanently placed in the Wakulla County Library for public review and comment. Such comments will be directed to the Wakulla County Planning and Community Development Department, who will consolidate them and give them to the LMS Working Group. The Strategy will be posted on the Wakulla County website with directions to the general public for review and comment.

3.12 Review and Update of Chapter 3

Chapter 3 was reviewed by the LMS Working Group and updated as follows:

- The LMS Guiding Principles were updated.
- Hazard mitigation goals, objectives, and policies were reviewed and updated to reflect the LMS Working Group's priorities.
- The project list is updated and ranked throughout the year.

Appendix 1: Jurisdiction Adoption Notices

Adoption Notice by Wakulla County Board of County Commissioners

Adoption Notice by the City of St. Marks

Adoption Notice by City of Sopchoppy

Appendix 2: Public Notices and Meeting Minutes

WAKULLA COUNTY

Local Mitigation Strategy Working Group
Meeting Minutes
March 4, 2020

Local Mitigation Strategy (LMS) Working Group Members and Citizens Present:

Clyde Collins, Wakulla Building
Melissa Corbett, Wakulla Planning and Community Development
David Harrison, Citizen
Denise Imbler, Apalachee Regional Planning Council
Padraic Juarez, Florida Department of Health
Louis Lamarche, Wakulla County Fire Rescue
Ned Nobles, ESG, Inc.
Somer Pell, Wakulla Planning and Community Development
Todd Schroeder, Florida Forest Service
Brad Taylor, Wakulla Emergency Management

I. Approval of minutes from December 6, 2019 meeting

The minutes were approved with no changes.

II. Election of Chair and Vice-Chair for 2020

This item was tabled until the next meeting.

III. Update on Hazard Mitigation Grant Program cycle for Hurricane Michael

Padraic Juarez made a motion to add a project to the LMS Project List for a generator at the Public Works/Fuel Station. David Harrison seconded the motion and subsequently the group all voted in favor of this addition. This project will be added as priority number 25, at the beginning of the section of generator related projects.

Melissa Corbett discussed the status of the HMGP grant applications that are being prepared for submittal. The grant applications are for generators at critical facilities and those facilities, with their updated total project costs, are as follows:

1) Public Works/Fuel Station - $66,688.21
2) Community Center/Post Event Shelter - $167,642.00
3) Wakulla County Sheriff's Office Annex - $52,574.50
4) Board of County Commissioners Administration Complex - $116,385.20.

The group agreed to update the estimated project cost in the LMS Project List for each of these activities.

Melissa Corbett then asked the Working Group to rank the generator projects in the prioritized order that funding should be requested through the HMGP. After discussing each of the project sites and their post disaster functions, the following prioritized order was agreed on by the group:

1) Public Works/Fuel Station
2) Community Center/Post Event Shelter
3) Wakulla County Sheriff's Office Annex
4) Board of County Commissioners Administration Complex.

IV. Local Mitigation Strategy 5-year update

Denise Imbler, with the Apalachee Regional Planning Council (ARPC), spoke to the group about the ARPC and noted that they would be available to assist Wakulla County in its five-year updated to the LMS. The Working Group expressed a strong desire to bring the ARPC on to lead this update project. Denise stated that she would be back in touch with a proposed scope of work and estimated cost.

V. Member discussion items

Padraic Juarez discussed the new COVID-19 disease and noted that a meeting on the subject would be held in the EOC on March 4, 2020 at 2 P.M.

The Working Group decided to schedule their next meeting for Wednesday, May 6, 2020 at 9 A.M. in the Wakulla County BOCC Administration Conference Room.

Approval Date May 6, 2020

Signature

WAKULLA COUNTY
LOCAL MITIGATION STRATEGY
WORKING GROUP MEETING

March 4, 2020

Name	Organization	Contact Email and/or #
Melissa Corbett	P & Z	mcorbett@mywakulla.com
Todd Schroeder	FFS	Todd.Schroeder@fdacs.gov
Somer Pell	P&Z	spell@mywakulla.com
Clyde Collins	B, D	ccollins@mywakulla.com
Ned Nobles	Utilities	nnobles@esginc.net
Louis Lamarche	WCFR	llamarche@mywakulla.com
DAVID HARRISON	citizen	davidh@saltydog.net
Padraic Juarez	DOH	Padraic.Juarez@flhealth.gov
BRAD TAYLOR	WAKULLA EM	BTaylor@wcso.org
Denise Imbler	ARPC	DImbler@arpc.org

WAKULLA
COUNTY

Notice of Public Meeting:

The Wakulla County Local Mitigation Strategy Working Group is holding a Public Meeting on Wednesday, May 6, 2020 at 9:00 A.M. The meeting will be held exclusively via Communications Media Technology, as authorized pursuant to the Governor's Executive Order No. 20-69. Interested parties are invited to attend and participate online and by telephone via the following:

Join Zoom Meeting (Online):

https://zoom.us/j/7532420289

Meeting ID: 753 242 0289

(If using your phone to join online, it's recommended to download & use the Zoom App):

Telephone:

+1 253 215 8782 US

+1 301 715 8592 US

Interested persons having questions or requiring assistance with participating in the meeting via communications media technology should contact Jessica Welch at (850) 926-0919 ext. 706 or jwelch@mywakulla.com. For those interested, the following link provides Zoom Video Tutorials: https://support.zoom.us/hc/en-us/articles/201362193-Joining-a-Meeting

Purpose of Meeting:

To discuss the Local Mitigation Strategy, which is a comprehensive, coordinated planning document utilized to decrease the County's vulnerabilities to natural and man-made hazards.

If a person decides to appeal any decision made by the board, agency, or commission with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

Persons with a disability needing a special accommodation should contact the Wakulla County Board of County Commissioners Administration Office at least two (2) days prior to the meeting at (850) 926-0919; Hearing & Voice Impaired at 1-800-955-8771; or email at ADARequest@mywakulla.com

WAKULLA COUNTY

Local Mitigation Strategy Working Group
Meeting Minutes
May 6, 2020

Local Mitigation Strategy (LMS) Working Group Members and Citizens Present:

** Meeting Conducted Via Zoom**

Somer Pell, Wakulla Planning and Community Development
Hannah Dudley, Wakulla Planning and Community Development
David Harrison, Citizen
Denise Imbler, Apalachee Regional Planning Council
Louis Lamarche, Wakulla County Fire Rescue
Todd Schroeder, Florida Forest Service
Mike King, Wakulla Road and Bridge
Chuck Hess, Wakulla County Commissioner
Jessica Welch, Director of Communications & Public Services
Jennifer Nagy, Wakulla Emergency Management
Zach Annett, Apalachee Regional Planning Council
(850)488-1615, No Name Reported
Reporter, No Name Reported

I. Approval of minutes from March 4,2020 meeting

The minutes were approved with no changes. Motion to approve by David Harrison and seconded by Todd Schroeder. Motion passed unanimously.

II. Election of Chair and Vice-Chair for 2020

Jennifer Nagy made a motion for Somer Pell to be chair. Mike King seconded the motion. Motion passed unanimously.

Somer Pell made a motion for Jennifer Nagy to be Vice-Chair. Mike King seconded the motion. Motion passed unanimously.

III. Local Mitigation Strategy 5-year update

Denise Imbler, with the Apalachee Regional Planning Council (ARPC), spoke to the group about the draft update to LMS is due to DEM November. Denise stated that details should be discussed next meeting in June.

IV. Member discussion items

Somer Pell proposed the City of St. Marks project, number 26: Admin Complex and St. Marks City Hall Generators, be considered for HMPG ranking list and the estimated cost of $150,000 be revised to reflect a more current estimate of $86,100. Mike King made a motion to revise the City of St. Marks generator cost to $86,100. Louis Lamarche seconded the motion. Motion passed unanimously.

Jennifer Nagy made a motion for the City of St. Marks generator to be ranked number 5 on the HMPG list. Louis Lamarche seconded the motion. The project sites and their post disaster function, the following prioritized order was agreed on by the group:

1) Public Works/Fuel Station
2) Community Center/Post Event Shelter
3) Wakulla County Sheriff's Office Annex
4) Board of County Commissioners Administration Complex
5) Admin Complex and St. Marks City Hall

Motion passed unanimously.

The Working Group decided to schedule their next meeting for Tuesday, June 23, 2020 at 9 A.M. meeting conducted via Zoom.

Approval Date June 23 2020

Signature

WAKULLA COUNTY
LOCAL MITIGATION STRATEGY
WORKING GROUP MEETING
May 6, 2020

Name	Organization	Contact Email and/or #
Hannah Dudley	D+Z	HDudley@mywakulla.com
Somer Pell	D+Z	SPell@mywakulla.com
Mike King	R+B	mking@mywakulla.com
Chuck Hess	WCC	Chess@mywakulla.com
Jessica Welch	DC+PS	Jwelch@mywakulla.com
David Harrison	Citizen	David.H@ed-data.com
Jennifer Nagy	EMD	Jnagy@WCSO.org
Louis Lamarche	WCFR	llamarche@mywakulla.com
Denise Imbler	ARPC	DImbler@arpc.org
Todd Schroeder	FFS	todd.schroeder@FF.acs.gov
Zach Annett	ARPC	Zannett@arpc.org
(850) 488-1615	no name reported	
reporter	no name reported	

WAKULLA
COUNTY

Notice of Public Meeting:

The Wakulla County Local Mitigation Strategy Working Group is holding a Public Meeting on Tuesday, June 23, 2020 at 9:00 A.M. in the Wakulla County Community Center (Crawfordville Room), 318 Shadeville Rd, Crawfordville, FL, (850) 745-6042. Interested parties are invited to attend and participate.

Purpose of Meeting:

To discuss updates to the Local Mitigation Strategy, which is a comprehensive, coordinated planning document utilized to decrease the County's vulnerabilities to natural and man-made hazards.

If a person decides to appeal any decision made by the board, agency, or commission with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

Persons with a disability needing a special accommodation should contact the Wakulla County Board of County Commissioners Administration Office at least two (2) days prior to the meeting at (850) 926-0919; Hearing & Voice Impaired at 1-800-955-8771; or email at ADARequest@mywakulla.com

WAKULLA
COUNTY

Local Mitigation Strategy Working Group
Meeting Agenda
June 23, 2020

Local Mitigation Strategy (LMS) Working Group Members and Citizens Present:

Somer Pell, Wakulla Planning and Community Development
David Harrison, Citizen
Louis Lamarche, Wakulla County Fire Rescue
Todd Schroeder, Florida Forest Service
Mike King, Wakulla Road and Bridge
Clyde Collins, Wakulla County Building Department
Jennifer Nagy, Wakulla Emergency Management
Denise Imbler, Apalachee Regional Planning Council (via GoTo Meeting)
Zach Annett, Apalachee Regional Planning Council (via GoTo Meeting)
Anthony Carpanini, Apalachee Regional Planning Council (via GoTo Meeting)
Sherry Salcido, USFS/GYF
Noah Hertz, Reporter

I. Approval of minutes from May 6, 2020 meeting

Somer Pell called for a motion to approve the minutes from the May 6, 2020 agenda. Clyde Collins made a motion to approve the minutes which was seconded by Mike King. Motion passed unanimously with all in favor.

