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January 22, 2015

Walton County 2015 Local Mitigation Strategy Plan Update (Draft)

Mr. Miles E. Anderson
State Hazard Mitigation Officer
Florida Division of Emergency management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399

Dear Mr. Anderson;

Enclosed please find a copy of the Walton County Local Mitigation Strategy Plan and 2015 Crosswalk for your review. I have enclosed the following materials:

A complete copy has been downloaded to the FDEM Share Point Site as requested.

I believe you will find our submittal complete. If you require additional information or have any questions, please do not hesitate to contact me.

Respectfully submitted,

Renee Bradley, Senior Planner, Chair

Walton County LMS Working Group
Walton County, Florida

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ACKNOWLEDGMENTS

Northwest Florida Water Management District
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State of Florida Department of Emergency Management
Walton County Department of Emergency Operations
State of Florida Department of Economic Opportunity
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2015 Plan Update

Walton County Local Mitigation Strategy

RECORD OF DOCUMENT REVIEW /REVISIONS

Original Plan	October 26, 1999	Walton County Resolution 1999-66
First Plan Update	April 26, 2005	Walton County Resolution 2005-28
Second Plan Update	June 22, 2010	Walton County Ordinance 2010-12
	August 9, 2010	Town of Paxton Ordinance 2010-04
	August 10, 2010	City of Freeport Ordinance 2010-04
	July 12, 2010	City of DeFuniak Springs Ordinance 787
2015 Update	Submitted January 22, 2015	Walton County Ordinance *draft*
	Pending Adoption	Town of Paxton Ordinance *draft*
	Pending Adoption	City of Freeport Ordinance *draft*
	Pending Adoption	City of DeFuniak Springs *draft*

Note: Please see minutes of LMS meetings for reviews and revisions to the 2015 LMS Update from June 2010 through November 2014. Additionally, during the past three months, the plan was reviewed by the staff of the Walton County Planning Department and Walton County GIS Department. The plan was placed on the County's LMS website for public view and comments. Email notifications were sent to all the jurisdictional partners requesting their review and comments as the document was updated.

EXECUTIVE SUMMARY

Hazard mitigation is any action taken to reduce or eliminate the impacts of future disasters to life and property. The Disaster Mitigation Act of 2000 (DMA 2000) and Florida Administrative Codes 9J-5 and 9G-22 are the regulations in place to help improve the planning process to mitigate hazards. Section 322 (a-d) of DMA 2000, requires local governments to have a mitigation plan that illustrates the process for identifying hazards, risks, and vulnerabilities; identify and prioritize mitigation actions; encourage the development of local mitigation strategies; and provide technical support. The DMA 2000 also requires that communities must have an approved hazard mitigation plan in order to receive Stafford Act assistance and be eligible for HMGP, PDM & FMA grants.

The Walton County Local Mitigation Plan (LMS) complies with these requirements, assuring Walton County, and the County's municipalities qualify for all disaster assistance including hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L.93-288, as amended. The purpose of the LMS Plan is to establish an ongoing process that will make hazard mitigation a continuous activity by the community and a tool to plan for disasters before they occur. Walton County and its municipalities participate in this program because effective mitigation is an opportunity to save lives and protect economic and environmental resources from future disasters.

Developing and maintaining this plan is extremely important to Walton County and its municipalities because of its growing permanent population, seasonal population (tourism), development and infrastructure growth. These factors increase the County's vulnerability to tropical cyclones (tropical storms and hurricanes), especially in the South Walton region of the County where population and development are most concentrated.

Walton County has experienced tremendous population growth within the past several years. In the latest (2000) official Census 33,666 residents lived in unincorporated areas of Walton County (Appendix A1). This is an increase of 12,469 persons since 1990, for a growth of about 5.88 percent annually during the decade. There was a greater numerical increase in this decade than occurred in the two previous decades combined, that is, between 1970 and 1990, when the number of residents grew by 10,837 persons. While the percent of population increase was less than that of the state as a whole from 1980 to 1990, it has far surpassed the state growth rate from 1990 to 2000. Almost all of this population growth (98%) is attributable to migration.

The Bureau of Economic and Business Research (BEBR) estimated the 2006 population of the unincorporated county at 48,034 persons. This is an increase of 14,368 residents, or a 7.1 percent annual growth, since the latest census. The strong growth of the 1990s continues, and at an accelerated rate.

The *Walton County, FL; A Population and Economic Forecast for 2040, done by Florida State University, Department of Urban and Regional Planning; In conjunction with: Center for Demography & Population Health; in the Spring of 2013,* is also being used to help determine vulnerability of hazards that are applicable to Walton County and its jurisdictional partners.

This LMS Plan also includes census information found on population, housing, industry, occupations, climate and natural hazards from City-data for Walton County, The City of Freeport, Town of Paxton, and the City of DeFuniak Springs. (Appendix A2).

The elements that are encouraging growth within the County are improved infrastructure such as the improvements underway with the US 331 4-lane which will improve the commuting and transportation needs of permanent residents as well as create better access to tourist to the recreational amenities, such as the Beaches of South Walton.

In addition, the trend continues from the 1990-2010 forecast, where retirees make South Walton County their permanent residence. Also, there has been the steady growth of middle aged adults. The majority of the increase in population is in the unincorporated areas south of the County, in the New Urbanism Communities, Seaside and Rosemary Beach.

The growth in population (primarily in the southern portion of the County) has also caused a corresponding growth in the infrastructure (potable water, wastewater treatment plants, electrical utilities, roads, schools, etc.) to support this population. Tropical cyclones that once expended their forces against the natural environment (vegetated sand dunes, wetlands, and deserted beaches), now encounter costly infrastructure and residential dwellings. This infrastructure is being built in coastal areas that are becoming more and more subject to potential storm damage.

According to the Walton County Economic Development Alliance as of 2011, the tourism and hospitality industry leads the County's major employment sectors.at 23.4 per cent of the workforce. Trade, transportation & utilities hold second place

at 20.3 per cent, while construction is third at 10.0 per cent. Education, health care services, and public administration are within the top five components of the workforce.

Below is a breakdown of Walton County's 2011 employee profile:
Average annual employment 19,058

Construction 10.0%
Manufacturing 2.4%
Trade, transportation & utilities 20.3%
Information technology 0.6%
Financial services 5.4%
Professional services 7.6%
Education & health services 9.7%
Tourism & hospitality 23.4%
Public administration 9.6%
Miscellaneous services 4.2%

Major Private Sector Employers (2011)

Businesses	*Number of Employees*
Sandestin Golf & Beach Resort Tourism	822
Hilton Sandestin Tourism	575
Resort Quest (Wyndham) Tourism	510
Sacred Heart Medical Center Health Care	508
Publix Super Markets Retail	410
Wal-Mart Retail	280
Watercolor Inn Tourism	275
Healthmark Reg. Medical Center Tourism	175
Professional Products Specialized Manufacturing	170
Florida Transformer Specialized Manufacturing	150

In addition to private firms above, the public sector provides a significant number of local jobs with city and county governments, as well as the Walton County School District. http://wcedafl.com/business-info/industries-employers

Year	BCC	Clerk of Courts	Property Appraiser	Supervisor of Elections	Tax Collector	Sheriff	Total
2002	416	55	20	6	17	160	674
2003	465	61	22	7	16	176	747
2004	454	62	26	7	16	198	763
2005	474	66	29	7	22	213	811
2006	527	69	34	8	27	241	907
2007	586	69	34	9	30	202	931
2008	572	69	34	6	27	212	921
2009	533	69	31	6	28	230	897
2010	496	64	32	7	27	235	861
2011	455	65	30	6	29	237	822

The County is authorized by Florida Statute to levy and collect taxes on property owned within Walton County to provide monies with which to provide services for its citizens. These services include general government, transportation, public safety, debt service, and culture and recreation. In Walton County, property tax, also known as ad-valorem tax, is based on the assessed value of real estate and/or personal property. Property values for Walton County are determined by the Property Appraiser. The Board of County Commissioners then sets a property tax rate called the millage rate (mil). A mil is equal to $1.00 of tax for every $1,000 of assessed property value. The current FY 2014-2015 millage rate is 3.6363. The budget for FY 2014-2015 is 123,936,505 for County government. (www.clerkofcourts.co.walton.fl.us/report/Annual_Citizens_Report). A list of Walton County's Government Revenues for FY 2010-2013 are located in (Appendix A3).

This document is presented as an update to the existing Walton County Local Mitigation Strategy Plan which was developed to raise awareness of the various hazards facing Walton County and its jurisdictional partners, the municipalities, to promote the implementation of recommended hazard mitigation strategies and to help plan for post-disaster recovery.

2015 Plan Update

Walton County Local Mitigation Strategy

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Section 1 Adoption Process:

Requirement §201.6(c) (5) For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

Note: As instructed from Florida Department of Emergency Management (FDEM), and FEMA representatives, by ordinance, the 2015, Local Mitigation Strategy Plan will be adopted within 90 days of approval from FEMA, by each participating jurisdiction.

Walton County and the participating jurisdictions adopted their first Local Mitigation Strategy (LMS) Plan in 1999, and in 2005 adopted the required update to the plan. In August of 2010, Walton County and its jurisdictional partners adopted the 2010 LMS Plan update and have complied with the required annual updates (Appendix B1).

The Walton County LMS Plan includes unincorporated Walton County, the Town of Paxton, City of Freeport, and City of DeFuniak Springs. The County has invited The Muskogee Nation Indian Tribe to join the jurisdictional partnership but has not received a response (Appendix B2).

The formal adoption and implementation of a hazard mitigation plan has positive potential to the County, jurisdictional partners and residents. By participating in the working groups, the public and private sectors can identify problems and prepare solutions in advance of a disaster.

Walton County is now participating in FEMA's Community Rating System (CRS) program (Appendix B3). Walton County's Flood Plain Manager, the Walton County GIS Department, Walton County Emergency Services and the Walton County Planning and Development Services worked together to meet the CRS requirements. The adoption of this LMS plan by the Board of County Commissioners and participating local governments will help gain additional credit points, which will provide discounts on national flood insurance rates. The (FDEM) has recommended that adoption of the plan take place immediately after FEMA has approved the plan. The ordinance document has been prepared and is ready for adoption by the County and its jurisdictional partners (Appendix B4).

1.1 Participation Documentation

The plan will describe how each jurisdiction requesting FEMA recognition actively participated in the planning process.