II. Local Mitigation Strategy 5-year update

Denise Imbler presented the LMS Hazard and Vulnerability Assessment as discussed, ranked, and prepared by the 2015 Working Group. Each hazard, the impact ranking, probability, and magnitude was discussed individually. The consensus of the Working Group (the "Group") was to maintain the current data with no need to adjust. Next, the Group discussed other hazards which are not included in the LMS (droughts/heat waves, earthquakes, civil disturbances, riverine erosion, tsunami). The Group agreed to exclude these hazards. Denise Imbler suggested inclusion of pandemics and diseases and noted that discussion with FDEM indicated that if included it would have to be addressed in each section of the LMS. Jennifer Nagy agreed and there was no specific opposition from the Group. Denise Imbler indicated that she would draft something for the Group review and consider at a future meeting.

Next, Denise Imbler presented the Mitigation Goals and Objectives. Jennifer Nagy suggested that we include an item regarding pandemics, to include mitigation and educational components under Item 1 of this section, Sherry Salcido also suggested including workforce development in the economic base.

Denise Imbler stated that the ARPC will be working on updating the hazard maps and will present them at a future meeting. When discussing the item number 2, Sherry Salcido suggested pursing innovated funding opportunities to improve capacity mitigation in flood prone areas. There were no objections by the Group. Louis Lamarche suggested including wildland urban interface education of fire risk into this section. There were no objections by the Group. When discussing item number 3, Sherry Salcido recommended including provision regarding the promotion of open space and recreational areas. No objections by the Group were expressed. It was recommended by the Group to have the wildland urban interface included in item 3 verses item 2. Goals and Objectives, Items 4-7 were discussed with no recommended changes or suggestions.

Denise Imbler explained that the 2015 Working Group opted to utilize the STAPLEE method for ranking the projects list and recommended that this method be used if the Group wished to update the current list. After some discussion, the Group agreed that there was not a need to update the projects list at this time given the fact that the Group meets frequently and amends the projects list accordingly as needed.

Denise Imbler noted that Appendix 8 needs to be updated and further suggested to add items to the project list. These items would include projects related to wildfire interface and open space recreation.

III. Member discussion items

Somer Pell asked if any members had any discussion items. Sherry Salcido requested information regarding volunteer opportunities during events and Jennifer Nagy provided that information.

David Harrison made a motion to adjourn and was seconded by Louis Lamarche. Somer Pell called for a vote which passed unanimously with all in favor.

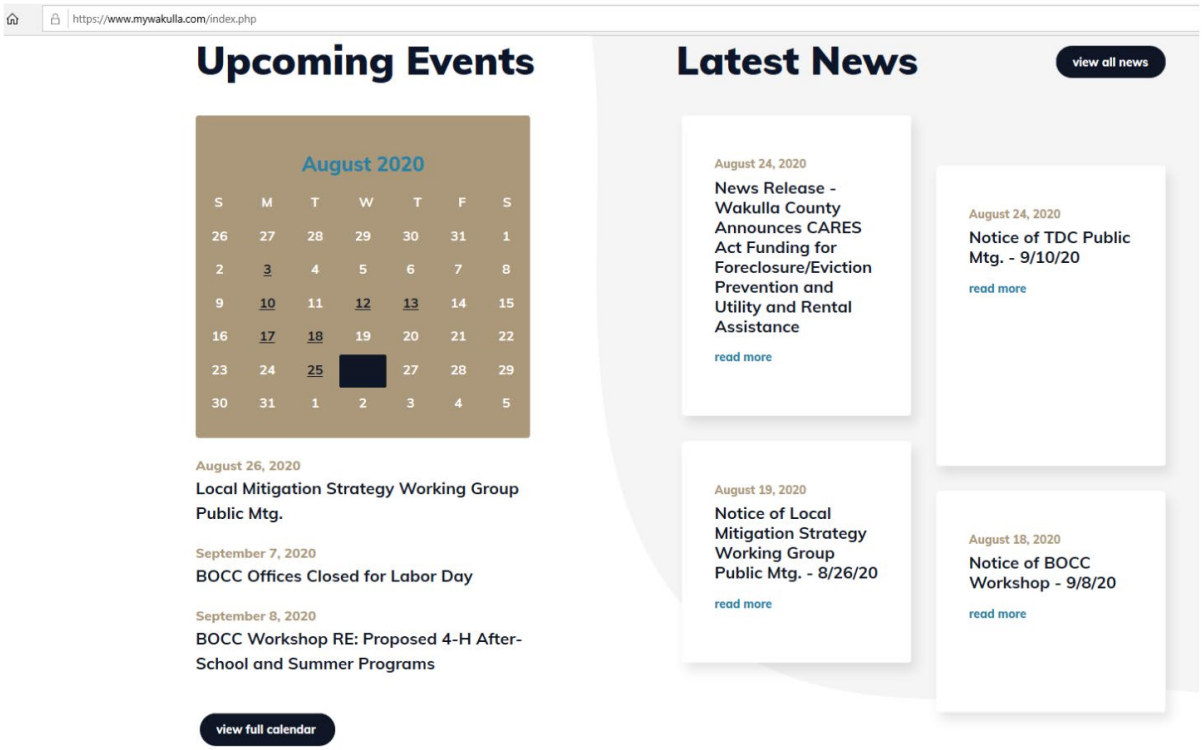
Approval Date August 26, 2020

Signature _____

WAKULLA COUNTY
LOCAL MITIGATION STRATEGY
WORKING GROUP MEETING

June 23, 2020

Name	Organization	Contact Email and/or #
LOUIS LAMARCHE	WCFR	llamarche@mywakulla.com
Sherry Salcido	USFS/GVF	Sherry.salcido@usda.gov
Todd Schweglar	FFS	Todd.schweglar@fdacs.gov
DAVID HARRISON	Citizen	davidhreed@att.com
Jennifer Nagy	WCSO DEM	Jnagy@wcso.org
Mike King	R+B	mking@mywakulla.com
Clyde Collins	Building Dept	C.Collins@mywakulla.com
Noah Hertz	Wakulla News	reporter@thewakullanews.net
Somer Pell	P+Z	spell@mywakulla.com



NEED AUGUST 24 MINUTES

WAKULLA COUNTY
LOCAL MITIGATION STRATEGY
WORKING GROUP MEETING

August 26, 2020

Name	Organization	Contact Email and/or #
[illegible]	DOH	528-5962
[illegible] McDonald	DOH-Wakulla	850 528 5498
Becky White	Build dept	251 0225
[illegible]	WCFR	519-2426
Mike King	R&B	528-5080
DAVID HARRISON	Citizen	251-0227
Somer Pell	P&Z	
John Swindel	Citizen	960 3269
Jennifer Nagy	WCSO/DEM	850-745-7201
Ned Nobles	ESG/Wakulla Water/Sewer	850 962 3026
Hannah Dudley	P&Z	926-3696

Appendix 3: Wakulla County Critical Facilities

FIRE STATIONS				
Name	**Address**	**City**	**Facility Type**	**USNG**
MEDART VFD	48 MEDART VFD LN	CRAWFORDVILLE	EMS	16R GU 51745 31713
ST MARKS VFD	32 SHELL ISLAND RD	SAINT MARKS	EMS	16R GU 68923 39938
WAKULLA CO AMBULANCE SERVICE	318 TRICE LN	CRAWFORDVILLE	EMS	16R GU 53699 42280
APALACHEE BAY VFD	1448 SHELL POINT RD	CRAWFORDVILLE	FIRE STATION	16R GU 60837 28923
CRAWFORDVILLE VFD	88 CEDAR AVE	CRAWFORDVILLE	FIRE STATION	16R GU 52349 42201
MEDART VFD	48 MEDART VFD LN	CRAWFORDVILLE	FIRE STATION	16R GU 51745 31713
PANACEA VFD	7 CLARK DR	PANACEA	FIRE STATION	16R GU 51691 25182
RIVER SINK FD	491 CRAWFORDVI HWY	CRAWFORDVILLE	FIRE STATION	16R GU 54568 53093
SMITH CREEK VFD	2984 SMITH CREEK RD	SOPCHOPPY	FIRE STATION	16R GU 25606 41926
SOPCHOPPY VFD	82 MUNICIPAL AVE	SOPCHOPPY	FIRE STATION	16R GU 41808 28375
WCFR	2 OAK STREET	CRAWFORDVILLE	FIRE STATION	16R GU 51745 43479
ST MARKS VFD	32 SHELL ISLAND RD	SAINT MARKS	FIRE STATION	16R GU 68923 39938
WAKULLA STATION VFD	3075 SHADEVILLE RD	CRAWFORDVILLE	FIRE STATION	16R GU 66026 47487
ST MARKS NATIONAL WILDLIFE REFUGE FD	7300 COASTAL HWY	CRAWFORDVILLE	FIRE STATION	16R GU 68371 43446

CORRECTIONAL INSTITUTIONS				
Name	**Address**	**City**	**Facility Type**	**USNG**
WAKULLA COUNTY JAIL	15 OAK ST	CRAWFORDVILLE	CORRECTIONAL FACILITY	16R GU 52501 43479
WAKULLA CORRECTIONAL INSTITUTION	110 MELALEUCA DR	CRAWFORDVILLE	LOCAL CORRECTIONAL INSTITUTION	16R GU 71486 51048
WAKULLA WORK CAMP	110 MELALEUCA DR	CRAWFORDVILLE	LOCAL CORRECTIONAL INSTITUTION	16R GU 71620 51334
FDOC REGION 1 - WAKULLA ANNEX	110 MELALEUCA DR	CRAWFORDVILLE	STATE CORRECTIONAL INSTITUTION	16R GU 71791 50696

SCHOOLS				
Name	**Address**	**City**	**Facility Type**	**USNG**
CRAWFORDVILLE ELEMENTARY SCHOOL	379 ARRAN RD	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 51034 41853
MEDART ELEMENTARY SCHOOL	2558 COASTAL HWY	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 51566 30531
RIVER SINK ELEMENTARY SCHOOL	530 LONNIE RAKER LN	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 54494 50267
RIVERSPRINGS MIDDLE SCHOOL	800 SPRING CREEK HWY	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 58110 46026
SECOND CHANCE SCHOOL-SOPCHOPPY EDUCATION CENTER	164 YELLOW JACKET AVE	SOPCHOPPY	PUBLIC SCHOOL	16R GU 41617 27868
SHADEVILLE ELEMENTARY SCHOOL	45 WARRIOR WAY	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 58147 45721

Appendix 3: Wakulla County Critical Facilities

SCHOOLS				
Name	**Address**	**City**	**Facility Type**	**USNG**
SOPCHOPPY SCHOOL	164 YELLOW JACKET AVE	SOPCHOPPY	PUBLIC SCHOOL	16R GU 41617 27868
WAKULLA COAST CHARTER SCHOOL OF ARTS SCIENCE & TECH	48 SHELL ISLAND RD	SAINT MARKS	PUBLIC SCHOOL	16R GU 68890 39933
WAKULLA COUNTY HIGH SCHOOL	3237 COASTAL HWY	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 52770 33589
WAKULLA COUNTY MIDDLE SCHOOL	22 JEAN DR	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 53250 35784
WAKULLA COUNTY SUPERINTENDENT'S OFFICE	69 ARRAN RD	CRAWFORDVILLE	PUBLIC SCHOOL	16R GU 52223 41298
WAKULLA CHRISTIAN SCHOOL	1391 CRAWFORDVILLE HWY	CRAWFORDVILLE	PRIVATE SCHOOL	

FAITH-BASED FACILITY				
Name	**Address**	**City**	**Facility Type**	**USNG**
BEAULAH HILL BAPTIST CHURCH	55 MLK JR MEMORIAL BLVD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 53023 41264
CHRISTIAN WORSHIP CTR	3926 COASTAL HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 54605 36137
CRAWFORDVILLE FIRST BAPTIST CHURCH	3086 CRAWFRDV'E HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52736 41060
FIRST BAPTIST CHURCH OF CRAWFORDVILLE	945 WOODVILLE HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 66596 47989
FIRST BAPTIST CHURCH OF PANACEA	38 OTTER LAKE RD	PANACEA	FAITH-BASED FACILITY	16R GU 51471 24941
FIRST BAPTIST CURCH OF ST MARKS	366 COASTAL HWY	PANACEA	FAITH-BASED FACILITY	16R GU 51600 20490
FRIENDSHIP PRIMITIVE BAPTIST CHURCH	165 FRIENDSHIP CHURCH RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 51637 33375
IVAN ASSEMBLY OF GOD CHURCH	202 IVAN CHURCH RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 53175 44961
LAKE ELLEN BAPTIST CHURCH	4495 CRAWF'VILLE HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52247 34621
LITTLE SALEM PRIMITIVE BAPTIST CHURCH	1998 WAKULLA ARRAN RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 59069 45340
MEDART ASSEMBLY OF GOD CHURCH	4647 CRAW'VILLE HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52331 33942
MOUNT ELON BAPTIST CHURCH	2422 SMITH CREEK HWY	SOPCHOPPY	FAITH-BASED FACILITY	16R GU 24452 44089
MOUNT OLIVE PRIMITIVE BAPTIST CHURCH	8 SPRING CREEK HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 57431 49769
MOUNT OLIVE PRIMITIVE BAPTIST CHURCH	4056 CRAWFOVILLE HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 51607 36681
MOUNT PLEASANT MISSIONARY CHURCH	24 GREENLIN VILLA RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 51743 37137
MOUNT TRIAL PRIMITIVE BAPTIST CHURCH	1418 SOPCHOPPY HWY	SOPCHOPPY	FAITH-BASED FACILITY	16R GU 45465 29168

Appendix 3: Wakulla County Critical Facilities

MT BEASOR PRIMITIVE BAPTIST CHURCH	29 WINTHROP AVE	SOPCHOPPY	FAITH-BASED FACILITY	16R GU 42024 28374
MT PLEASANT MISSIONARY CHURCH	90 MT PLEASANT LN	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 65435 45961
NEW HOME BAPTIST CHURCH	786 SOPCHOPPY HWY	SOPCHOPPY	FAITH-BASED FACILITY	16R GU 48236 30073
NEW LIGHT CHURCH	482 NEW LIGHT CHURCH RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52371 54541
NEW MOUNT ZION BAPTIST CHURCH	197 MOUNT ZION RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 65256 46491
OCHLOCKONEE BAY UNITED METHODIST CHURCH	2780 SURF ROAD	PANACEA	FAITH-BASED FACILITY	16R GU 52253 19348
OTTER CREEK COMMUNITY CHURCH	890 OTTER CREEK RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 49151 30073
PIONEER BAPTIST CHURCH	486 BEECHWOOD DR	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 59024 41451
PRIMITIVE BAPTIST CHURCH	189 HARVEY MELTON RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 55282 35894
PROVIDENCE BIBLE CHURCH	710 SHADEVILLE ROAD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 55790 42770
RIVERSINK BAPTIST CHURCH	803 CRAWFVILLE HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 54009 51795
RIVER OF LIFE CHURCH	445 DONALDSON-WILLIAMS RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 51514 37147
SAINT JOHN PRIMITIVE BAPTIST CHURCH	108 CARTER RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52497 31864
SAINT PAULS PRIMITIVE BAPTIST CHURCH	2232 SPRING CREEK HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 58828 39472
SAINT PAULS UNITED METHODIST CHURCH	176 OCHLOCKONEE ST	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52649 41336
SEVENTH DAY ADVENTIST CHURCH	107 SHADEVILLE RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 53137 41635
SHADY SEA CHURCH	47 SHADY SEA ST	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 57555 30726
SKIPPER TEMPLE CHURCH	165 SURF RD	SOPCHOPPY	FAITH-BASED FACILITY	16R GU 43773 27596
SOPCHOPPY HOLINESS CHURCH	83 SHELDON ST	SOPCHOPPY	FAITH-BASED FACILITY	16R GU 41593 27691
SOPCHOPPY UNITED METHODIST CHURCH	10 FAITH AVE	SOPCHOPPY	FAITH-BASED FACILITY	16R GU 41351 28262
ST MARKS TABERNACLE	14 SHELL ISLAND RD	SAINT MARKS	FAITH-BASED FACILITY	16R GU 69013 39941
THE CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS	3251 CRAWFVILLE HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52605 40302
THESSALONIA MISSIONARY BAPTIST CHURCH	230 TRIPLETT RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 63987 40559
WAKULLA SPRINGS BAPTIST CHURCH	1391 CRAWFORDVILLE HWY	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 54111 49027
WHIDDON LAKE BAPTIST CHURCH	367 WHIDDON LAKE RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 52222 47128
ZION HILL METHODIST CHURCH	138 ZION HILL RD	CRAWFORDVILLE	FAITH-BASED FACILITY	16R GU 53128 49516

Appendix 3: Wakulla County Critical Facilities

GOVERNMENT FACILITY				
WAKULLA COUNTY PUBLIC LIBRARY	4330 CRAWVILLE HWY	CRAWFORDVILLE	LIBRARY	16R GU 51781 35404
WAKULLA COUNTY COMMISSION COMPLEX	3093 CRAWVILLE HWY	CRAWFORDVILLE	LOCAL GOVERNMENT FACILITY	16R GU 52802 41015
WAKULLA COUNTY COURTHOUSE	3056 CRAWFVILLE HWY	CRAWFORDVILLE	LOCAL GOVERNMENT FACILITY	16R GU 52729 41177
APALACHICOLA NATIONAL FOREST - WAKULLA RANGER DISTRICT	57 TAFF DR	CRAWFORDVILLE	STATE GOVERNMENT FACILITY	16R GU 53253 42789
SAN MARCOS MUSEUM	148 OLD FORT ROAD	SAINT MARKS	STATE GOVERNMENT FACILITY	16R GU 68651 38920

COMMUNICATIONS				
Name	**Address**	**City**	**Facility Type**	**USNG**
ALLTEL COMMUNICATIONS,	HWY 98 AND ANN DRIVE (WAKULLA, FL	CRAWFORDVILLE	RADIO COMMS TOWER	16R GU 54233 36720
ALLTEL COMMUNICATIONS,	193 KINSEY RD.	CRAWFORDVILLE	RADIO COMMS TOWER	16R GU 67410 44571
ALLTEL COMMUNICATIONS,	160 JER-BE-LOU BOULEVARD	PANACEA	RADIO COMMS TOWER	16R GU 50935 25588
ALLTEL COMMUNICATIONS, LLC	1634 BLOXHAM CUTOFF RD	CRAWFORDVILLE	RADIO COMMS TOWER	16R GU 54447 50573
ALTRUA INVESTMENTS INTERNATIONAL CORPORATION	20 KORNEGAY WAY	CRAWFORDVILLE	RADIO COMMS TOWER	16R GU 60129 30323
AMERICAN TOWERS, INC.	PEARL STREET	CRAWFORDVILLE	RADIO COMMS TOWER	16R GU 73526 45783
AMERICAN TOWERS, INC.	174 OTTER LAKE RD (88460/PANACEA)	PANACEA	RADIO COMMS TOWER	16R GU 50825 24958
AMERICAN TOWERS, INC.	214 PULLBACK RD (023026 / SOPCHOPP*	SOPCHOPPY	RADIO COMMS TOWER	16R GU 42707 28959
NEW CINGULAR WIRELESS PCS, LLC	169 FIRE ESCAPE ROAD	SAINT MARKS	RADIO COMMS TOWER	16R GU 68745 40331
NEW CINGULAR WIRELESS PCS, LLC	93 SOPCHOPPY HWY	CRAWFORDVILLE	RADIO COMMS TOWER	16R GU 51294 30370
NEW CINGULAR WIRELESS PCS, LLC	42 HARMS ROAD	SOPCHOPPY	RADIO COMMS TOWER	16R GU 41126 25065
NEW CINGULAR WIRELESS PCS, LLC	822 CRAWVILLE HWY	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 53649 51375
PINNACLE TOWERS ACQUISITION LLC	BENTON RD	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 53623 44595
PROGRESS ENERGY SERVICE COMPANY, LLC	CRAWFORDVILLE MW BLDG	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 50493 42254
SBA PROPERTIES, INC.	EAST RAKER LANE AND HICKORY RD	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 53459 42269
SBA PROPERTIES, INC.	NE OF HWY 98, 1/2MILE PAST WAKULLA COUN*	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 52991 33832
SBA PROPERTIES, INC.	NE OF HWY 98, 6MILES ON LEFT OFF WALKER*	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 60494 38087