The Walton County Local Mitigation Strategy Plan received participation from representatives from the unincorporated County, Town of Paxton, City of Freeport, and the City of DeFuniak Springs. Additional participants, even though not considered jurisdictional, included the Choctawhatchee Electric Cooperative, Walton County Emergency Services, South Walton Utilities, Regional Utilities, and the South Walton Fire Department. Each of the participants actively participated

in the planning process by committing their time, attending meetings, submitting mitigation projects, ranking projects, providing information and identifying hazards. Below is a list of participants in the planning process (group members), their jurisdiction and roles. *Note: The Vice Chair has changed since the last 5 year update.*

1.2 LMS Working Group

LMS_Workgroup_Membership						
First_Name	**Last_Name**	**Title**	**Officer**	**Phone_Number_1**	**Phone_Number_2**	**E-Mail_Address**
Marc	Anderson	South Walton Fire Dept Assistant Chief;	N/A	(850) 267-1298		manderson@swfd.org
Judy	Williams	Town of Paxton Billing Clerk	N/A	(850) 834-2716	(850) 951-3191	jwilliams@paxtonfl.gov
Chris	Eddy	CHELCO, Project Coordinator	N/A			ceddy@chelco.com
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Latilda	Hughes	Freeport; City Planner	N/A	(850) 835-2340	(850) 258-7771	lhenninger@freeportflorida.gov
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Joel	Paul Jr.	Executive Director of Tri_County	N/A	(800) 395-2696		triCountyxd@digitalexp.com
Angie	Biddle	Grants Coordinator, Walton County	N/A	(850) 892-8401		bidangie@co.walton.fl.us
Michelle	Hill	Walton County Health Department; Nursing Program Specialist	N/A	(850) 892-8015		michelle.hill@flhealth.gov

LMS_Workgroup_Membership						
First_Name	Last_Name	Title	Officer	Phone_Number_1	Phone_Number_2	E-Mail_Address
Renee	Bradley	Walton County Planning and Development; Senior Planner	Chair	(850) 892-8157	(850) 830-1969	brarenee@co.walton.fl.us
Buddy	Wright	Walton County Public Works; Program Manager	N/A	(850) 892-8108		wribuddy@co.walton.fl.us
Ashley	Dismukes	Regional Utilities; Public Relations Coordinator	N/A	(850) 231-5114		ashley@regionalutilities.net
Pete	Debogery	South Walton Utility; General Manager	N/A	(850) 654-1242		ped@swuci.org
Russell	Beaty	Walton County Emergency Management; Manager	N/A	(850) 892-8065		bearussell@co.walton.fl.us
Donna	Free	Walton County Emergency Management; EM Planner	Vice-Chair	(850) 892-8065		fredonna@co.walton.fl.us
Hal	Laird	Walton County FPM _Flood Plain Manager	N/A	(850) 267-1955		laihal@co.walton.fl.us
Christine "Sam"	Sammelmann	Walton County GIS Mgr.	N/A	(850) 267-1955		samchristine@co.walton.fl.us
Brian	Underwood	Walton County Planning Senior Planner	N/A	(850) 267-1955		undbrian@co.walton.fl.us
Janet	Trinka	Walton County Planning Tech I	Secretary	(850) 892-8157		trijanet@co.walton.fl.us

1.3 Mitigation Project Ranking

During 2013 and 2014, the entire LMS working group worked together to update the current mitigation project list using the STAPLEE method as their guide (Appendix B5). Additionally, the LMS Chair brought the revised project list to the attention of the Walton County Board of County Commissioners (WCBCC) to

request that the WCBCC support the efforts of the LMS working group and to encourage public participation. The LMS Chair also announced the deadline for the upcoming 2015 required update and the purpose and need for the Board's support. The current project list was exhibited at this public hearing. The WCBCC Chairman sent out letters requesting participation in helping to update the mitigation project list and LMS Plan update. In addition members were requested to participate in the scheduled meeting with the Florida Department of Emergency Management visit (Appendix B6).

On July 28, 2014, the LMS Chair requested a sub working group to help with the 2015 LMS update. This working group consists of GIS, Emergency Management, Flood Plain Manager, and Technical Support. The following LMS members have granted their time and efforts to this request:

Renee Bradley, Senior Planner, DRI Coordinator, LMS Chair
GIS, - Christine "Sam" Sammelmann, GIS Manager, Walton County GIS Department and Kevin Laird, Data Coordinator
Emergency Management-Russ Beatty, Walton County Emergency Manager and Donna Free, Emergency Management Planner, LMS Vice-Chair
Flood Plain Management- Hal Laird, Flood Plain Manager, CRS Coordinator
Technical Support-Janet Trinka, Planning Tech I, LMS Secretary

Also, additional support has been requested from each individual jurisdiction, through their planning departments.

To encourage public participation, all quarterly LMS meetings are advertised in the local paper, which is distributed County wide. Ads, agendas and sign-in sheets are located in (Appendix B7). In addition, the LMS Plan and meeting schedules are on the LMS webpage on the Walton County website; http://fl-WaltonCounty.civicplus.com/DocumentCenter/View/8741.Maps of the County and its jurisdictions can be found in the data and analysis section (M-A07).

Note: A new school has been built and is located in the Mossy Head area in the northwest region of the County as per the 2010 LMS update. No new schools have been built since the 2010 LMS Plan update.

Section 2 Planning Process

The initial step in developing the Walton County Local Mitigation Strategy (LMS) document was the creation of a working group, the Walton County Local Mitigation Strategy Working Group. The role of this group was to develop the strategy and to remain active to ensure that the plan is updated and meets changing local conditions. Community involvement was solicited from a variety of organizations, associations, and businesses that included the County, municipalities, utilities, school board, and the public.

In order to include the participation of businesses, neighboring communities, academia, and non-profit organizations, all LMS activities are open to the public and advertised in the local newspaper. Email invitations were sent to officials from neighboring communities to participate. Although the public attendance is normally sparse, there are occasional participants from these groups.

The LMS Working Group met initially on August 20, 1998, and continues to meet on a quarterly schedule as shown in Appendix B7. In the process of developing this strategy, the LMS Working Group decided that there would be a chair and vice-chair, that meetings would be informal in nature to encourage an open dialogue, and that there would be sub-groups formed as needed. Initially, the group acquired technical assistance and GIS support from Science Applications International Corporation. As part of our mitigation efforts, the County has acquired the technology to have our own Walton County GIS Department provide technical assistance and mapping for this and the 2010 updated plan.

In December of 2007, the LMS group approved the bylaws and operating procedures for the Walton County Local Mitigation Strategy Working Group.

Note: The working group revised the following bylaws to having quarterly meetings instead of monthly meeting, as per a request from the LMS working group.

2.1 Bylaws and Operating Procedures

Walton County Local Mitigation Strategy Work Group

BYLAWS AND OPERATING PROCEDURES

ARTICLE I PURPOSES OF THE LMS WORK GROUP

The purpose of the Walton County Local Mitigation Strategy Work Group, referred to hereafter as (LMSWG), is to plan for a decrease in the vulnerability of the citizens, governments, businesses and institutions of Walton County from the future human, economic and environmental costs of natural, technological, and societal disasters. The LMSWG will develop, monitor, implement, and maintain a comprehensive multi-jurisdictional plan for hazard mitigation that is be intended to accomplish this purpose and to promote a sustainable and disaster-resistant community.

ARTICLE II MEMBERSHIP

Membership in the LMSWG is open to all jurisdictions, organizations and individuals supporting its purposes. Membership is accomplished through the completion of a Member Information Form. The Member Information Form should be submitted to the Chair of the LMSWG for a signature of acknowledgement. The LMSWG Chairperson shall submit all Member Information Forms to the LMSWG Secretary for processing into the LMSWG Membership Database.

LMSWG alternate members shall also be required to submit a Member Information Form.

ARTICLE III ORGANIZATIONAL STRUCTURE

The organizational structure of the LMSWG shall consist of two permanent components,: the Technical Group and Citizen Group**.**. The LMS Technical and Citizen Group shall select members to act as Chairperson, Vice-chairperson, and Secretary. Additionally, the Walton County Planning and Development Services will serve as the LMSWG planning support staff.

A. The Technical Group

The LMSWG shall be guided by a decision-making and voting body called the Technical Group. The make-up of the Technical Group shall allow for the representation of at least one appointed representative (and one designated alternate) from the following:

Walton County LMS Technical Work Group

Walton County / Planning and Development Services
Walton County / Public Works Division
Walton County Sheriff's Office
Walton County / Emergency Response Division
Walton County / Engineering Department.
Walton County / Geographic Information Systems/Information Resources Department
Walton County School Board
Northwest Florida State College
Walton County Health Department
City of DeFuniak Springs
City of Freeport

Town of Paxton
South Walton Fire Rescue
Eglin Air Force Base
North West Florida Water Management District
West Florida Regional Planning Council
Gulf Power
Choctawhatchee Electric Cooperative (Chelco)
Regional Utilities
South Walton Utilities
Inlet Beach Water
Mossy Head Waterworks
Okaloosa Gas

- Other individuals and their designated alternates may be added to the Technical Group as deemed necessary by the LMS WG..

The Technical Group shall formulate recommendations to the LMSWG. Each member (or designated alternate) of the Technical Group shall have one vote on formal motions made by the LMSWG.

The Technical Group will provide a formal and stable core to the LMSWG. Technical Group members will serve as official representatives and spokespersons for the organization, which they represent regarding the activities and decisions of the LMSWG. The roles and responsibilities of the Technical Group members are described in Article V.

To maintain good standing, members (or the designated alternate) of the Technical Group must not have more than one unexcused absences from meetings during the course of a year.

> Excused Absence Defined: If the member or member alternate cannot attend the meeting, the Chairperson may excuse the member's absence if the member notifies the Chairperson prior to the meeting.

Criteria for Technical Group Member Alternates: Each member of the Technical Group will designate one alternate to assist them in fulfilling their roles and responsibilities within the group. The alternate member may have one vote only when the primary member is absent. To maintain a well-balanced membership, the designated alternate shall represent the same entity as the primary member.

B. The Citizens Group

The Citizens Group component of the LMSWG shall have an advisory role and responsibility to the LMSWG. Membership in and/or participation on the Citizens Group is open to all interested Non-governmental organizations (NGO), private organizations and individuals.

Membership of the Citizens Group shall include voluntary representatives from residents, businesses, property owners, non-profit organizations, emergency shelter providers, churches, land developers, contractors, neighborhood groups and associations.

The Citizens Group as a whole shall have one vote on the LMSWG.

C. Planning Support Staff

The Walton County Planning and Development Services or other agency as so designated by

the Board of County Commissioners, will serve as the LMSWG planning support staff.

ARTICLE IV LMSWG OFFICERS

The chair of the LMSWG will preside at each meeting of the LMSWG as well as establish temporary sub-work groups and assign personnel to them. The vice chair will fulfill the duties and responsibilities of the chair in his or her absence. The secretary /treasurer will be tasked with meeting documentation and taking meeting minutes at each LMSWG meeting.

Duties and Responsibilities of the LMSWG Officers will include, but shall not be limited to:

The LMSWG Chair shall:

- Conduct the LMSWG meetings as outlined in the agenda and according to Robert's Rules of Order when necessary.
- Assist the LMS planning support staff in setting meeting agendas.
- Establish formation of temporary sub-work groups and assign members .
- Oversee the Planning Component of the LMS Working Group Roles and Responsibilities.

The LMSWG Vice-Chair shall:

Fulfill the roles and responsibilities of the chairperson in his/her absence.
Oversee the Public Information component of the LMS Working Group.

The LMSWG Secretary/Treasurer shall:

- Prepare meeting minutes prior to distribution to the LMSWG and others.
- Maintain a LMSWG file of all documentation (letters, plans, state and federal handouts/documents, etc.) received while in office and transfer the file to the next elected chairperson.
- Distribute minutes, meeting notices, and general LMS Working Group outreach.
- Review all request for expenditures before submission to budget office.
- Advertise public meetings.

ARTICLE V RESPONSIBILITIES

Planning - The Planning responsibilities include undertaking and coordinating the actual technical analysis and planning activities fundamental to the development of an LMS plan. Activities will include identifying, analyzing, and monitoring the hazards threatening Walton County and the vulnerabilities of the community to those hazards, as well as assisting in the definition of actions, policies, or programs to mitigate the impacts of those hazards; defining structural and non-structural actions needed to decrease the human, economic and environmental impacts of disasters, and preparing for consideration and action by the LMSWG a strategy for implementation of those initiatives in both the pre- and post-disaster time frame; defining the general financial vulnerability of the community to the impacts of disasters; assisting with identification, characterization, and prioritization of initiatives to minimize vulnerabilities; and identifying potential funding sources for all priority mitigation initiatives identified in the mitigation strategy developed by the LMSWG. In addition, planning responsibilities include assessing the community's policies, regulations, and programs and

making subsequent recommendations to enhance or strengthen the mitigation components of those planning documents (known as capabilities assessment). Planning responsibilities shall include any other planning activity required by CFR 44 Part 201, 9G-22 FAC or any other federal and state mitigation requirements.

Public Information - Public Information responsibilities include those specified in CFR 44 Part 201, FEMA Region IV Minimum Standards of Responsibilities, 9G-22 FAC or any other federal and state mitigation requirements. These responsibilities include, but are not limited to securing public input and comment on the efforts of the LMSWG; informing the public about the activities of the LMSWG; conducting public information and education programs regarding hazard mitigation and informing the community about the vulnerability to future disasters and effective hazard mitigation actions; conducting surveys to gather information on community needs and attitudes; assisting with the conduct of public meetings; providing a venue to receive comments from the public who cannot attend public meetings, and preparing the community for issuance of the LMS plan and promoting public acceptance of the strategy developed by the LMSWG.