Appendix 3: Wakulla County Critical Facilities

SBA TOWERS II LLC	OFF STATE ROAD 363	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 67867 43673
SBA TOWERS II LLC	15 OAK STREET (FL12179-A)	CRAWFORDVILLE	RADIO COMMU TOWER	16R GU 52409 43509
STC TWO LLC	OLD WOODVILLE RD - JA54XC014 B	CRAWFORDVILLE	RADIO COMM TOWER	16R GU 65977 48454

ENERGY				
Name	**Address**	**City**	**Facility Type**	**USNG**
S O PURDOM		CRAWFORDVILLE	ELECTRIC POWER PLANT	16R GU 69709 40175
CRAWFORDVILLE		CRAWFORDVILLE	ELECTRIC SUBSTATION	16R GU 50368 42142
S O PURDOM		CRAWFORDVILLE	ELECTRIC SUBSTATION	16R GU 69500 40215
ST MARKS		CRAWFORDVILLE	ELECTRIC SUBSTATION	16R GU 69429 42955
TALQUIN ELECTRIC CO OP INC	N 3125' ON US 319 & INT SR 267	CRAWFORDVILLE	ELECTRIC SUBSTATION	16R GU 53836 51771

LOGISTICS				
Name	**Address**	**City**	**Facility Type**	**USNG**
MEDART RECREATION PARK	79 RECREATION DR	CRAWFORDVILLE	DISASTER RECOVERY CENTER-MOBILE	16R GU 52680 34603
MEDART RECREATION PARK	79 RECREATION DR	CRAWFORDVILLE	POINT OF DISTRIBUTION	16R GU 52680 34603
RIVERSPRINGS MIDDLE SCHOOL	800 SPRING CREEK HWY	CRAWFORDVILLE	POINT OF DISTRIBUTION	16R GU 58110 46026
SECOND CHANCE SCHOOL-SOPCHOPPY EDUCATION CENTER	164 YELLOW JACKET AVE	SOPCHOPPY	POINT OF DISTRIBUTION	16R GU 41617 27868

TRANSPORTATION				
Name	**Address**	**City**	**Facility Type**	**USNG**
WAKULLA COUNTY		PANACEA	AIRPORT	16R GU 51241 20387

Appendix 4: Census Data Wakulla County and Municipalities

People Quick Facts	Wakulla County, Florida	Florida
Population estimates, July 1, 2019, (V2019)	33,739	21,477,737
Population estimates base, April 1, 2010, (V2019)	30,783	18,804,564
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	9.60%	14.20%
Population, Census, April 1, 2010	30,776	18,801,310
Persons under 5 years, percent	5.20%	5.30%
Persons under 18 years, percent	20.70%	19.70%
Persons 65 years and over, percent	15.90%	20.90%
Female persons, percent	45.90%	51.10%
White alone, percent	82.40%	77.30%
Black or African American alone, percent	13.90%	16.90%
American Indian and Alaska Native alone, percent	0.70%	0.50%
Asian alone, percent	0.70%	3.00%
Native Hawaiian and Other Pacific Islander alone, percent	0.10%	0.10%
Two or More Races, percent	2.20%	2.20%
Hispanic or Latino, percent	3.90%	26.40%
White alone, not Hispanic or Latino, percent	79.20%	53.20%
Veterans, 2014-2018	2,908	1,452,967
Foreign born persons, percent, 2014-2018	2.10%	20.50%
Housing units, July 1, 2019, (V2019)	13,897	9,673,682
Owner-occupied housing unit rate, 2014-2018	80.70%	65.00%
Median value of owner-occupied housing units, 2014-2018	$144,700	$196,800
Median selected monthly owner costs -with a mortgage, 2014-2018	$1,218	$1,466
Median selected monthly owner costs -without a mortgage, 2014-2018	$349	$492
Median gross rent, 2014-2018	$855	$1,128
Building permits, 2019	283	154,302
Households, 2014-2018	11,068	7,621,760
Persons per household, 2014-2018	2.56	2.65
Living in same house 1 year ago, percent of persons age 1 year+, 2014-2018	86.70%	84.30%
Language other than English spoken at home, percent of persons age 5 years+, 2014-2018	6.10%	29.10%
Households with a computer, percent, 2014-2018	90.20%	89.80%
Households with a broadband Internet subscription, percent, 2014-2018	76.30%	80.80%
High school graduate or higher, percent of persons age 25 years+, 2014-2018	87.90%	88.00%

Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	18.40%	29.20%
With a disability, under age 65 years, percent, 2014-2018	13.10%	8.60%
Persons without health insurance, under age 65 years, percent	12.40%	16.00%
In civilian labor force, total, percent of population age 16 years+, 2014-2018	54.50%	58.30%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	60.10%	54.10%
Total accommodation and food services sales, 2012 ($1,000)	19,671	49,817,925
Total health care and social assistance receipts/revenue, 2012 ($1,000)	13,107	124,061,425
Total retail sales, 2012 ($1,000)	176,058	273,867,145
Total retail sales per capita, 2012	$5,713	$14,177
Mean travel time to work (minutes), workers age 16 years+, 2014-2018	33.9	27.4
Median household income (in 2018 dollars), 2014-2018	$62,778	$53,267
Per capita income in past 12 months (in 2018 dollars), 2014-2018	$24,322	$30,197
Persons in poverty, percent	11.90%	13.60%
Total employer establishments, 2018	467	566,894
Total employment, 2018	3,589	8,669,611
Total annual payroll, 2018 ($1,000)	109,052	404,483,243
Total employment, percent change, 2017-2018	3.90%	3.40%
Total non-employer establishments, 2018	2,163	2,388,050
All firms, 2012	2,120	2,100,187
Men-owned firms, 2012	1,274	1,084,885
Women-owned firms, 2012	643	807,817
Minority-owned firms, 2012	276	926,112
Nonminority-owned firms, 2012	1,725	1,121,749
Veteran-owned firms, 2012	399	185,756
Non-Veteran-owned firms, 2012	1,611	1,846,686
Geography QuickFacts	**Wakulla County**	**Florida**
Population per square mile, 2010	50.8	350.6
Land area in square miles, 2010	606.42	53,624.76
FIPS Code	12129	12

American Community Survey, 2020

Appendix 5: 2016 – 2021 Fire Incidents Wakulla County

Sec/Twnshp	COUNTY	FFS Incident #	Date/Time	Acres Burned	Fire Cause
24 3S 1E	65	2017-04-0396	11/12/17 21:30	2	Incendiary
51 4S 1W	65	2016-04-0113	2/29/16 13:30	4	Incendiary
5 5S 2W	65	2018-04-0411	4/28/18 17:10	0	Miscellaneous --Structure
24 5S 2W	65	2016-04-0376	11/14/16 3:10	2	Miscellaneous --Structure
31 2S 2E	65	2019-04-0466	7/4/19 19:30	21	Lightning
4 3S 1E	65	2019-04-0406	5/27/19 17:00	1	Lightning
11 3S 2E	65	2016-04-0289	7/13/16 20:15	9	Lightning
37 3S 1W	65	2019-04-0548	9/17/19 16:00	0	Miscellaneous--Other
7 5S 2W	65	2019-04-0422	6/3/19 15:20	2	Unknown
35 3S 2W	65	2019-04-0329	4/23/19 15:00	1	Unknown
8 6S 1W	65	2018-04-0328	4/1/18 7:15	0	Unknown
95 4S 1W	65	2018-04-0065	1/19/18 16:16	0	Unknown
11 4S 1E	65	2017-04-0256	5/20/17 16:50	4	Unknown
8 5S 2W	65	2017-04-0272	7/3/17 15:15	1	Unknown
23 5S 2W	65	2017-04-0208	4/15/17 13:20	1	Unknown
24 5S 2W	65	2016-04-0365	11/4/16 17:05	0	Unknown
0 4S 1E	65	2017-04-0061	2/6/17 13:30	1	Unknown
3 4S 2E	65	2016-04-0384	11/13/16 15:00	5	Unknown
35 2S 1E	65	2018-04-0418	5/1/18 15:20	5	Equipment--Agriculture
23 3S 2W	65	2016-04-0351	10/25/16 13:20	2	Miscellaneous --Electric Fence
23 3S 1W	65	2017-04-0215	4/18/17 16:45	0	Miscellaneous --Power Lines
27 3S 1E	65	2016-04-0084	2/19/16 12:15	2	Miscellaneous --Power Lines
11 4S 2W	65	2016-04-0150	3/10/16 14:05	1	Miscellaneous --Power Lines
83 4S 1W	65	2016-04-0152	3/10/16 16:00	7	Miscellaneous --Power Lines
24 5S 3W	65	2016-04-0195	4/9/16 11:30	0	Miscellaneous --Power Lines
5 3S 2E	65	2019-04-0223	3/21/19 13:30	30	Debris Burn--Auth--Broadcast/Acreage
1 3S 1E	65	2017-04-0381	11/2/17 13:00	1	Debris Burn--Auth--Broadcast/Acreage
7 3S 2E	65	2017-04-0118	3/3/17 12:30	15	Debris Burn--Auth--Broadcast/Acreage
16 3S 1W	65	2018-04-0193	2/23/18 14:00	6	Debris Burn--Nonauth--Broadcast/Acreage
29 3S 4W	65	2018-04-0441	5/11/18 4:00	4	Debris Burn--Nonauth--Broadcast/Acreage
7 6S 1W	65	2018-04-0369	4/13/18 17:00	0	Debris Burn--Nonauth--Broadcast/Acreage
17 3S 1W	65	2019-04-0634	10/14/19 22:00	0	Debris Burn--Nonauth--Piles
27 2S 1W	65	2018-04-0464	6/24/18 10:00	0	Debris Burn--Nonauth--Piles
27 4S 2W	65	2018-04-0066	1/20/18 11:45	1	Debris Burn--Nonauth--Piles
7 3S 1W	65	2017-04-0095	2/25/17 16:45	0	Debris Burn--Nonauth--Piles
7 3S 1W	65	2017-04-0236	5/8/17 12:10	0	Debris Burn--Nonauth--Piles
7 6S 1W	65	2016-04-0325	9/26/16 14:30	1	Debris Burn--Nonauth--Piles
80 4S 1W	65	2016-04-0058	2/12/16 17:15	5	Debris Burn--Nonauth--Piles
32 2S 1E	65	2016-04-0107	2/27/16 18:20	1	Debris Burn--Nonauth--Piles
32 2S 1E	65	2018-04-0329	4/1/18 17:00	1	Debris Burn--Auth--Yard Trash
9 3S 1W	65	2019-04-0355	5/4/19 11:55	0	Debris Burn--Nonauth--Yard Trash
21 3S 1E	65	2018-04-0290	3/15/18 15:00	1	Debris Burn--Nonauth--Yard Trash
15 3S 1W	65	2017-04-0130	3/6/17 15:45	0	Debris Burn--Nonauth--Yard Trash
22 2S 1W	65	2017-04-0181	3/27/17 17:30	0	Debris Burn--Nonauth--Yard Trash
31 2S 2E	65	2017-04-0122	3/4/17 14:00	145	Debris Burn--Nonauth--Yard Trash
105 4S 1W	65	2016-04-0240	5/14/16 16:20	0	Debris Burn--Nonauth--Yard Trash
78 4S 1W	65	2016-04-0105	2/27/16 15:45	0	Debris Burn--Nonauth--Yard Trash
69 4S 1W	65	2016-04-0078	2/18/16 16:15	1	Debris Burn--Nonauth--Yard Trash

Source: Florida Forest Service – Wakulla County
** 65 = Wakulla County*

Appendix 6: Project Prioritization Methodology - STAPLEE

The Wakulla County LMS Working Group used the STAPLEE methodology to rank the mitigation projects in 2015. The Working Group reviews and ranks projects each time a project is added to the strategy. The project list in Appendix 7 was last updated and projects reviewed and ranked in May 2020.