Temporary Sub-Work Groups - The responsibilities of temporary sub-work groups will be defined at the time they are established by the chairperson of the Work Group appointing the sub-work group.

A. Technical Group - Responsibilities

The Technical Group is responsible for formal actions including the release of reports, development of resolutions, issuance of position papers, and similar activities.

Other roles and responsibilities may include but not be limited to:

- Approve the mitigation initiatives for incorporation into the plan, the priority of those initiatives, and the removal or termination of initiatives.
- Set guidelines for the total mitigation planning effort.
- Serve as the official body to represent the overall planning process.
- Serve as the official liaison of the LMSWG to the community.
- Presents the plan to communities and the local elected bodies.

B. Citizens Group - Responsibilities

The Citizens Group shall have the following responsibilities described below:

Input to the LMSWG regarding planning and public information efforts.

C. LMS Planning Support Staff and Monitoring, Evaluation and Update Procedures

The general and primary responsibility of the LMS planning support staff is to coordinate and facilitate the LMSWG's development of the initial Disaster Mitigation Act of 2000 (DMA2K) Section 322 hazard mitigation plan and the subsequent continual maintenance, monitoring, evaluation, and update of the plan on an annual and five-year planning schedule as required by 9G-22 FAC, FEMA criteria in CFR 44 Part 201, and FEMA Region IV Minimum Standards of Acceptability (and any other subsequent State and Federal requirements). The LMSWG will meet on a quarterly basis to review and evaluate the plan. The criteria used to evaluate the plan will include, but is not limited to the following:

- Assess major changes to the community and how they affect the mission of the LMS plan.

- Review any changes that may have been made to other planning mechanisms to determine if changes are needed to the LMS plan.

- Discuss any recent disaster events and how they may change the mitigation efforts undertaken by the county and municipal jurisdictions.

Other planning support staff responsibilities shall include, but are not limited to, the following:

- Serve as initial point of contact for all matters relating to mitigation planning and implementation and when appropriate, confer with the chair and/or vice chair; the authority specified in Article VI, or other member(s) of the LMSWG.

- Document the planning process in the mitigation plan as required by FEMA criteria in CFR 44 Part 201, and FEMA Region IV Minimum Standards of Acceptability (and any other subsequent State and Federal requirements).

- Obtain and utilize technical assistance and/or training support from the State and FEMA or other agencies as needed by the LMS planning support staff and/or the LMSWG.

- Provide training as needed to equip LMSWG members in satisfactorily completing planning tasks.

- Read, interpret, and keep current on State and Federal mitigation planning requirements and accordingly guide the planning activities of the LMS Working Group as necessary to ensure the community's eligibility for State and Federal mitigation and disaster funding remains in good standing.

- Work with the LMSWG to collect, compile, organize, and analyze needed information for plan development.

- Coordinate with the County's website staff in the posting of meeting documentation, agendas, and other items to promote public information, participation, and feedback. Maintain for public review all documentation.

- Attend State and Federal workshops on behalf of the LMSWG.

- Provide logistical and administrative support to the LMSWG.

ARTICLE VI AUTHORIZED COUNTY POINT OF CONTACT

The Director of the Walton County Planning and Development Services (or designee) shall be the LMSWG's designated county point of contact, which is empowered by the Walton County Board of County Commissioners to present contracts to the Walton County Board of County Commissioners for consideration and take such other actions as necessary in support of, or for the benefit of, the LMSWG.

ARTICLE VII ACTIONS BY THE LMSWG

A. Authority for Actions

Only the Technical Group has the authority to take final actions in the name of the LMSWG. Actions by the Citizens Group and its sub-work groups or LMS planning support staff are not considered as final until affirmed by action of the LMSWG.

B. Meetings, Voting and Quorum

Meetings of the LMSWG will be conducted in accord with Robert's Rules of Order, if and when deemed necessary by chair of the meeting.

Regular meetings of the full LMSWG will be scheduled at least quarterly with a minimum of 7 days' notice. The different component groups of the LMSWG may conduct additional and separate meetings as needed to complete tasks.

All final actions and decisions made in the name of the LMSWG will be by affirmative vote of a quorum of the LMSWG. A quorum shall be 50 percent of the members of the LMSWG in good standing at the time of the vote. Each member of the Technical Group will have one vote and the Citizen Group, as a whole, will have one vote. (See voting requirements for alternates in Article III, A). *Voting by proxy written or otherwise is allowed under emergency conditions as determined by the Chair*.

C. Public Meetings

When required by statute or the policies of Walton County, or when deemed necessary by the LMSWG, a public meeting regarding actions under consideration for implementation by the LMSWG will be properly advertised and held. Emergency meetings as designated by the Chair may be called when necessary.

D. Documentation of Actions

All meetings and other forms of action by the LMSWG will be documented and made available for inspection by the public at one or more of the following county locations: the County's website and/or link to consultant's website, and/or the County Clerk's office or other central location. Documentation may include minutes, handouts, and sign-in sheets. In addition, the LMS planning support staff will maintain public review documentation.

ARTICLE VIII ADOPTION AND AMENDMENTS TO THE BYLAWS

The Bylaws of the LMSWG may be adopted and/or amended by a two-thirds majority vote of the members in good standing of the LMSWG. All proposed changes to the bylaws will be provided to each member of the LMSWG not less than ten days prior to such a vote, designee must be present to vote.

ARTICLE IX DISSOLUTION OF A GROUP

The Technical Group or Citizen Group may be dissolved by affirmative vote of 100% of the members in good standing of the LMSWG at the time of the vote, by order of a court of competent jurisdiction, and/or by instruction of the Walton County Board of County Commissioners. At the time of dissolution, all remaining documents, records, equipment and supplies belonging to the LMSWG will be transferred to the LMSWG Chairperson.

2.2 Documentation of the Planning Process

§201.6(b) In order to develop a more comprehensive approach to reducing the effects of a natural disaster(s), the planning process shall include:
(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

Businesses, residents, utility companies, public safety, and other public officials from each jurisdiction, have been invited to participate on the LMS working group and sub-working groups. Each of the members listed in Section 1.3 participated in the process of maintaining and updating this plan.

The 2015 draft revision of the LMS plan was placed on the County website, for public view and comment as each draft section was written. In September 2014, Sections 1 and 2 were added to the website. As each section is written it is posted on the website for comment, and revised the following week. Additionally, while in the draft stage, the plan was distributed to the work group and jurisdictional partners for comments. After receiving comments from this draft, a corrected draft of the LMS Plan was distributed to the LMS working-group members and sub-working group members to include members from each jurisdiction, for final editing and suggestions.

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

The 2015 LMS plan references the following agencies that are involved in hazard mitigation activities. Written intergovernmental agreements assist with coordination between the County and the three municipalities – Paxton, Freeport, and DeFuniak Springs. The following section describes the governmental agencies and utilities that are involved in hazard mitigation activities, the methods for conflict resolution among government agencies, and a listing of existing policies and programs dealing with hazard mitigation.

2.3 Coordinating Government Agencies

The following government agencies coordinate with Walton County and the cities within Walton County to perform the listed hazard mitigation functions.

Governing Body of Local Government

- Walton County Board of Commissioners
- DeFuniak Springs City Council
- Town of Paxton City Council
- City of DeFuniak Springs City Council

Municipalities within the County

- City of DeFuniak Springs

- Town of Paxton
- City of Freeport

Walton County School Board

County and Municipal Agencies

- Walton County Sheriff's Office - Provide security and assist in evacuations as well as search and rescue.
- City of DeFuniak Springs Police Department - Provide security and assist in evacuations as well as search and rescue.
- Walton County Health Department - Provide immunization and regulate septic systems.
- Walton County Public Works & Road Depart - Assist in the mitigation of roads and bridges.
- Walton County Mosquito Control - Provide mosquito control for the County
- Walton County Agricultural Extension Office - Provide assistance in mitigation projects.
- Walton County Emergency Management - Administer the County's emergency program.
- County Traffic Safety Team - Plan transportation improvements.
- Walton County Fire Board, stations, and EMS - Assist in evacuation and food distribution.
- Walton County Economic Development Alliance - Provide data relating to economic loss due to local disaster.

Regional Agencies

- West Florida Regional Planning Council - Provide technical assistance for local governments in administering mitigation programs.
- Northwest Florida Water Management District - Monitor river readings and provide assistance to local governments in flood control.
- Metropolitan Planning Organization - Plan transportation improvements to provide adequate evacuation routes.

Florida State Agencies

- Department of Equal Opportunity (DEO) - Provide technical and financial assistance and training to local governments. Review local comprehensive plans for compliance with state regulations. Manage the Emergency Management Preparedness and Assistance Trust Fund.
- Department of Transportation - Maintain and repair roads and bridges.
- Department of Environmental Protection - Regulate development activities in wetlands and waters of the state.
- Natural Resources and Conservation Service - Provide assistance in soil conservation and mitigation projects on County and state roads and bridges.

- Department of Law Enforcement - Provide security assistance to local governments.
- Department of Forestry - Provide assistance in silviculture.
- Florida Highway Patrol -Provide security assistance to local government
- Game & Fresh Water Fish Commission - Provide assistance to local governments with security.
- Army National Guard - Provide assistance in security and food distribution.
- Department of Financial Services - Provide and regulate insurance for disaster situations.

Federal Agencies

- Federal Emergency Management Agency - Provide disaster recovery and flood plain protection.
- U.S. Army Corps of Engineers - Regulate development associated with navigable waterways, wetlands and floodplains.
- U.S. Department of Agriculture - Regulate stormwater drainage in agricultural and silvicultural areas through best management practices.
- U.S. Department of Housing & Urban Development - Finances post-disaster assistance efforts with the CDBG programs.
- Small Business Administration - Provide lost interest loan for post-disaster recovery efforts.

Utility Companies

- Choctawhatchee Electric Cooperative
- Gulf Power Company
- Regional Utilities Corporation
- South Walton Utilities
- City of Freeport Utilities
- City of DeFuniak Springs Utilities
- Town of Paxton Utilities
- Mossy Head Water Works
- Argyle Water
- Inlet Beach Water System
- Okaloosa Gas Company
- Sprint
- Time Warner
- New South Communications
- Mediacom
- GT Communications
- Universal Com Incorporated

2.4 Intergovernmental Conflict Resolution

The Walton County LMS working group will follow the guidelines contained in the Intergovernmental Coordination Element (ICE) of the Walton County

Comprehensive Plan (including contacting and coordinating mitigation) before finalizing any local hazard mitigation initiatives. Our current ICE is found in (Appendix C1).

After the Working Group has reviewed the plan, a representative of the group will present the plan to the County and each participating municipality. After this review, the group will advertise and hold a public meeting to seek final input and buy-in from the public.

The LMS working group will then function as the initial agency to mediate conflicts arising from the County's LMS efforts. The informal mediation process established by Rule of the West Florida Regional Planning Council will be used to mediate conflicts, which cannot be resolved by the LMS working group.

The LMS Working Group will review the mitigation strategy yearly after adoption by the County Commissioners and will perform a review in the event of a disaster. Local representatives will review and approve changes in existing policies, major projects and developments, storm and other hazard occurrences, and activities to reduce vulnerability.

2.5 Public Involvement

Public participation is an essential component of a successful mitigation strategy. Public education on the issues and process of hazard mitigation helps to equip individuals to contribute a strategy that is effective in using time, money and other resources wisely. Educating the public on the contents of the LMS document and its recommended mitigation strategies were previously being coordinated through the Emergency Management director of Walton County – an active LMS working group member. The current coordination will be through the Walton County Planning and Development Services Division. All LMS documents, including the plan, mitigation projects, maps, minutes, agendas and public information flyers are on the County web site. It is the responsibility of the Chair of the LMS working group to keep the site updated. Important stakeholders to receive this information are residents, businesses, property owners, non-profit organizations, emergency shelter providers, churches, land developers, contractors, neighborhood groups and associations.

During the development of the 2015 LMS Plan, drafts were sent to all working group members, including alternates, for review as each section was revised. These working group members developed the following three major strategies for maintaining current and future public involvement in the hazard mitigation process:

- Planning and participating in public meeting,
- Developing and distributing printed materials, and
- Developing, hosting, and continually updating an internet web site.

The LMS document will be updated yearly and a key component of this update will be to share our ongoing progress by placing all LMS meeting minutes on the LMS County Website.

2.6 Public Meetings.

Hosting hazard mitigation awareness workshops and speaking at various community and public group meetings is an excellent way to explain the potential hazards facing Walton County citizens and describing methods by which these hazards can be reduced. To this end, members of the LMS Working Group have conducted a number of public meetings and workshops (including County Commissioner meetings) where the direction and purpose of the Local Mitigation Strategy were openly discussed and debated.

In addition to the regular quarterly meetings, in 2013, the LMS Chair held four workshops at individual community locations, inviting the public to participate in the update of the hazard mitigation project list and to discuss the plan update. The Chair did a brief presentation and held an open discussion. Even though the attendance was sparse, the community leaders, such as the Mayor of the Town of Paxton, the City Manager of the City of DeFuniak Springs and the City of Freeport and the County's contracted engineer, did attend. The participation from each of the communities brought insight to the LMS plan and project list. With the help of this public participation, we were able to educate and eliminate many of the past mitigation efforts and create new innovated measures that complied with the requirements to meet HMGP, PDM and other grant opportunities (Appendix C2).

Examples of the community participation:

- The Mayor of the Town of Paxton informed us how the City Hall was being used as a community center for the elderly, especially for those with limited heating abilities, during the cold months. However, the building did not have hurricane clips on the roof which was detrimental during storm events. We were able to add this to the LMS Hazard Mitigation efforts and Paxton applied for a grant in early 2014 to mitigate this hazard.
- The Manager of the City of DeFuniak Springs informed us of how they needed to upgrade their lift station capabilities, for the health and welfare of their citizens during major storm events. Their project was also added to our list and they also applied for a grant in early 2014.
- The City of Freeport's contracted engineering firm's representative was able to attend and review the City's list of projects to help update the current project list. Even though attendance was sparse, all attending were appreciative of the education of what the LMS working group goals and objectives are and each provided an interest in the value of the LMS Plan.

- The contracted county engineer was able to update the completed and needed projects for the County's Public Work's Department that was related to the County's mitigation goals. This was instrumental in updating our current mitigation project list.

Overall, the workshops were a success.

Following is a list of those meeting dates and locations:

- May 15, 2013, Town of Paxton Town Hall
- May 29, 2013, South Walton Annex
- June 12, 2013, City of DeFuniak Springs
- June 26, 2013, City of Freeport

Due to poor attendance, and lack of participation at each LMS quarterly meeting, on December 19, 2013, the LMS Chair brought the existing project list to the attention of the Walton County Board of County Commissioners with a request that the Board acknowledge the LMSWG and to request the Board's help in updating the mitigation project list, as well as a reminder that the 5 year update would be due in January of 2015 (Appendix C3). As a result of this meeting, by way of letter that was mailed and emailed to existing members, the WCBCC requested participation from the LMSWG to update the existing project list as well as to participate in the quarterly meetings, and to also participate in a scheduled meeting with the Florida Department of Emergency Management (FDEM).

The response from the LMSWG was a success and the project mitigation list was updated by using the state recommended STAPLEE method (Appendix C4). The working group used the staple score and did a normalization numeral of 10 (staple score x10) to get the Cost Benefit on the projects that did not already have an estimated cost benefit from the previous plan, the exception being the repetitive loss list in which we used the cost of replacing the homes as an average of 200,000.00 then added additional values for Life and Safety. The group then divided the benefit by the total cost to get the Cost Benefit Ratio (CBR).

The LMSWG has re-evaluated the current project list with the help of the jurisdictional partners, LMSWG members and the public. Once the LMS group adopted the new project list, the list was prepared for the updated plan and placed on the County Website.

Additionally, each jurisdictional partner will have a public hearing to adopt the revised LMS plan upon "pending adoption status from FEMA" is complete.

Although not technically a public meeting forum, television spots and radio announcements will continue to be used by Walton County to disseminate hazard information to the public. Although these methods of communication will

be used primarily in times of approaching storms they will also take place as part of an ongoing campaign by Walton County and its municipalities to educate the public in terms of hazard awareness and mitigation strategies.

2.7 Printed Materials

Distribution of information via printed materials is another effective method for dissemination of hazard information to the public. Printed materials can include:

- Posters in public locations such as libraries and City/County offices,
- Flyers and fact sheets located at hotels, condominiums, and tourist information centers,
- Hurricane awareness pamphlets located in shops and restaurants,
- Legal notices in newspapers, and
- Newspaper advertisements.

In addition to the above distribution of information, flyers have been given to other county organizations to reach their community members. As an example, the Walton County Health Department and Emergency Services have members on the LMSWG and are also members of Walton Community Health Improvement Partnership (WCHIP). The Walton Community Health Improvement Partnership (WCHIP) is a dedicated group of people from a variety of agencies, organizations, and businesses who want to make a difference in the health of Walton County's citizens. WCHIP Partners and stakeholders engage in the Mobilizing for Action through Planning and Partnership (MAPP) strategic planning framework for improving public health.

These members were tasked with informing this group of our LMS initiatives and were given flyers to hand out at the November WCHIP meeting to request participation from the smaller communities such as Red Bay, Bruce, Glendale, and Laura Hill.

The Local Mitigation Strategy (LMS) is a coordinated effort between the County and the three municipal governments which includes the City of DeFuniak Springs, the City of Freeport, and the Town of Paxton as well as several other agencies in Walton County. They have joined together to reduce the vulnerability to the effects of identified natural and man-made hazards. The LMS primary mission is to identify and prioritize projects that meet comprehensive mitigation planning criteria and provide assistance to project sponsors in securing available federal, state and local disaster mitigation assistance funds.

The Local Mitigation Strategy Plan has over 25 community mitigation projects on its current Project List. Many of the projects will require outside financial assistance in order to be completed, while some projects could possibly be self-funded by the sponsoring communities. The benefit of being on the LMS Project List is that each project can potentially qualify for consideration for funding assistance through an assortment of mitigation assistance programs. A combination of outside and local funding, consistent with matching guidelines established by the assistance program, are typically involved in the funding procedure.

The LMS is required to adhere to the guidelines issued by the Federal Emergency Management Agency (FEMA) and the Florida Division of Emergency Management (FDEM). As part of those requirements it is mandatory to update the LMS Plan every five (5) years. Walton County's current LMS Plan was approved and adopted in 2010. The LMS Work Group has started the process of completing the required update of the current LMS by January 1, 2015, for FDEM and FEMA agency review.

Public input is a key part of the process of the required update. As with all of our Work Group publicly advertised meetings, comments from the residents of each jurisdiction are welcome and encouraged. Our next advertised meeting is scheduled for November 12, 2014, at 9:00 AM, and will be located in the Freeport City Hall Boardroom. For additional information on the Walton County LMS Plan and the 2015 update, please contact Renee Bradley, Chairperson of the LMS Workgroup, in the Walton County Planning & Development office at 850.892.8157 or via email at brarenee@co.walton.fl.us.

Walton County will produce three ring binder copies of the final LMS plan and place them at the Walton County libraries for access by the public.

2.8 Internet Web Site

A draft of this plan, prior to approval, was placed on the County's web site for public input. Once this plan has been approved by FDEM and FEMA, it will be placed on the web site along with PDF copies of all maps and graphics contained in the document. In addition, the site will maintain a list of all the current hazard

mitigation projects, their progress to date, and plans for future mitigation projects. Lastly, annual updates of the LMS document have been added and will continue to be added to the County's LMS web page as they are completed: http://fl-waltoncounty2.civicplus.com/index.aspx?NID=569 . The revised plan will also be posted on the County web page as well as each annual update.

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

2.9 Existing County and Municipal Policies and Programs Affecting Hazard Mitigation.

One of the key elements in hazard mitigation is the evaluation and enhancement of the existing rules and regulations that govern the Local Mitigation Strategy. This portion of the Local Mitigation Strategy presents an objective analysis of the existing codes, ordinances, and policies.

The minimum provisions of the Florida Building Code as produced by the SSBCCI governs construction within the County and respective municipalities. Local building codes also apply further restrictions and guidelines. In addition, further restrictions and guidelines are established regarding land development through local land development codes and ordinances as well as those requirements established by state and federal regulatory agencies such as the Florida Department of Environmental Protection and the Army Corp of Engineers.

A review of the local policies as they pertain to the identified hazard mitigation initiatives has been conducted and includes the following:

Town of Paxton: Section 4.04 - Land Development Code – Floodplain.

Town of Paxton: Section 5.09 - Land Development Code – Stormwater Management.

City of DeFuniak Springs: Chapter 8.5 DeFuniak Springs Municipal Code Stormwater Management; Comprehensive Plan; Drainage Sub-Element; Flood Damage Prevention, August 2013.

City of Freeport: Comprehensive Plan - City of Freeport Future Land Use GOPs May 2014, Conservation Element, Drainage Sub-Element; Ordinance 92-2, Flood Drainage Sub-Element; Infrastructure Policy, July 2004.

Walton County: Comprehensive Plan – Objective C-1.1, Protection and preservation of wetlands and wetlands functions; Drainage Sub-Element; Section 5.06, Land Development Code, Stormwater Management; Chapter IV, Land Development Code, which includes sections on Wetlands Protection, Coastal Resource Protection, Shoreline Protection,

and Floodplain Resource Protection and Damage; Comprehensive; SSBCCI Building Code, Floodplain Management Section.

Northwest Florida Water Management District: District Water Management Plan. Section III, B - Flood Protection.

West Florida Regional Planning Council: Strategic Regional Policy Plan. Emergency Preparedness and Natural Resources of Regional Significance Sections.

Initial Comprehensive Plan: Restoring the Gulf Coast's Ecosystem and Economy, August 2013.

This list was established through review of available land development codes within comprehensive plans and the County's Comprehensive Emergency Management Plan (which was updated on September 23, 2014). With respect to the mission statement and guiding principles, each municipality should review the absence or presence of policy in the various areas identified and establish and/or refine its policies where deemed necessary.

Walton County completed its Evaluation and Appraisal Report (EAR) process as of March, 2011. As part of this process, the County's Comprehensive Plan made changes to strengthen the goals, objectives and policies. Also as part of the EAR based amendments, the County did a complete remapping of the Future Land Use Map (FLUM). Further information will be provided in the Development Growth Section of this plan about the above-mentioned amendments as well as the revised amendments for the municipalities. The County also is continuing to work on updating their land development code as part of this process.

In the past 5 years, Walton County updated the following Ordinances that pertain to Hazard Mitigation:

2014-05	Floodplain Management	28-Jan-14
2014-11	Land Clearing Activities within Coastal Dune Lake Protection Zone	13-May-14
2014-12	Comprehensive Plan Mixed Use Acreage Criteria	13-May-14

Additionally updates to the Cities comprehensive plans, land use maps and codes, have been added in the Development Growth Section of this plan, as noted above.

2.10 LMS Plan Revisions

The committee members have analyzed each section of this plan. This revised LMS Plan as a whole was re-organized to follow the crosswalk provisions. Each section has additional appendices to emphasize mechanisms that were reviewed

as part of this revision process. Revisions were made to Section 1, to implement the adoption proceedings to include “Approval Pending Adoption” status from FEMA and add the proposed ordinances to be adopted once this status has been met. Section 2 was revised to note that the Muskogee Nation Indian Tribe was invited to join the LMS; however, they did not join LMS and to remove the school board from the jurisdictions for lack of participation. Otherwise the jurisdictions remain the same; to emphasize the LMS community workshops; and to include an update on the progress of the LMS website. The 2009/10 Plan was completed, adopted and placed on the website as well as distributed to the County’s libraries. Section 3 was revised to add cite references to the identification of hazards and to update the hazards as found by the LMS members; Section 3 has been revised, as an example hazardous materials has now been expanded to include Oil Spills due to the mass destruction of our natural environment from The Deep Horizon Oil Spill which began on the 20th of April, 2010 in the Gulf of Mexico. Section 4 has been revised to address updated repetitive loss properties. Additionally, the list of vulnerable and critical facilities was revised with additional mapping and accompanying tables providing the replacement cost of said structures. Also, provided is a replacement cost list for all structures located within a hazard area. All maps have been revised to reflect the most current information and data available. The goals in Section 6 have not changed. Section 7 provides a revised list of mitigation actions as well as an update to previous mitigation actions. Section 7 also emphasizes the County, jurisdictional partners updating their Comprehensive Plans and Land Development Codes, and how each jurisdiction has provided their changes in this 5-year revision to this plan.