There are seven categories in the STAPLEE criteria, and 23 criterions. Each of the 23 criterions is given a weighted score between 0-10, with 0 meaning not beneficial or unproductive, to 10 meaning very beneficial or excellent. It provides for the basis for a benefit/cost analysis as well.

A very basic description of the STAPLEE methodology is provided below. The scoring sheet of the County mitigation projects follows on the next sheet.

Social – Is the mitigation strategy socially acceptable?

Technical – Is the proposed action technically feasible, cost effective, and does it provide the appropriate level of protection?

Administrative – Does the community have the capability to implement the action and is the lead agency capable of carrying out oversight of the project?

Political – Is the mitigation action politically acceptable?

Legal – Does the community have the authority to implement the proposed action?

Economic – Do the economic base, projected growth, and opportunity costs justify the mitigation project?

- Benefit cost-analysis is a mathematical method for comparing costs to the benefits to the community of a mitigation action
- If the benefits are greater than the costs, the project is cost-effective
- Comparing the ratios of benefits to costs for several mitigation projects helps to identify those that offer the greatest value for the community's money spent.
- Benefit-cost analysis gives decision-makers an understandable way to explain and defend their decisions
- For many grant programs, FEMA and the State will use benefit-cost analysis to determine whether a project is eligible
- The community can save time and energy by limiting planning activities to projects that will be more likely to receive funding.

Environmental – Does the proposed action meet statutory considerations and public desire for sustainable and environmentally healthy communities?

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

Appendix 7: Wakulla County Project List with Action Plans

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
1	**Crawfordville Area stormwater study & mitigation (ph. 1)**	Study to address stormwater & drainage issues in concert with NWFWMD, DEP et. al.	Crawfordville Area	Stormwater drainage/ hurricane, sinkhole and flood mitigation	Planning and Zoning/ Bldg. Dept.	$350,000	24 months	SWIM, PDM, EMPATF, HMGP
	2020 Status: This remains a viable project. County staff is looking for a funding source. LMS Committee recommends this be kept as is. This project is included in the Adopted Infrastructure Plan.							
2	**Crawfordville Area stormwater study & mitigation (ph. 2)**	Acquisition of land & project implementation to address Crawfordville Area storm water issues	Crawfordville Area	Stormwater drainage/ hurricane and flood mitigation	Planning and Zoning/ Bldg. Dept.	$20,000,000	36 months	PDM, FMA, HMGP
	2020 Status: This remains a viable project. County staff is looking for a funding source. LMS Committee recommends this be kept as is. This project is included in the Adopted Infrastructure Plan.							
3	**Drainage in Panacea**	Areas west of 98 in Panacea are prone to freshwater flooding. Cross drains and/or storage areas need to be identified and implemented to mitigate the impacts of flooding. Solution must not make the areas more vulnerable to storm surge. Study, acquisition of land, & implementation of storm water detention projects	Panacea, west of US 978 near Otter Lake Road	Stormwater drainage/ hurricane and flood mitigation	Office of County Admin./ Public Works/ FDOT	$50,000 study/ $1,000,000	18 months	HMGP, FMA, PDM
	2020 Status: This is a viable project added 5/30/14. Preliminary work has been done to determine the issues causing the flooding, and developing the recommended solution. No physical work has begun to date. FDOT has been added as a lead agency. This project is included in the Adopted Infrastructure Plan.							
4	**HWY 375 –Sopchoppy River Bridge Replacement/Elevation**	Elevate Bridge to eliminate closure due to high water and continued damage due to flooding (also consider making bridge longer and the opening over water wider)	375 Bridge at the Sopchoppy River	Critical facility retrofitting/ evacuation	Office of County Admin./ Public Works	$5,000,000	18 months	FDOT
	2020 Status: This project was added 5/30/14 and is a viable project. A minor revision, included in parenthesis, was added 9-26-2018. This project is included in the Adopted Infrastructure Plan.							

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
5	**Wakulla Gardens subdivision storm water mitigation**	Study, acquisition of land, & implementation of storm water detention projects	Crawfordville	Stormwater drainage/ hurricane and flood mitigation	Planning and Zoning/ Bldg. Dept.	$50,000 study/ $1,000,000	12 m. study/ 12 m. project	HMGP, FMA, PDM SWIM
	2020 Status: This is a good project. Several actions have been taken to date. The WC BOCC allowed a special referendum to allow the residents to vote for or against a special levee to fund road and sewer improvements. The residents voted it down. The BOCC also proposed to the homeowners to consider a land swap for residents to resolve their current flooding issues. That is still underway. Also, the County worked with FEMA during the FIRM map revisions for this area to ensure accuracy. Currently portions of the subdivision are having sewer, road paving and stormwater improvements installed through grant funding and one cent sales tax funds. As portions of the subdivision have yet to be improved this remains a viable project to be kept on the list until funding becomes available to finish the project. This project is included in the Adopted Infrastructure Plan.							
6	**Flood zone construction 1-foot freeboard requirement**	Upgrade flood zone requirements to include 1-foot of freeboard for all new construction	Countywide	Hurricane, floods, severe storms	Planning and Zoning/ Bldg. Dept.	$200	12 months	BOCC General Revenue
	2020 Status: The Building Official has indicated that all residential construction and most non-residential construction in the Special Flood Hazard Area is subject to a 1-foot freeboard requirement per the Florida Building Code. However, this project is still beneficial to remain on the list because if the BOCC adopts an additional freeboard requirement this could improve insurance ratings.							
7	**Countywide sewer expansion & upgrades**	Protection against flood induced stormwater impacts	Countywide St. Marks	Critical facility retrofitting/ stormwater management	Office of County Admin./ Public Works	$1,000,000	36 months	HMGP, DEP, CDBG
	2020 Status: Sewer expansions into the Wakulla Gardens and Magnolia Gardens subdivisions are currently underway via funding from the Northwest Florida Water Management District. This remains a much-needed project as additional expansions are needed. Funding remains the obstacle for additional work. As funding becomes available, work will move to other areas.							
8	**Lift station retrofits**	Raise and waterproof electrical panels on lift stations in Special Flood Hazard Areas	Countywide	Critical infrastructure retrofitting, flood mitigation, stormwater drainage improvements	Office of Cty. Admin./ Public Works	$500,000	On-going/ 36 months	HMGP, PDM, EMPATF
	2020 Status: Project previously sought to floodproof manhole covers and lift stations. The project was amended to include lift station electrical panel retrofits at the 2-26-19 meeting. A PDM grant was applied for in 2018 to raise and waterproof the electrical panels on several lift stations.							
9	**Magnolia Gardens & Greiner's Addition subdivision storm water mitigation**	Study, acquisition of land, & implementation of storm water detention projects	Crawfordville	Stormwater drainage/ hurricane and flood mitigation	Planning and Zoning/ Bldg. Dept.	$1,500,000	6 months	HMGP, FMA, PDM
	2020 Status: Portions of the Magnolia Gardens subdivision are having sewer, road paving and stormwater improvements installed through grant funding and one cent sales tax funds. As portions of the area have yet to be improved this remains a viable project to be kept on the list until funding becomes available to finish the project. These projects are included in the Adopted Infrastructure Plan.							
10	**Extend City of St. Marks sewer lines within their water district**	Project removes septic systems within the City water district. Extending sewer capability and eliminating septic systems within surge areas	St. Marks	Critical facility retrofitting/ stormwater management /alternate location	City Of St. Marks	$5,000,000	24 months	HMGP, DEP, CDBG

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
	2020 Status: This is a viable project added 5/30/14.							
11	**St. Marks stormwater mitigation**	Increase the conveyance of flood waters through the City of St. Marks.	St. Marks	Stormwater drainage/ hurricane and flood mitigation	City of St. Marks	$2,000,000	12 m. study/. 12 m. project	HMGP, FMA, PDM SWIM
	2020 Status: This project reflects the need to move flood waters through the City of St. Marks to alleviate local ponding and long-term standing water issues. This is an ongoing project, and needs to be kept**.**							
12	**Public awareness campaign: FL Div. of Forestry fire prevention programs**	Includes: Firewise Comm. program, Fire Prevention program, Florida Risk Assessment System et al.	Countywide	Wildfire mitigation and prevention	Planning and Zoning	$0	On-going	NA
	2020 Status: This is a viable, ongoing project that needs to be kept. There has been a lot of activity with this project. The Florida Forest Service put on seminars on fire prevention. Ready, Set, Go. They have done fuel reduction activities as well. WC Fire Rescue continues to provide outreach at WC schools on fire prevention.							
13	**Upgrade road const. standards in flood prone areas**	Revise road construction standards in flood prone areas	Countywide	Critical infrastructure protection, hurricane, tsunami, & flood mitigation	Office of County Admin./ Public Works	$200	12 months	BOCC General Revenue
	2020 Status: This project is still viable. Consider including in the next revision to the floodplain management ordinance.							
14	**Improving alternative access to Panacea**	Paving and elevating by one foot, an alternative to Hwy 98 into Panacea for evacuation and access purposes. The alternative route would utilize Joe Mack Smith Street, then Jer be lou Circle down to the intersection of Jer be lou Boulevard and Fishing Fool Street.	Panacea	Critical infrastructure protection, hurricane, tsunami & flood mitigation	Office of County Admin./ Public Works	TBD	24 months	SCRAP, SCOP, PDM, HMGP
	2020 Status: This project was added on March 29, 2018 as it was seen as a needed improvement to a historic community which is located within the Special Flood Hazard Area. If Hwy 98 were to become impassible during a storm, an alternative route is needed to safely move citizens and emergency vehicles through the area.							
15	**Natural hazards public outreach campaign**	Education campaign RE: all natural hazards-risks and vulnerabilities	Countywide	Public outreach/ all natural hazards mitigation	Planning and Zoning	$11,000	On-going	NA
	2020 Status: This is an ongoing project that is remaining. To date, there has been a lot of activity. The FIRMs have been updated and placed on WC Planning and Zoning website for public dissemination. Also, local funds have been used to place information in the weekly newspaper about outreach materials, Emergency Management has been at and/or sponsored several outreach activities where information was provided, such as the Build a Bucket event. Also, under the CRS Program, the County has conducted several flood awareness campaigns to inform vulnerable residents of flood hazards. This project is to be kept.							

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
16	**CR 22 –Sopchoppy River Bridge Replacement/Elevation**	Elevate Bridge to eliminate closure due to high water and continued damage due to flooding	Rose Street/22 Bridge at the Sopch'y River	Critical facility retrofitting/ evacuation	Office of County Admin./ Public Works	$5,000,000	18 months	FDOT
	2020 Status: This is a viable project added 5/30/14.							
17	**Sopchoppy stormwater mitigation**	Study, acquisition of land, & construction of detention ponds for storm water retention	Sopchoppy	Stormwater drainage/ hurricane and flood mitigation	City of Sopchoppy	$1,000,000	6 m. study/ 12 m. project	HMGP, FMA, PDM SWIM
	2020 Status: This project reflects the need to move flood waters through the City of Sopchoppy to alleviate local ponding and long-term standing water issues. This needs to be kept**.**							
18	**Implement FFS Fuel Reduction Plans**	FFS conducts FRPs, but they require some forms of action. This would assist in funding those actions	Countywide	Fire Mitigation	County Fire Services	$500,000	24 months	HMGP, CDBG
	2020 Status: This is a viable project added 2/27/15. Prescribed burning within The Park subdivision's conservation easement will take place in January 2019.							
19	**Underground power for St. marks**	Replace overhead power with underground cables	St. Marks	Hurricane, severe thunderstorms, tornadoes, and wind mitigation	City Of St. Marks	$2,000,000	24-months	Underground power for St. marks
	2020 Status: This is a viable project added 5/30/14. Part of the work has been completed on Riverside Drive and Port Leon Drive, extending north to City Hall. Next phase will be to extend north to the town center.							
20	**Beach renourishment along Mashes Sands shoreline**	Mashes Sands beach restoration and vegetative renourishment. In addition, this project will stabilize and beautify the beach area	Mashes Sands	Hurricane impact reductions	Board of County Commissioners.	$1.63M	1 year	Deepwater Horizon Fund, local funds, HMGP
	2020 Status: This is a viable project added 6.2.15 to address the severe coastal erosion problems along Mashes Sands. It will mitigate impacts from hurricane storm surges, and allow for more economic activity in the vicinity. Beach renourishment activities have been conducted at Shell Point Beach but it is still needed at Mashes Sands Beach. This project is included in the Adopted Infrastructure Plan.							
21	**Housing Assistance Programs**	Retrofit homes	Countywide	Winter storms and drought/heat wave	Planning and Zoning/Bldg. Dept.	$350,000 to $750,000	On-going	Legislative Funds, CDBG
	2020 Status: This was originally placed on the list as the Weatherization Program. There are actually several housing assistance programs that operate within the County. However, the SHIP program is the only one the County oversees at this time but citizens are still eligible to participate in all of them. Grant funds are also available sometimes for this assistance. This remains a much-needed project and the work is ongoing.							
22	**Four laning of Crawfordville Highway (FDOT owned facility)**	Improve traffic flow on US 319, one of the County's major evacuation routes	Crawfordville	Critical facility retrofitting/ evacuation	Planning and Zoning/Office of Admin	$100,000,000+	On-going	Legislative Funds

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
	2020 Status: The Town Plan Traffic Improvements project was added 5/30/14. At the January 10, 2018 meeting, the Working Group discussed amending this project to specifically entail the four-laning of Crawfordville Highway, which is the main arterial road going through the Crawfordville Town Plan and a major evacuation route. This project is included in the Adopted Infrastructure Plan.							
23	**Acquisition of severe repetitive loss properties for open space**	Acquisition of properties & demolition of structures on SRL list for permanent open space	Countywide	Add recreation and open space/ hurricane and flood impact reductions	Planning and Zoning/ Bldg. Dept.	$300,000	12 months	RFC, SRL, FMA, HMGP
	2020 Status: This is a viable project. No action has been taken to date based on the lack of funding to carry out the project.							
24	**Mitigation of repetitive loss properties**	Education campaign for owners of rep. loss properties RE: structural mitigation of buildings	Countywide	Hurricane, flood impact reductions	Planning and Zoning/ Bldg. Dept.	$0	On-going	Local funds
	2020 Status: This is an ongoing effort in Wakulla County. Each year, residents who are on the repetitive or severe repetitive loss list are notified of their status, and provided information on mitigation options. This project is to remain.							
25	**Public Works/Fuel Station generator**	Obtain and install a generator for Wakulla County Public Works/Fuel Station to reduce hazard impacts	Countywide	Critical facility protection/hurricane, severe thunderstorm, wind impact reductions	Public Works	$66,688.21	12 months	HMGP, PDM
	2020 Status: This is a project added 3/4/2020. Project added to HMGP ranking and estimated adjustment 5/6/2020							
26	**Admin complex and St. Marks City Hall generators**	Obtain and install a generator for Wakulla County Administration Complex and one for St. Marks City Hall to reduce hazard impacts	County Admin Complex/St. Marks	Critical facility protection/ hurricane, severe thunderstorm, wind impact reductions	Office of County Admin./City of St. Marks Public Works	$116,385.20 for Admin complex; $86,100 for St. Marks City Hall	12 months	HMGP, PDM
	2020 Status: This is a project added 3/3/2017. The Wakulla County BOCC generator project was combined with the St. Marks generator project at the 2-26-19 meeting. Costs were updated on 3/4/2020.							
27	**Wakulla County Sheriff's Office Annex generator**	Obtain and install a generator for Wakulla County Sheriff's Office Annex building for reducing hazard impacts	Wakulla County Sheriff's Office Annex	Critical facility protection/hurricane, severe thunderstorm, wind impact reductions	WCSO/Public Works	$52,574.50	12 months	HMGP, PDM
	2020 Status: This is a project that was added 3/3/2017. The cost was updated on 3/4/2020.							
28	**Wakulla County Community Center generator**	Obtain and install a generator for Wakulla County Community Center to reduce hazard impacts	Crawfordville.	Critical facility protection/hurricane, severe thunderstorm, wind impact reductions	Office of County Admin.	$167,642.00	12 months	HMGP, PDM
	2020 Status: This project was added at the May 30, 2019 meeting. The cost was updated on 3/4/2020.							
29	**Wakulla County Courthouse generator**	Obtain and install a generator for Wakulla County Courthouse to reduce hazard impacts	Crawfordville	Critical facility protection/hurricane,	Office of County Admin./Clerk of the Court	$150,000	12 months	HMGP, PDM

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
				severe thunderstorm, wind impact reductions				
	2020 Status: This project was added at the May 30, 2019 meeting.							
30	**City of St. Marks Lift Station Bypass Pumps**	Obtain and have ready four bypass pumps to serve the lift stations within the City limits of St. Marks.	St. Marks	Critical facility protection/hurricane, severe thunderstorm, wind impact reductions	City of St. Marks/Public Works	$150,000	12 months	HMGP, PDM
	2020 Status: This project was added at the August 29, 2019 meeting.							
31	**Wiring new government buildings for generators**	Install wiring needed for future generators in government buildings to reduce hazard impacts	Countywide	Critical facility protection/hurricane, severe thunderstorm, wind impact reductions	Office of County Admin./ Public Works	$150,000	12 months	HMGP
	2020 Status: This is a project that was added on March 29, 2018.							
32	**Retrofit for underground electrical lines in critical areas**	In areas where the most calls are received for trees down on electrical lines, retrofit facilities for underground placement of electrical lines	Countywide	Hurricane, severe thunderstorms, tornadoes, wind impact reductions	Office of County Admin./Utility Providers	Varies based on area to be retrofitted	24 months	HMGP, PDM
	2020 Status: This is a project that was added on March 29, 2018.							
33	**Raise Old Fort Road**	Raise Old Fort Road by approximately one foot to better protect from flooding	St. Marks	Critical infrastructure protection, hurricane, tsunami, & flood mitigation	City of St. Marks/Public Works	$300,000	12 months	HMGP, PDM, FMA
	2020 Status: This is a project that was added on September 26, 2018.							
34	**Raise Mashes Sands Road**	Raise Mashes Sands Road from the condos down to the boat ramp to improve ingress and egress during flooding events.	Panacea	Critical infrastructure protection, hurricane, tsunami, & flood mitigation	County Administration/Public Works	$5,000,000	36 months	HMGP, PDM, FMA
	2020 Status: This is a project that was added on September 26, 2018.							
35	**Road elevation study**	Countywide study on flood prone areas to see where roadways should be raised for better protection of evacuation routes and for re-entry	Countywide	Critical infrastructure protection, hurricane, tsunami, & flood mitigation	Office of County Admin./Public Works	$1,000,000	24 months	HMGP, PDM, FMA
	2020 Status: This is a project that was added on September 26, 2018.							

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
36	**Live Oak Island sewering**	Extend central sewer services to Live Oak Island so existing on-site septic systems can be removed from floodplain	Shell Point area	Critical facility retrofitting & stormwater management	Office of County Admin./Public Works	$5,000,000	36 months	PDM, FMA
	2020 Status: This is a project that was added on November 26, 2018.							
37	**Category 3 Shelter**	Construct an evacuation shelter that can withstand a hurricane category 3 or higher storm	Countywide	Hurricane impact reductions	Office of County Admin.	$4,000,000+	36 months	Legislative Funds, PDM
	2020 Status: This is a project that was added on November 26, 2018.							
38	**First Responder Communication System**	Perform an assessment of the communication system upgrade options and purchase/install new system	Countywide	Critical facility retrofitting/public safety	Office of County Admin./WCSO	$3,500,000	12 months	Legislative Funds, TRIUMPH
	2020 Status: This project was added at the February 26, 2019 meeting.							
39	**Permanent generator at Songbird well site**	Install permanent 200 kw generator at Talquin Electric Cooperative, Inc.'s Songbird well site so service can be maintained to population of 2,600 after storm events	Crawfordville	Critical facility retrofitting/public safety	Talquin Electric Cooperative, Inc.	$85,000	12 months	HMGP
	2020 Status: This project was added at the May 30, 2019 meeting.							
40	**Talquin Overhead to Underground Electrical Service Wire Conversion**	Convert Talquin Electric Cooperative Inc.'s 5,573 overhead electrical service wires to underground	Countywide	Critical facility retrofitting/public safety	Talquin Electric Cooperative, Inc.	$13,235,875	24 months	HMGP
	2020 Status: This project was added at the May 30, 2019 meeting.							
41	**Anchor Talquin's transformer pads**	Install 48" anchors to Talquin Electric Cooperative Inc.'s 115 transformer pads in the Shell Point, Live Oak Island, Oyster Bay, and Spring Creek areas to prevent storm surge from moving the transformers off the pads	Coastal Areas	Critical facility retrofitting/public safety	Talquin Electric Cooperative, Inc.	$175,950	24 months	HMGP
	2020 Status: This project was added at the May 30, 2019 meeting.							