This plan update has been written in conjunction with the efforts of the neighboring communities, businesses, academia, jurisdictional partners, private institutions, local and regional agencies, and non-profit agencies and is in compliance §201.6(b).

Section 3 Identifying Hazards

201.6(c) (2) (i) the risk assessments shall include a description of the type of all natural hazards that can affect the jurisdiction.

Guidelines provided by FEMA for development of a mitigation strategy, call for assessing the potential impact of natural hazards that can affect the County. The guidelines also suggest that man-made and technological hazards may be assessed as well. In the assessment of hazards likely to affect Walton County, each of the following hazards was considered: earthquakes, tsunamis, land erosion (including beach erosion), landslides, sinkholes, hurricanes and tropical storms, storm surge, severe thunderstorms and lightning, tornadoes and waterspouts, floods, wildfires, dam failures, drought and heat waves, and winter storms and freezes. Also considered were the potential impact of hazardous materials, and terrorism. What follows in this section reflects conclusions reached about which of these hazards present significant threats to the County.

It should be noted that each hazard discussed below presents unique challenges. Some hazards are more likely to occur than others and some have much greater potential impact on life, property, and economic well-being than others. The extent to which the County as a whole may be vulnerable to each identified hazard is discussed generally in this section. A more detailed assessment of potential impact is included in Section 4, Vulnerability Assessment. In that section, the analysis is directed separately to each of the County's municipalities and its unincorporated area.

This information is identified by using both primary and secondary research materials that includes, but is not limited to reports from local, state, and national agencies, as well as, media accounts, state and local weather records and conversations with key personnel and residents in Walton County. This analysis will include the possible severity and magnitude as well as the potential impact of damage within the County from future hazards. This is not meant to be a scientific process, but will serve as a way to prioritize mitigation measures based on the potential frequency and the likely extent of damage from hazards known to affect the County and its municipalities. This assessment will be considered when specific mitigation measures are prioritized for implementation, along with other factors, such as stated community goals, citizen concerns, on-going projects, and opportunities for funding.,

The criteria provided by FEMA for the development of the Local Hazard Mitigation Plan identifies the following natural hazards and states that, at a minimum, Walton County must address each of them:

- Earthquakes,
- Tsunamis,
- Coastal & Riverine Erosion,
- Sinkholes,
- Hurricanes & Coastal Storms,

- Severe Thunderstorms & Tornadoes,
- Floods,
- Wildfires,
- Dam Failure,
- Drought &Heat Wave, and
- Winter Storms & Freezes.

Disasters are classified by the magnitude of their effect. The recognized classification system is as follows:

- Minor Disaster - Any disaster that is likely to be within the response capabilities of local government and results in only minimal need for state or federal assistance.

- Major Disaster - Any disaster that will likely exceed local capabilities and require a broad range of state and federal assistance. The Federal Emergency Management Agency (FEMA) will be notified and potential federal assistance will be predominantly recovery-oriented.

- Catastrophic Disaster - Any disaster that will require massive state and federal assistance, including immediate military involvement. Federal assistance will involve response as well as recovery needs.

Several of the hazards established under the minimum criteria were not relevant to the community and received a low hazard index ranking as a result. However, there are other hazards that are identified which are not in the minimum criteria established by FEMA that were added to the discussion.

3.1 Likely Hazards

Primary attention is given to natural hazards that are considered reasonably possible to occur in the County and its municipalities. These hazards include:

- Hurricanes & Coastal Storms
- Severe Thunderstorms & Tornadoes
- Coastal & Riverine Erosion
- Sinkholes
- Flooding
- Wildfires
- Dam Failure
- Drought &Heat Wave
- Winter Storms & Freezes.

3.1.1 Hurricanes & Coastal Storms

A tropical cyclone is a storm system characterized by a large low-pressure center and numerous thunderstorms that produce strong winds and heavy rain. Tropical cyclones feed on heat released when moist air rises, resulting in condensation of water vapor contained in the moist air. They are fueled by a different heat mechanism than other cyclonic windstorms such as nor'easters, European windstorms, and polar lows, leading to their classification as "warm core" storm systems. Tropical cyclones originate in the doldrums near the equator, about 10° away from it.

The term "tropical" refers to both the geographic origin of these systems, which form almost exclusively in tropical regions of the globe, and their formation in maritime tropical air masses. The term "cyclone" refers to such storms' cyclonic nature, with counterclockwise rotation in the Northern Hemisphere and clockwise rotation in the Southern Hemisphere. Depending on its location and strength, a tropical cyclone is referred to by names such as hurricane, typhoon, tropical storm, cyclonic storm, tropical depression, and simply cyclone.

While tropical cyclones can produce extremely powerful winds and torrential rain, they are also able to produce high waves and damaging storm surge as well as spawning tornadoes. They develop over large bodies of warm water, and lose their strength if they move over land. This is why coastal regions can receive significant damage from a tropical cyclone, while inland regions are relatively safe from receiving strong winds. Heavy rains, however, can produce significant flooding inland, and storm surges can produce extensive coastal flooding up to 40 kilometers (25 mi) from the coastline. Although their effects on human populations can be devastating, tropical cyclones can also relieve drought conditions. They also carry heat and energy away from the tropics and transport it toward temperate latitudes, which makes them an important part of the global atmospheric circulation mechanism. As a result, tropical cyclones help to maintain equilibrium in the Earth's troposphere, and to maintain a relatively stable and warm temperature worldwide. Many tropical cyclones develop when the atmospheric conditions around a weak disturbance in the atmosphere are favorable. The background environment is modulated by climatologically cycles and patterns such as the Madden-Julian oscillation, El Niño-Southern Oscillation, and the Atlantic Multi-Decadal Mode. Others form when other types of cyclones acquire tropical characteristics. Tropical systems are then moved by steering winds in the troposphere; if the conditions remain favorable, the tropical disturbance intensifies, and can even develop an eye. On the other end of the spectrum, if the conditions around the system deteriorate or the tropical cyclone makes landfall, the system weakens and eventually dissipates. It is not possible to artificially induce the dissipation of these systems with current technology. (http://en.wikipedia.org/wiki/Tropical_cyclone_)

Hurricanes are severe tropical cyclones, with sustained winds of 74 mph (64 knots) or greater. The following scale gives an expected list of minimum to major damages per hurricane category.

The Saffir-Simpson Hurricane Scale is a 1-5 rating based on the hurricane's present intensity. This is used to give an estimate of the potential property damage and flooding expected along the coast form a hurricane landfall. Wind speed is the determining factor in the scale.

Figure 3.1.1 The Saffir-Simpson Hurricane Scale

Barometric Pressure	Wind Speed	Storm Surge	Damage Potential
Category One (1): Weak			
> 28.94 in (980 mb)	74-95 mph (64-82 kt or 119-153 km/hr)	4-5 ft	Minimal damage to vegetation. No real damage to other structures. Some damage to poorly constructed signs. Low-lying coastal roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.
Category Two (2): Moderate			
28.50-28.94 in (965-980 mb)	96-110 mph (83-95 kt or 154-177 km/hr)	6-8 ft	Considerable damage to vegetation; some trees blown down. Major damage to exposed mobile homes. Moderate damage to houses. Considerable damage to piers; marinas flooded. Small craft in unprotected anchorages torn from moorings. Evacuation from some shoreline residences and low-lying areas required.
Category Three (3): Strong			
27.91-28.50 in (945-965 mb)	111-130 mph (96-113 kt or 178-209 km/hr)	9-12 ft	Large trees blown down. Mobile homes destroyed. Extensive damage to small buildings. Poorly constructed signs blown down. Serious coastal flooding; larger structures near coast damaged by battering waves and floating debris.
Category Four (4): Very Strong			
27.17-27.91 in (920-945 mb)	131-155 mph (114-135 kt or 210-249 km/hr)	13-18 ft	All signs blown down. Complete destruction of mobile homes. Extreme structural damage. Major damage to lower floors of structures due to flooding and battering by waves and floating debris. Major erosion of beaches.
Category Five (5): Catastrophic			
< 27.17 in (920 mb)	> 155 mph (135 kt or 249 km/hr)	> 18 ft	Catastrophic building failures. Devastating damage to roofs of buildings. Small buildings overturned or blown away.

(www.pdc.org/iweb/hurricane.jsp?subg=1)Source(s):Belize Hurricane NetThe Saffir-Simpson Hurricane Scale (NOAA)

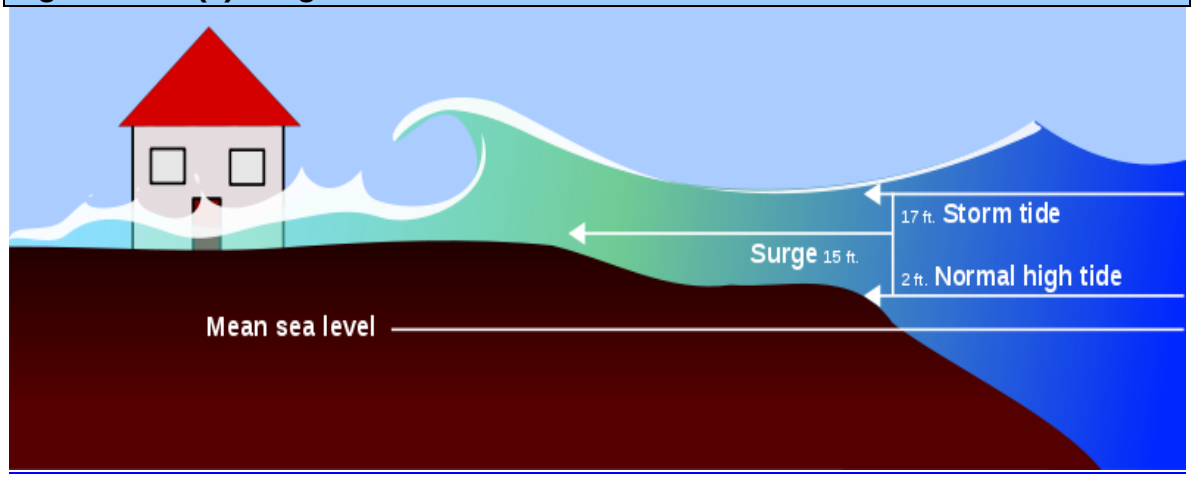
A storm surge is a large dome of water often 50 to 100 miles wide and rising anywhere from 4 to 5 ft in a category one hurricane and up to 20 ft in a category 5 storm. The storm surge arrives ahead of the storm's actual landfall and the more intense the hurricane is, the sooner the surge arrives. Water rise can be

very rapid, posing a serious threat to those who have waited to evacuate flood prone areas.

Storm surge is simply water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level to heights impacting roads, homes and other critical infrastructure. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides. Because much of the United States' densely populated Atlantic and Gulf Coast coastlines lie less than 10 feet above mean sea level, the danger from storm tides is tremendous.

The storm surge combined with wave action can cause extensive damage, severely erode beaches and major damage to coastal highways. With major storms like Katrina, Camille, and Hugo, complete devastation of coastal communities occurred. Many buildings withstand hurricane force winds until their foundations are undermined by erosion which causes them to weakened and fail. (http://www.fema.gov/hazard/hurricane/hu_surge.shtm)

Figure 3.1.1 (a) Surge



(http://en.wikipedia.org/wiki/File:Surge-en.svg)

Such a surge of high water topped by waves driven by hurricane force winds can be devastating to coastal regions. The stronger the hurricane and the shallower the offshore water, the higher the surge will be. In addition, if the storm surge arrives at the same time as the high tide, the water height will be even greater. The storm tide is the combination of the storm surge and the normal astronomical tide.

Damage during hurricanes may also result from spawned tornadoes and inland flooding associated with heavy rainfall that usually accompanies these storms. Hurricane Andrew, a relatively dry hurricane, dumped 10 inches of rain on south

Florida and left many buildings extensively water damaged. Rainwater may seep into gaps in roof sheathing and saturate insulation and ceiling drywall, in some cases causing ceilings to collapse. Aside from direct property damage, the potential for crop damage and economic disruption from hurricanes and tropical storms is significant. (http://en.wikipedia.org/wiki/Hurricane_Andrew)

Hurricanes can also cause health hazards. By means of either surge or flooding, communicable diseases can occur when sanitation and hygiene are compromised because of a disaster. When flooding occurs, the waters may be contaminated by fecal material from overflowing sewage systems, agriculture waste, and industrial waste.
(htt://emergency.cdc.gov/disasters/hurricanes/keyfactsinfectionsdisease.asp)

3.1.2 Severe Thunderstorms & Tornadoes

A severe thunderstorm is defined as a thunderstorm containing one or more of the following phenomena: hail 3/4" or greater, winds gusting in excess of 57.5 mph, and/or a tornado. Severe weather can include lightning, tornadoes, damaging straight-line winds, and large hail. Most individual thunderstorms only last several minutes, however some can last several hours.

Long-lived thunderstorms are called super-cell thunderstorms. A super-cell is a thunderstorm that has a persistent rotating updraft. This rotation maintains the energy release of the thunderstorm over a much longer time than typical, pulse-type thunderstorms that occur in the summer months. Super-cell thunderstorms are responsible for producing the majority of severe weather, such as large hail and tornadoes (National Oceanic and Atmospheric Administration). Downbursts are also occasionally associated with severe thunderstorms. A downburst is a strong downdraft resulting in an outward burst of damaging winds on or near the ground. Downburst winds can produce damage similar to a strong tornado. Although usually associated with thunderstorms, downbursts can even occur with showers too weak to produce thunder (National Oceanic and Atmospheric Administration). Strong squall lines can also produce widespread severe weather, primarily from very strong winds and/or microbursts.

When a severe thunderstorm approaches, the National Weather Service will issue alerts. Two possible alerts are:

- Severe Thunderstorm Watch - Conditions are favorable for the development of severe thunderstorms.

- Severe Thunderstorm Warning - Severe weather is imminent or occurring in the area.

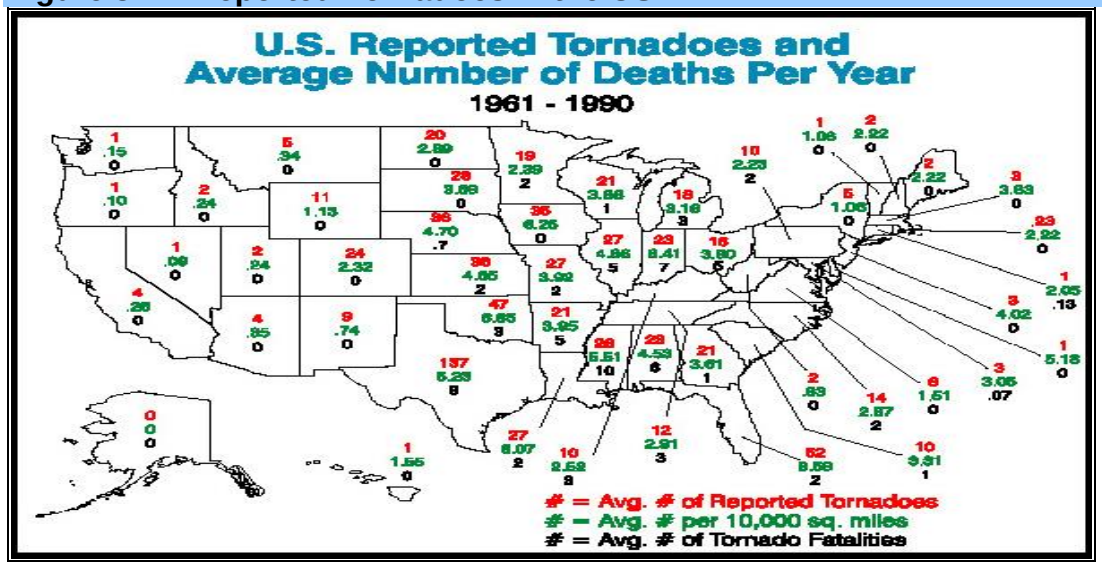
Perhaps the most dangerous and costly effect of thunderstorms is lightning. As a thunderstorm grows, electrical charges build up within the cloud. Oppositely charged particles gather at the ground below. The attraction between positive and negative charges quickly grows strong enough to overcome the air's resistance to electrical flow. Racing toward each other, they connect and complete the electrical circuit. Charge from the ground then surges upward at nearly one-third the speed of light and produces a bright flash of lightning.

On average, more people are killed by lightning than any other weather event. Florida leads in the nation in lightning related deaths and injuries (National Lightning Safety Institute). Florida also has the most strikes, about 12 strikes per square kilometer per year in some places (National Lightning Safety Institute). Nationwide, lightning related economic losses amount to over $5 billion dollars per year, and the airline industry alone loses approximately $2 billion a year in operating costs and passenger delays from lightning. The peak months for lightning strikes are June, July, and August, but no month is safe from lightning danger. (http://en.wikipedia.org/wiki/Severe_thunderstorm_warning)

Florida has the highest number of tornadoes per unit area, although most of the tornadoes in Florida are weak tornadoes of EF0 or EF1 intensity. A number of Florida's tornadoes occur along the edge of hurricanes that strike the state. (http://en.wikipedia.org/wiki/Tornadoes_in_the_United_States)

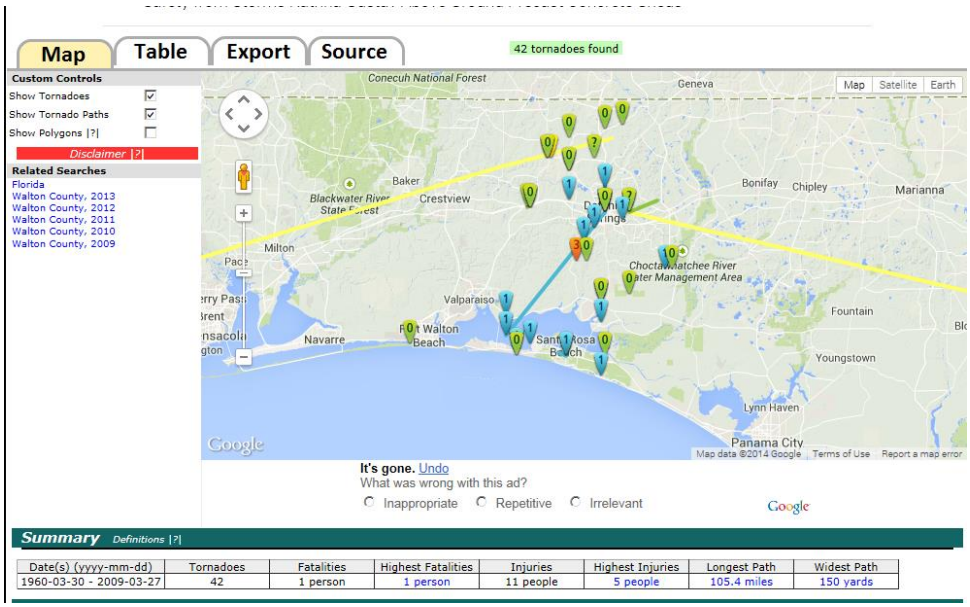
Tornadoes are another potential hazard facing Walton County because Florida has the third highest rate of tornado occurrences in the U.S and has the seventh highest death rate.

Figure 3.1.2 Reported Tornadoes in the US



(http://www.nssl.noaa.gov/edu/safety/guideimg/pic14.jpg)

Since 1950, Walton County has had 42-recorded tornadoes.



(http://www.tornadohistoryproject.com/tornado.php)

Weaker structures in Walton County, in particular manufactured/mobile homes, are very vulnerable to tornadic winds. Waterspouts are a weaker, but still dangerous, form of tornadic activity associated with cumulus cloud formations. They occur over water and can be especially dangerous to boating interests and dwellings and businesses located near shorelines.

Tornadoes are classified using the Enhanced Fujita-Pearson scale as follows:

Figure 3.1.2 (a) Enhanced Fujita-Pearson

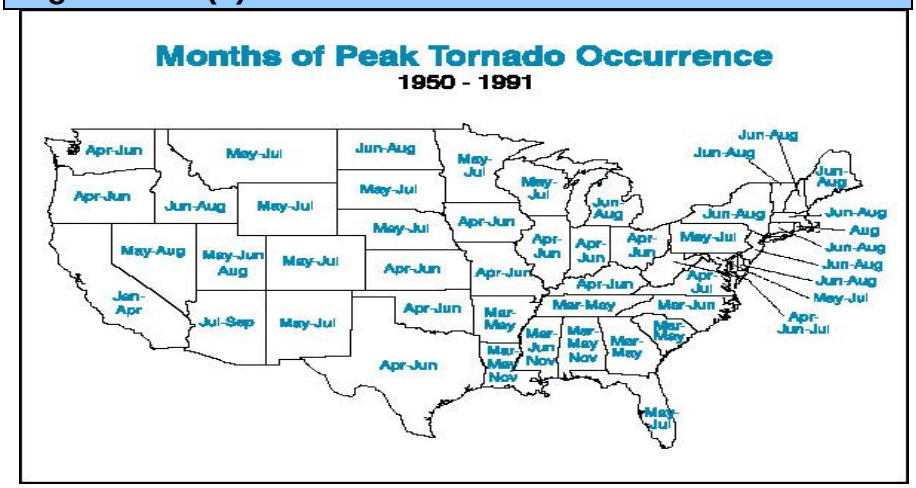
SCALE	WIND ESTIMATE *** (MPH)	TYPICAL DAMAGE
F0	< 73	**Light damage.** Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	**Moderate damage.** Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113-157	**Considerable damage.** Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.

F3	158-206	**Severe damage.** Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	**Devastating damage.** Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5	261-318	**Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.

(http://www.answers.com/topic/enhanced-fujita-scale)

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is generated by a thunderstorm (or sometimes because of a hurricane) and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris. The most common type of tornado, the relatively weak and short-lived type, occurs in the warm season with June being the peak month.

Figure 3.1.2 (b) Months of Peak Tornado Occurrences



(http://www.nssl.noaa.gov/edu/safety/guideimg/pic12.jpg)

When a tornado threatens, only a short amount of time is available for life-or-death decisions. The National Weather Service (NWS) issues two types of alerts:

- A Tornado Watch means that conditions are favorable for tornadoes to develop.

- A Tornado Warning means that a tornado has actually been sighted.

3.1.3 Coastal & Riverine Erosion

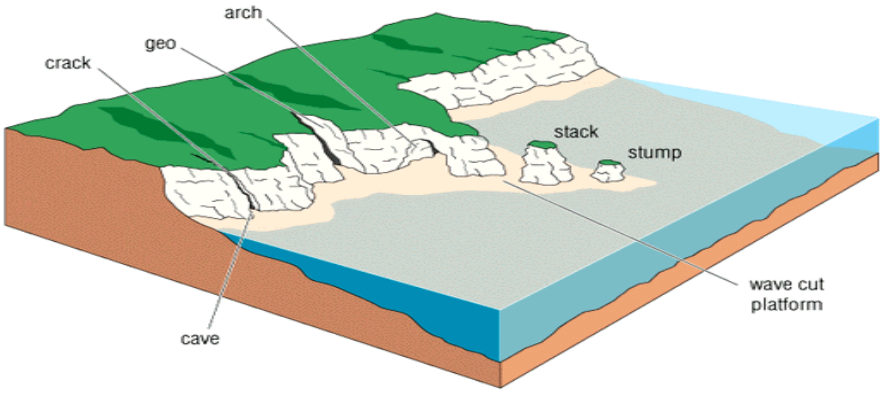
Section 577 of NFIRA has defined an erosion hazard area as follows:
"Erosion hazard area means, based on erosion rate information and other historical data available, an area where erosion or avulsion is likely to result in damage to or loss of buildings and infrastructure within a 60-year period."
(FEMA, Riverine Erosion Areas, Mapping Feasibility Study, Executive Summary, September 1999.)