KEY CATEGORIES	
Project kept as is without changes	
Project kept, with changes or newly added	

2020 Priority	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source
42	**Flashing warning lights for dangerous intersections**	Install flashing warning lights for the intersection of Bloxham Cutoff Road and Wakulla Springs Road	North Central Wakulla	Public safety/evacuation	Wakulla County Admin./Public Works	$6,000	12 months	HMGP, PDM
	2020 Status: This project was added at the May 30, 2019 meeting and the intersections involved were later updated at the August 29, 2019 meeting.							
43	**HWY 375 –Sopchoppy River Bridge Repair**	Conduct needed repair work to existing bridge	375 Bridge at the Sopchoppy River	Critical facility retrofitting/ evacuation	Office of County Admin./ Public Works	$100,000	12 months	FDOT
	2020 Status: This project was added at the August 29, 2019 meeting.							
44	**Prescribed burning at Mashes Sands**	Perform prescribed burning at County owned property at Mashes Sands Beach	Mashes Sands	Hurricane Impact Reductions	Administration/Parks and Facilities Management/FFS	$10,000	2 months	Emergency Coastal Resilience/HMGP
	2020 Status: This project was added at the August 29, 2019 meeting.							
45	**Prescribed burning at Big Bend Maritime Center**	Perform prescribed burning at the County owned BBMC property	Panacea	Hurricane Impact Reductions	Administration/Parks and Facilities Management/FFS	$2,000	2 months	Emergency Coastal Resilience/HMGP
	2020 Status: This project was added at the August 29, 2019 meeting.							
46	**Prescribed burning at the Wakulla Welcome Center**	Perform prescribed burning at the County owned Welcome Center	Panacea	Hurricane Impact Reductions	Administration/Parks and Facilities Management/FFS	$2,000	2 months	Emergency Coastal Resilience/HMGP
	2020 Status: This project was added at the August 29, 2019 meeting.							
47	**Prescribed burning at the Wakulla Equestrian Center**	Perform prescribed burning at the County owned Equestrian Center	South Central Wakulla	Hurricane Impact Reductions	Administration/Parks and Facilities Management/FFS	$10,000	2 months	Emergency Coastal Resilience/HMGP
	2020 Status: This project was added at the August 29, 2019 meeting.							
48	**Climate Change Study**	Conduct a study on the potential impacts of climate change and what steps could be taken to mitigate those impacts	Countywide	Public safety/hurricane, tsunami, & flood mitigation	Administration	$80,000	12 months	Florida Resilient Coastlines Program/Community Planning Technical Assistance Grant
	2020 Status: This project was added at the August 29, 2019 meeting.							

Appendix 8: Projects Completed or Deleted 2015-2021

Priority at Time of Removal	Project/Program Name	Description	Location*	Project/ Hazard Mitigation Program Category	Lead Agency	Estimate of Project Costs	Estimate of Project Time	Potential Funding Source	Date of Removal	Reason For Removal
43	**CR 22 –Sopchoppy River Bridge Repair**	Conduct needed repair work to existing bridge	Rose Street/22 Bridge at the Sopch'y River	Critical facility retrofitting/ evacuation	Office of County Admin./ Public Works	$56,000	12 months	HMGP, FMA	12/6/2019	Project Completed
40	Flashing warning lights for dangerous intersections	Install flashing warning lights for the intersections of Spring Creek Highway and Coastal Highway, and Woodville Highway and Coastal Highway	Countywide	Public safety/evac	Wakulla County	$6,000	12 months	HMGP, PDM	8/29/2019	These intersections in the project were completed. Warning ligths for the intersection of Bloxham Cutoff Road and Wakulla Springs Road remains on the Project List.
8	**Flood-proofing of utility manholes**	Stormwater and flood mitigation upgrades to prevent storm-water intrusion leading to sanitary sewer system overloading	Countywide	Critical infrastructure retrofitting, flood mitigation, stormwater drainage improvements	Office of Cty. Admin./ Public Works	$500,000	On-going/ 36 months	HMGP, PDM, EMPATF	2/26/2019	This portion of the project was completed . The flood-proofing of lift stations remains on the Project List.

Appendix 9: County and Municipal Policies and Objectives Supporting Guiding Principles

Wakulla County

Guiding Principles	Policies in Existing Plans
Protect public health and safety	Wakulla County Flood Damage Prevention Objectives (1) to protect human life and health
	Wakulla County Comp Plan, Coastal Element: Objective 2: The County shall limit exposure of its citizens to risk from hurricanes by implementing the following policies: (A): The County shall revise its land development codes and procedures to establish and enforce development and construction standards.
	Wakulla Comp Plan, Conservation Element, Objective 11: The County is developing a hazardous waste management program for the proper storage, recycling, collection, and disposal of hazardous waste. In the interim, except for small quantity generators and conditionally exempt small quantity generators as identified by the DEP Rules 17-730 and 731, F.A.C., hazardous waste storage and disposal shall be allowed only at designated collection center or the County landfill, under the direct supervision of the Solid Waste Director or his designee.
	Wakulla County CEMP. p. 6. The CEMP establishes a framework through which the County may prepare for; respond from; and mitigate to prevent the impacts of a wide variety of disasters that could adversely affect the health, safety and or welfare of the residents and emergency workers of Wakulla County.
Protect properties	Wakulla County Flood Damage Prevention Objectives (6) 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.
	Wakulla County Conservation Element of the COMP Plan, Objective 2.0, Policy 2.1 designates riverine floodways as conservation land. Prevents structures from being permitted within the floodways of rivers and streams. Also prevents the degradation of existing shorelines, and prevent fill dirt placement in the floodway.
	COMP Plan, Policy 2.3 provides for a buffer zone around known sinkholes. Requires site plans to be submitted to FDEP to determine no adverse impacts because of sinkholes, or on surface waters.
	COMP Plan, Policy 2.3 provides that any development in the 100 yr flood zone be certified by an engineer that it will have no adverse impacts on natural functions, water quality, water quantity of the affected floodplain. No land in the 100 year flood plain shall be clear cut or graded, and must have erosion prevention measures in stalled.
	COMP Plan, Objective 3: To protect the natural functions of the 1% annual chance floodplain to the extent that flood carrying and flood storage capacity are maintained.
	COMP Plan, Policy 3.1 – The County shall control density, setbacks and design of development within the NFIP, FEMA FIRM Maps which indicate the 1% annual chance floodplain which is sufficient to protect the flood carrying and flood storage capacity as set forth in the objective. The County shall review development proposals according to FEMA standards.
	COMP Plan, Objective 7.2 – To minimize soil erosion, a review of topographic, hydrologic, and vegetative cover conditions shall be required as part of the site plan review process.

Guiding Principles	Policies in Existing Plans
	Development will be limited in areas where disturbance of the topographic, hydrologic, or vegetative cover conditions would result in erosion.
	Wakulla Comp Plan, Future Land Use Element, Objective 10: …non-conforming land use reducing procedures shall be adopted as part of the land development regulations to ensure that those existing uses which are not conforming with the FLUM or the plan are gradually reduced or eliminated where possible.
	Policy 13.1 establish setback standards for sinkholes and other karsts features with a direct connection to an aquifer.
	Wakulla CEMP p. 84. Wakulla County Emergency Management has been delegated as the lead agency to facilitate and coordinate the activities of the LMS Steering Committee… It is through this Committee that the necessary tasks will be formulated that allow the development and oversight of strategies on guiding principles, hazard identification and vulnerability assessment and mitigation initiatives on an on-going basis.
Manage public funds efficiently and cost effectively	Wakulla County Flood Damage Prevention Ordinance Objective (3) to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.
	Wakulla County Flood Damage Prevention Ordinance Objective (5) to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets and bridges located in the floodplains...
	Wakulla Comp, Capital Improvements Elements Objective 1: Based on the identification of facility needs and level of service. Contained in the other elements of this plan, the County shall develop and annually review and revise a program of capital improvements designed to meet existing deficiencies, to meet the needs for future facilities, and to limit public expenditures in the CHHAs.
Maintain a sustainable economic base	Wakulla County Flood Damage Prevention Ordinance Objective (4) to minimize prolonged business interruptions.
	Wakulla County Comp Plan, Economic Development Element Objective 1: The County shall promote the cooperation and coordination among private and public sector organizations to expand existing industries and businesses, especially within the designated Enterprise Zones.
Preserve and enhance long-term viability of ecosystems	Wakulla County Comp Plan, Conservation Element, Objective 3: The County shall protect the natural functions of the 100-year flood plain to the extent that flood-carrying and flood storage capacity is maintained.
	Wakulla County Comp Plan, Coastal Management Element, Objective 1: The County shall protect natural resources in the County by implementing the following activities to prevent development of coastal wetlands, and significant wildlife habitat without mitigation and to limit the impacts of development from destroying the natural functions of existing coastal wetlands, significant wildlife habitats and estuarine environmental quality. The County will actively pursue grants and commit funding for studies to identify water related and dependent uses, and needed environmental protection and mitigation from marinas and boat ramp impacts.
Protect and manage scenic, historic, natural, and recreational resources	Wakulla Water Quality Ordinance 94-28: (2) The intent of this ordinance is to protect and maintain the quality of water resources in Wakulla County, Florida and to ensure additional water quality protection to ground water affecting Wakulla Springs by providing objective standards and measurable criteria for regulating the use, handling production, storage, and disposal of toxic or hazardous substances.

Guiding Principles	Policies in Existing Plans
Support and promote state and regional mitigation efforts.	Wakulla Comp Plan, Coastal Management Policy 2.12: County shall evaluate opportunities for integration of County emergency preparedness procedures into the hurricane evacuation plan, and shall consider incorporating recommendations of interagency hazard mitigation reports into County procedures.
	Wakulla County Comp Plan, Coastal Management Policy 2.13: The County shall continue to coordinate with adjoining local governments a joint review of opportunities and methods for reducing exposure to natural hazards.