Wind, waves, and long shore currents are the driving forces behind coastal erosion. The removal and deposition of sand permanently changes beach shape and structure.

Beach erosion threatens the very resource that residents and visitors enjoy. Over 409 miles, or approximately 50% of the state's beaches, are experiencing erosion. At present, about 299 of the state's 825 miles of sandy beaches are experiencing "critical erosion", a level of erosion, which threatens substantial development, recreational, cultural, or environmental interests. While some of this erosion is due to natural forces and imprudent coastal development, a significant amount of coastal erosion in Florida is directly attributable to the construction and maintenance of navigation inlets. Florida has over 60 inlets around the state, many have been artificially deepened to accommodate commercial and recreational vessels and employ jetties to prevent sand from filling in the channels. A by-product of this practice is that the jetties and the inlet channels have interrupted the natural flow of sand along the beach causing an accumulation of sand in the inlet channel and at the jetty on one side of the inlet, and a loss of sand to the beaches on the other side of the inlet.

(http://www.dep.state.fl.us/beaches/publications/publcsns.htm)

Figure 3.1.3 Beach Erosion



(http://encyclopedia.farlex.com/_/viewer.aspx?path=hut&name=c00575.gif)

One way to restore eroded beaches is through beach re-nourishment. In a typical beach re-nourishment project, sand is collected from an offshore location by a

dredge and is piped onto the beach. A slurry of sand and water exits the pipe on the beach and once the water drains away, only sand is left behind. Bulldozers move this new sand on the beach until the beach matches the design profile. Beach re-nourishment is a preferred way to add sand to a system that has been starved by the altered inlets because it provides a significant level of storm protection benefits for upland properties and is the least influencing to the coastal system. An additional benefit of beach restoration projects is that they quickly restore shorebird and marine turtle habitat.
(http://www.dep.state.fl.us/beaches/programs/bcherosn.htm)

A river erodes its bed and sides. Erosion is the wearing away of rock by moving agent and are carried away by them. When vertical erosion occurs, the channel is deepened and thus the river is able to hold more water. When lateral erosion occurs, the sides are eroded and the channel is widened. There are four major processes of river erosion.

1. *Abrasion/corrosion*
   Rocks that are carried in the river grind and erode the river side and bed. Some of the rock at the sides and bed of the channel are washed away. This type of erosion widens the channel through lateral erosion and deepens the channel by vertical erosion.
2. *Hydraulic action*
   Water traveling at a high speed may enter the line of weakness of rock when it hit against these rocks at the side of the channel. The force may cause the rock to break and the broken pieces of rock are swept away
3. *Attrition*
   When material in the water collides with one another, they break and become smaller particles. These particles become smoother and rounded.
4. *Solution/ Corrosion*
   The river water may also dissolve the minerals in the rock and carry them down the river. Limestone may be dissolved quickly in the river water, especially when there is high concentration, to form soluble calcium hydrogen carbonate.
   (http://library.thinkquest.org/C004240/erosion.htm)

Riverine Erosion leads to river transportation. The following process carries sediments from the Choctawhatchee River into the Choctawhatchee Bay.

River Transportation
A river transports its load in four ways. The process by which the materials are transported depends on the size of the material as well as the energy of the river. A river uses its energy to transport the eroded material down the river channel. The four processes that take place are traction, saltation, suspension and solution.

1. *Solution*
Soluble minerals dissolve in the river water and are carried away as solution. Minerals that dissolve easily include calcium and sodium. This type of transportation occurs at almost anytime when there is water.
2. *Suspension*
Fine materials can be suspended in the water and therefore are carried away in such a method. These particles are too light to sink to the bottom of a fast moving river. Suspension load forms the largest part of the river load. Materials that can be suspended include silt, mud and clay.
3. *Saltation*
Up and down a river bed, coarse sand and small rocks are transported down the channel. This is due to the increase in river energy (major rainfall). The gravel in the channel is lifted and dropped along the river.
4. *Traction*
Large boulders require large amounts of energy to move them. Some large boulders can only be moved when there is heavy flooding. Usually a large boulder will slide and roll along the riverbed.
(http://library.thinkquest.org/C004240/transportation.htm)

Soil erosion is the deterioration of soil by the physical movement of soil particles from a given site. Wind, water, animals, and the use of tools by man may all be reasons for erosion. The two most powerful erosion agents are wind and water; but in most cases these are damaging only after man, animals, insects, diseases, or fire have removed or depleted natural vegetation. Accelerated erosion caused by human activity is the most serious form of soil erosion because the rate is so rapid that surface soil may sometimes be blown or washed away right down to the bedrock. (http://www.tarahaat.com/Soil_Erosion.aspx)

Undisturbed by man, soil is usually covered by shrubs and trees, by dead and decaying leaves or by a thick mat of grass. Whatever the vegetation, it protects the soil when the rain falls or the wind blows. Root systems of plants hold the soil together. Even in drought, the roots of native grasses, which extend several feet into the ground, help tie down the soil and keep it from blowing away. With its covering of vegetation stripped away, soil is vulnerable to damage. Whether the plant cover is disturbed by cultivation, grazing, deforestation, burning, or bulldozing, once the soil is bare to the erosive action of wind and water, the slow rate of natural erosion is greatly increased. Losses of soil take place much faster than new soil can be created, and a kind of deficit spending of topsoil begins. With the destruction of soil structure, eroded land is even more susceptible to erosion.

Sheet erosion, rills and gullies, are the most commonly observed products of erosion in the County. They are usually associated with loss of natural vegetation, poorly executed agricultural and silvicultural operations, and building or road construction and maintenance projects.
(http://www.tarahaat.com/Soil_Erosion.aspx)

Without preventive action, erosion can damage drainage ditches, fill stormwater-retention ponds with sediment, and cause loss of developed property. Erosion that occurs in some agricultural areas of the County and along unpaved roadways in hilly areas often results in a build-up of sediment on roadways and in drainage systems.

3.1.4 Sinkholes

Sinkholes are a common feature of Florida's landscape. They are only one of many kinds of Karst landforms, which include caves, disappearing streams, springs, and underground drainage systems, all of which occur in Florida. Karst is a generic term, which refers to the characteristic terrain produced by erosion processes 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. Most rainwater is slightly acidic and usually becomes more acidic as it moves through decaying plant debris.

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

When groundwater discharges from an underground drainage system, it is a spring, such as Wakulla Springs, Silver Springs, Morrison Springs, or Rainbow Springs. Sinkholes can occur in the beds of streams, sometimes taking all of the stream's flow, creating a disappearing stream. Dry caves are parts of karst drainage systems that are above the water table, such as Marianna Caverns.
(http://www.dep.state.fl.us/geology/geologictopics/sinkhole.htm)

3.1.5 Floods

Floods are the most common and widespread of all natural disasters. Most communities in the United States will experience some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws. Floods can be slow or fast rising but generally develop over a period of days.

Dam failures are potentially the worst *flood events*. A dam failure is usually the result of neglect, poor design, or structural damage caused by a major event

such as an earthquake. When a dam fails, a gigantic quantity of water is suddenly let loose downstream, destroying anything in its path.

Flash floods usually result from intense storms dropping large amounts of rain within a brief period. Flash floods occur with little or no warning and can reach full peak in only a few minutes. (FEMA)
(http://www.ponderaCountymontana.org/flash_floods.htm)

Sources of floodwaters in Walton County include the Gulf of Mexico, the Choctawhatchee River, and the Shoal River and their tributaries.

The Federal Emergency Management Agency (FEMA) has developed a series of maps that depict the areas that are most susceptible to flooding (M-JO7). The flood zone map displays the areas in Walton County that are in zones subject to wave actions (Velocity Zones), 100-year flooding, 500-year flooding, and areas outside the historic floodplain. Not surprising, most areas subject to flooding are those areas that are nearest to streams and rivers in the northern section of the County and those areas that are located in the lower elevations in the southeastern section of the County along the coast. There are, however, a number of locations within Walton County that are over a mile in distance from either a stream or river that are still subject to 100 year flooding.

In addition to above mentioned causes of flood, the most recent flooding prone to South Walton County is from storm water issues. It appears that the more South Walton County continues to develop the worse the storm water flooding issues increase. The most devastating flooding disasters to the County in 2013 and 204 were related to storm water flooding issues that were in older subdivision that were not even in a flood zone, but had extensive flooding. Currently, Walton County is working on a South Walton and North Walton master storm water evaluation and solution.

3.1.6 Wildfires (Wildland Urban Interface Zone, WUI)

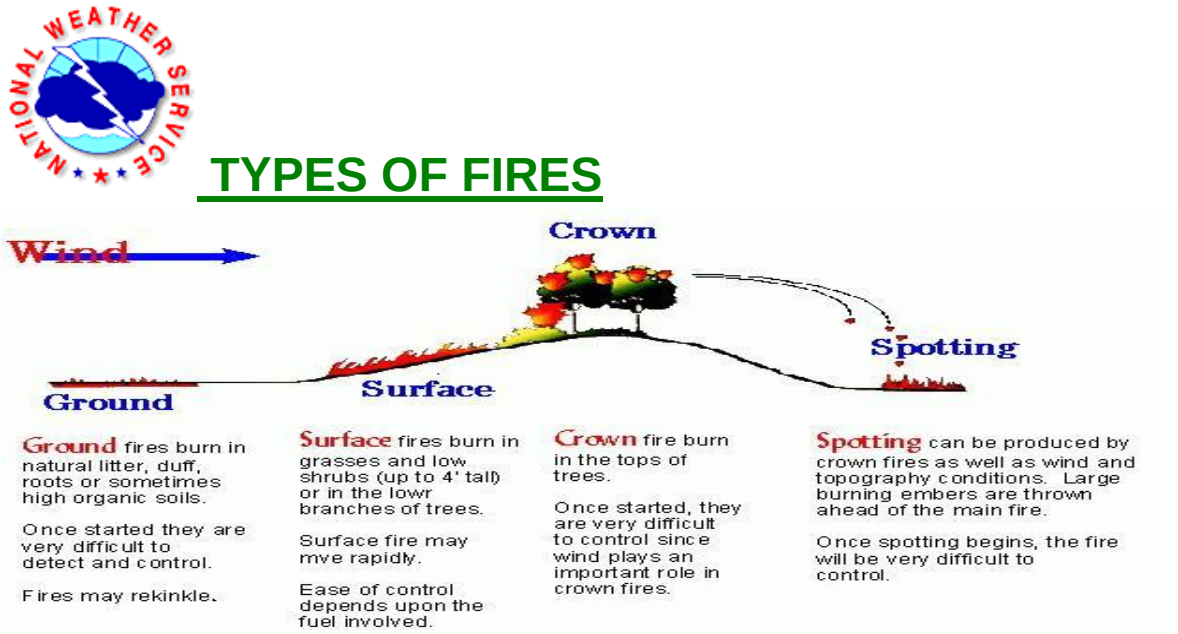
The wildfires that burned throughout Florida in the last several years are examples of the increasing wildfire threat, which results from the Wildland/Urban Interface. The Wildland/Urban interface is defined as the area where structures and other human development meet with undeveloped wildland or vegetative fuels (Federal Emergency Management Agency). As residential areas expand into relatively untouched wildlands, people living in these communities are increasingly threatened by forest fires.