Source: Wakulla County Comprehensive Plan, Emergency Management Plan, Flood Damage Prevention Ordinance

St. Marks – Existing Mitigation Policies in St. Marks Comprehensive Plan

Future Land Use Element: Goal 1: For the 5-year short-term planning period and 10-year long-term planning period, ensure that future land uses are consistent with the existing character of the City of St. Marks and do not pose a ***threat to human health and safety or to natural resources.***	Obj 1.1, Policy 1.1.1 .h: Riverfront Redevelopment: Existing parcels in this area must develop, with a minimum of two uses including open space, as a mixture of commercial and open space or residential and open space or a combination of all three.
	Obj 1.1, Policy 1.1.2.c: Protect the environmentally sensitive land designated on the future land map series, and referenced in the Conservation Element and Coastal Management Element; d) Regulate and protect areas subject to periodic flooding and provide for drainage and stormwater management;
	Obj 1.1, Policy 1.1.4: The City will prohibit dredge and fill, except for access to private residences and for pilings for recreation structures. Fill will be allowed only in conjunction with minimal access way and with a minimum amount beneath the structure; the fill area will be the least ecologically valuable part of the site; the fill area will be located and oriented so that direction and rate of historical surface water flows are maintained; the edge of the fill area will be stabilized to prevent erosion; and all structures in wetland areas, except for surface access roads, will be elevated on pilings.
	Policy 1.1.5: Land development regulations adopted to implement the Comprehensive Plan shall be based on, and be consistent with, the following standards for densities/ intensities: a) Residential land use - up to 4 residential units per acre (excluding lands in the Riverfront Redevelopment category) No residential shall be located in the wetlands portion of the floodplain.
Infrastructure Element: DRAINAGE Goal 1: Manage stormwater drainage to protect the quality of groundwater and surface water resources and protect the general public from the damage, cost and inconvenience from flooding.	Objective 1.1: The City will ensure that land development will not cause damage due to increased quantities of surface water runoff or to a decrease in surface water quality. Policy 1.1.1: Educate the community on the risks of development in flood prone areas.
Coastal Element: Goal 1: Develop procedures to protect human life and reduce	Objective 1.1: The City adopts and shall maintain a level of service standard of 12 hours for evacuation time to shelter for the

public expenditures in the event of natural disasters.	category 5 storm event as measured on the Saffir-Simpson scale pursuant to Section 163.3178(9)(a)2., F.S.
	Policy 1.1.6: Coordinate planning efforts with Wakulla County Emergency Management Director, the Red Cross and other appropriate agencies. Policy 1.1.7: The hazard mitigation annex of the Local Peacetime Emergency Plan shall be reviewed and updated on a 5-year basis, beginning in 1991. In the rewrites, the City shall identify specific actions that could be implemented to reduce exposure to natural hazards.
	Objective 1.2: By 2010, the City will prepare post-disaster redevelopment plans which will reduce or eliminate the exposure of human life and public and private property to natural hazards.
	Policy 1.2.2: New sanitary sewer facilities in the City shall be flood proofed, raw sewage shall not leak from sanitary sewer facilities during flood events, and no new septic tanks will be permitted within the city limits.
	Policy 1.2.3: The City shall participate in the preparation of a County-wide **Local Mitigation Strategy** by designating a representative as a member of the formal working group who will: a) Develop the City's goals and guiding principles for hazard mitigation and long-term recovery; b) Identify hazards and assess the risks and vulnerability of the City to natural disasters; and c) Prepare a list of the City's existing and proposed mitigation initiatives and the policies, ordinances, and regulations that guide these efforts; and d) Prepare for adoption a single, unified local mitigation strategy for Wakulla County and its municipalities.
	Policy 1.2.4: Within the Coastal High Hazard Area, structures damaged more than 50% by coastal storms may be rebuilt provided that the redevelopment meets current building code and Land Development Code requirements. Policy 1.2.5: New development and redevelopment shall comply with current Federal Emergency Management Agency (FEMA) and Florida Building Code construction standards.
	Policy 3.1.8: The 100-year floodplain (as designated by FEMA) may be utilized for the storage of stormwater, passive recreation, conservation facilities, water dependent activities, public infrastructure needed to provide access, and non-industrial uses. Where buildable areas exist outside of the 100-year floodplain, development should take place outside of the 100-year floodplain to the maximum extent possible. In the event development is proposed within the 100-year floodplain: a) All development (including Residential and Commercial) in the floodplain will be built two feet above the base flood elevation; b) All development in non-floodplain areas shall be built two feet above the grade because of the proximity to the floodplains; c) Compensating storage shall be required;

	d) The natural hydrological character of the surface waters shall be maintained; e) Natural surface water flows, particularly sheet flows, shall be maintained; f) Surface water quality and quantity shall be maintained g) Residential should be located on the upland (non-wetland) portion of the floodplain, unless approved by FDEP.
	Objective 3.2: The City shall ensure that building and development activities are carried out in a manner which minimizes the damage to life and property from hurricanes.
Conservation Element: Goal 1: The City of St. Marks shall conserve, manage and protect its natural resources to the highest extent possible, including but not limited to air, water, water recharge areas, wetlands, water wells, soils, shores, flood plains, rivers, fisheries and wildlife, marine habitat, minerals, and other natural and environmental resources, including factors that affect energy conservation.	Policy 1.2.9: The City will educate residents as to the danger of improperly disposing hazardous wastes and provide information on safe disposition.

City of Sopchoppy Code of Ordinances – Land Development Code

Subpart B – Land Development Code	**Sec. 107-23. - 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: (1) 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 velocities; (2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters; (4) Control filling, grading, dredging and other development which may increase erosion or flood damage; and (5) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.
	Sec. 107-25. - Methods of reducing flood losses. In order to accomplish its purposes, this article includes methods and provisions for: (1) Restricting or prohibiting 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;

	(2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; (3) Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters; (4) Controlling filling, grading, dredging, and other development which may increase flood damage; and (5) Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other areas.
	Sec. 107-27. - Basis for establishing the areas of special flood hazard. The areas of special flood hazard identified by the Federal Emergency Management Agency in its flood map dated August 15, 1984, with accompanying maps and other supporting data, and any revision thereto, are adopted by reference and declared to be a part of this article
	Sec. 107-55. - Duties and responsibilities of the floodplain management administrator. Duties of the administrator shall include, but not be limited to: (1) Review all development permits to ensure that the permit requirements of this article have been satisfied; (2) Advise the permittee that additional federal or state permits may be required, and if specific federal or state permit requirements are known, require that copies of such permits be provided and maintained on file with the development permit. (3) Notify adjacent communities, the state floodplain coordinator, and other federal and/or state agencies with statutory and regulatory authority prior to any alteration or relocation of a watercourse. (4) Ensure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished. (5) Verify and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved buildings. (6) Verify and record the actual elevation (in relation to mean sea level) to which the new or substantially improved buildings have been flood proofed, in accordance with section 107-54 (2). (7) Review certified plans and specifications for compliance. (8) Make the necessary interpretation where interpretation is needed as to the exact location of boundaries of the areas of special flood hazard. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article. (9) Obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, when base flood elevation data or floodway data have not been provided in accordance with section 107-27, in order to administer the provisions of division 3 of this article

DIVISION 3. - PROVISIONS FOR FLOOD HAZARD REDUCTION	**Sec. 107-86. - General standards.** In all areas of special flood hazard, the following provisions are required: (1) New construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure; (2) Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces; (3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage; (4) New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage; (5) Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding; (6) New and replacement water supply systems shall be designed to minimize or eliminate the infiltration of floodwaters into the system. (7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate the infiltration of floodwaters into the systems and discharges from the systems into floodwaters; (8) Onsite waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding; (9) Any alteration, repair, reconstruction or improvements to a building which is not in compliance with the provisions of this division, shall meet the requirements of "new construction" as contained in this division; and (10) Any alteration, repair, reconstruction or improvements to a building which is in compliance with the provisions of this division, shall be undertaken only if said nonconformity is not furthered, extended, or replaced. **Sec. 107-88. - Standards for streams without established base flood elevation and/or floodways.** Located within the areas of special flood hazard established in section 107-27, where streams exist but where no base flood data has been provided or where base flood data has been provided without floodways, the following provisions apply: When base flood elevation data or floodway data have not been provided in accordance with section 107-27, the local administrator shall obtain, review, and reasonably utilize any base flood elevation and

floodway data available from a federal, state, or other source, in order to administer the provisions of this division.

(1) No encroachments, including fill material or structures, shall be located within a distance of the stream bank equal to five times the width of the stream at the top of the bank or 50 feet each side from the top of the bank, whichever is greater, unless certification by a registered professional engineer is provided demonstrating that such encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge. (Note: Use of centerline of a stream may be a more suitable standard under some conditions.)

(2) In special flood hazard areas without base flood elevation data, new construction and substantial improvements of existing structures shall have the lowest floor of the lowest enclosed area (including basement) elevated no less than two feet above the highest adjacent grade at the building site. (Note: A building in a SFHA as stated above, can never be elevated less than two feet above the highest adjacent grade (HAG) as defined in section 107-19 without a letter of map correction being issued first. The insurance rates for post FIRM building in these areas drop drastically after five feet of elevation. A building elevated to seven feet above the HAG, maintains an uninhabitable space below the lowest floor and a space usable for parking, storage, and access. It also is provided with a high level of flood damage protection for a flood condition that is virtually unknown. In all cases, it is recommended that, unless it is required to produce a BFE for all development, the local attorney be consulted regarding culpability and liability for utilizing default values for unknown hazardous conditions.)

Sec. 107-89. - Standards for areas of shallow flooding (AO zones).

Located within the areas of special flood hazard established in section 107-27 are areas designated as shallow flooding areas. These areas have flood hazards associated with base flood depths of one to three feet, where a clearly defined channel does not exist and the water path of flooding is unpredictable and indeterminate; therefore, the following provisions apply:

(1) All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to the flood depth number specified on the flood insurance rate map, above the highest adjacent grade. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two feet above the highest adjacent grade.

(2) All new construction and substantial improvements of nonresidential structures shall:

a. Have the lowest floor, including basement, elevated to the flood depth number specified on the flood insurance rate map above the highest adjacent grade. If no flood depth number is specified, the lowest floor,

	including basement, shall be elevated at least two feet above the highest adjacent grade; or b. Together with attendant utility and sanitary facilities, be completely flood proofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Certification is required as per section 107-87(2).
	Sec. 107-91. - Critical facility. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA) (100-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet or more above the level of the base flood elevation at the site. Flood proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.