The Wildland Urban Interface (WUI) layer reflects housing density depicting where humans and their structures meet or intermix with wildland fuels.
www.SouthernWildfireRisk.com

There are four different classes of wildland fires, surface fire, ground fires, crown fires and spotting fires. A surface fire is the most common type and burns along

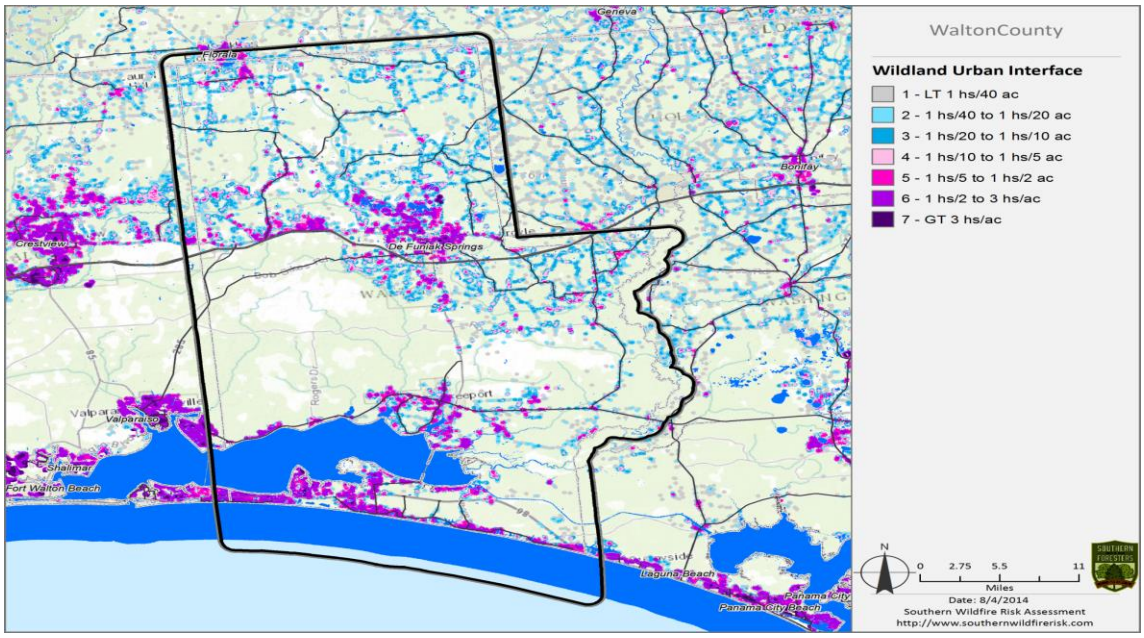
the floor of a forest, moving slowly and killing or damaging trees. A ground fire is usually started by lightning and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Spotting fires are can be caused by crown fires, as well as wind and topographic conditions Wildland fires are usually identified by dense smoke that fills the area for miles around.

Figure 3.1.6 Types of Fires



(http://www.wrh.noaa.gov/sew/fire/olm/firetype.htm)

Figure 3.1.6 (a) Wildland Urban Interface



Rural and large tracts of unimproved lands are susceptible to brush and forest fires capable of threatening life, safety and property in adjacent developed areas if not effectively controlled. Wildfires are caused by numerous sources ranging from arson, carelessness by smokers, individuals burning debris, random sparks from heavy equipment, to children playing with matches. The largest number of fires is caused by lightning strikes, which coincide with the height of the thunderstorm season. A major wildland fire can leave a large amount of scorched and barren land and these areas may not return to pre-fire conditions for decades. If the wildland fire destroys the ground cover, other potential hazards, such as erosion, may develop.

Structures in the wildland/urban interface zone are vulnerable to ignition by three different ways: radiation, convection, and firebrands (National Wildland/Urban Interface Fire Protection Program). Radiating heat from a wildfire can cause ignition by exposure to the structure. The chances of ignition increase as the size of the flames increases, surface area exposed to flames increases, length of exposure time increases, and distance between the structure and the flames decreases.

Another source of ignition by wildfire is convection. Ignition of a structure by convection requires the flame to be exposed to the structure. Contact with the convection column is generally not hot enough to ignite a structure. Clearing to prevent flame contact with the structure must include any materials capable of producing even small flames. Wind and steep slopes will tilt the flame and the convection column uphill increasing the chance of igniting a structure. Structures extending out over a slope have the greatest likelihood of ignition from convection.

Firebrands also pose a threat to structures in the wild land/urban interface. A firebrand is a piece of burning material that detaches from a fire due to strong convection drafts in the burning zone. They can be carried a long distance (around one mile) by fire drafts and winds. The chance of these firebrands igniting a structure depends on the size of the firebrand, how long it burns after contact, and the materials, design, and construction of the structure.

Assessment of wildfire hazard involves many factors, including climatic conditions, forest cover type, proximity of development to forested areas, and types of structures present around these areas. Climatic conditions are not constant. However, summer months usually result in an increased risk of wildfire due to a combination of increased temperatures and decreased rainfall. Historical data from the Southern Region of the National Weather Service (NWS) indicate that during the summer months Walton County has received only 50-75% of its normal precipitation over the last few years, with this trend forecasted to continue. These factors often lead to severe drought conditions in the summer. Walton County was in the "severe drought" range as determined by the NWS for the months of June-September, 1999.

Forest cover type in relation to urban areas is another tool used to assess wildfire risk. Upland forests with large areas of underbrush are more susceptible to wildfire than managed areas where underbrush is regularly cleared. Data from the Florida Statistical Abstract predicted a 59.22% increase in population from 1990 to 2010. As urban development continues to move outward from central locations, the urban/wildland interface is likely to increase. This creates potential wildfire hazards to those properties proximal to unmanaged, forested areas.

In 1985, Florida had its first serious "wildland urban interface" fire with the Palm Coast Fire, which burned 250 homes. This fire was important in introducing the state to the concept of the wild land urban interface. Research on this fire indicated that a model could predict home survivability based only on the intensity of the fire, presence of roof overhang vinyl vents, and proximity of heavy ground vegetation to the structure. In 1998, fires struck the same Palm Coast subdivision and 45,000 people were evacuated. Largely because of a massive fire fighting effort, protection of structures was quite successful, with only 337 homes damaged or destroyed and 33 businesses burned. To fire researchers, the 1998 Palm Coast incident is interesting, because the same subdivision was burned thirteen years earlier and the same findings are relevant thirteen years later: ground vegetation and roof overhang vents were once again responsible for the loss of homes.

"History". Florida Division of Emergency Management.
http://www.floridadisaster.org/brm/Wildfire/wildfire_page_2.htm.

There are three types of fires that pose a threat to both the population and economy of Walton County. The first is conflagration, or large-scale structural fire. This type of fire is a threat because of its potential to burn through an entire community. Conflagration is promoted by high-density development, particularly involving wood frame structures (closely spaced townhomes, for example), by the lack of adequate fireproofing safeguards, and the building of closely spaced homes in the wild land interface. The second serious fire hazard involves forest fires, which are usually caused by arson, carelessness or lightning. Here, climate is an important factor: forests are more susceptible to combustion during periods of low humidity and drought. The third and final threat, also affected by climate conditions, involves grass and brush fires.

Characteristic Fire Intensity Scale

Description

Characteristic Fire Intensity Scale (FIS) specifically identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on a weighted average of four percentile weather categories. Similar to the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consist of 5 classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities. Refer to descriptions below.

1. Class 1, Very Low:

Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.

2. Class 2, Low:

Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.

3. Class 3, Moderate:

Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.

4. Class 4, High:

Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.

5. Class 5, Very High:

Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

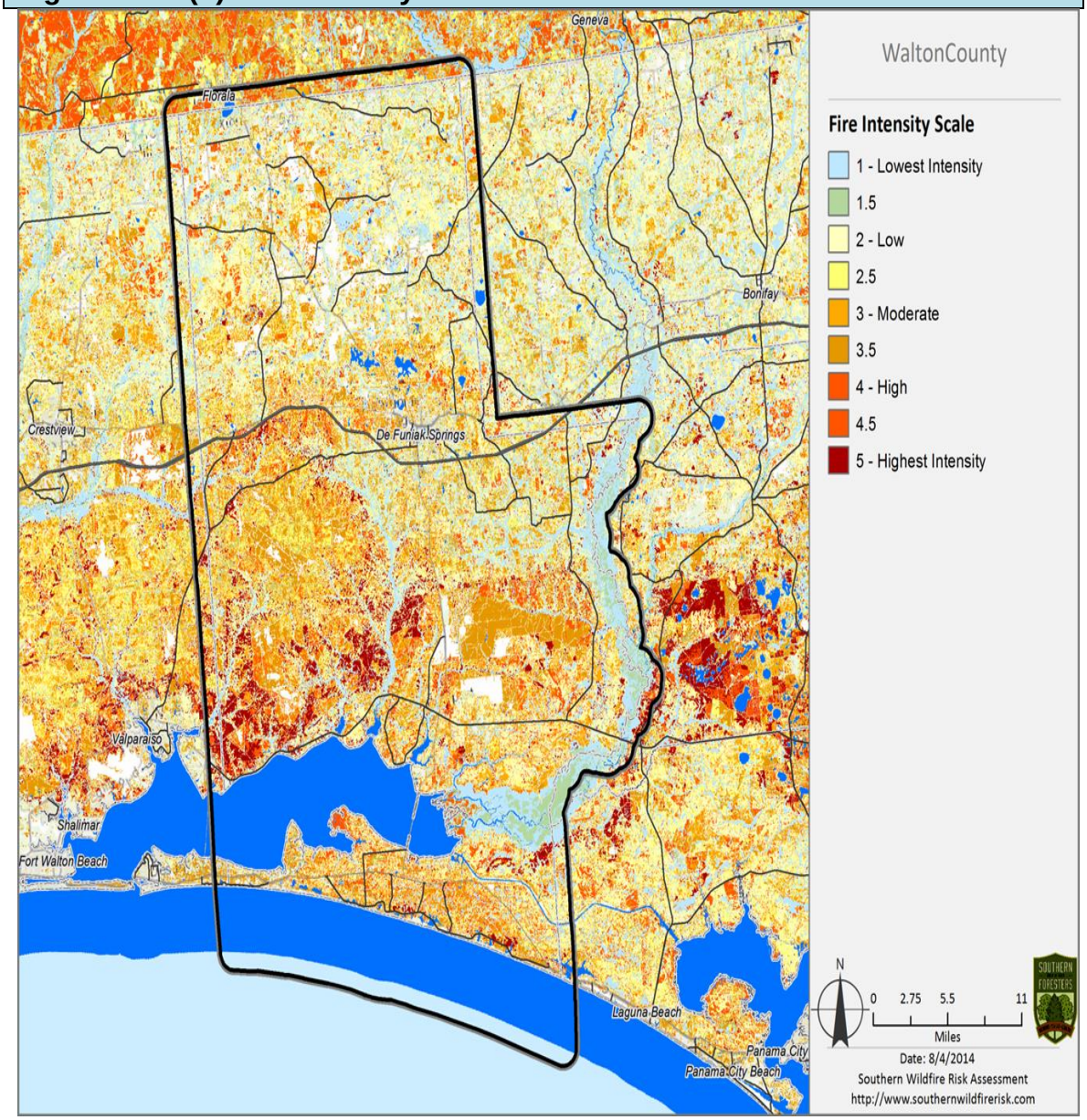
For all Southern states, except Texas, this dataset was derived from updated fuels and canopy data as part of the 2010 SWRA Update Project recently completed in May 2014. For Texas, the 2010 Texas risk update data is portrayed.

Fire intensity scale is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather

observations to represent low, moderate, high, and extreme weather days for each weather influence zone in the South. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform.

The fire intensity scale map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, County or local planning efforts.
www.SouthernWildfireRisk.com

Figure 3.1.6 (b) Fire Intensity Scale



www.SouthernWildfireRisk.com

3.1.7 Dam Failure

A dam is a barrier that impounds water or underground streams. Dams generally serve the primary purpose of retaining water, while other structures such as floodgates or levees (also known as dikes) are used to manage or prevent water flow into specific land regions. Hydropower and pumped-storage hydroelectricity are often used in conjunction with dams to provide clean electricity for millions of consumers (http://en.wikipedia.org/wiki/Dam).

There are about 80,000 dams in the United States today, the majority of which are privately owned. Other owners are state and local authorities, public utilities, and federal agencies. The benefits of dams are numerous: they provide water for drinking, navigation, and agricultural irrigation. Dams also provide hydroelectric power and create lakes for fishing and recreation. Most important, dams save lives by preventing or reducing floods. (http://www.waterencyclopedia.com/Ge-Hy/Hydroelectric-Power.html)

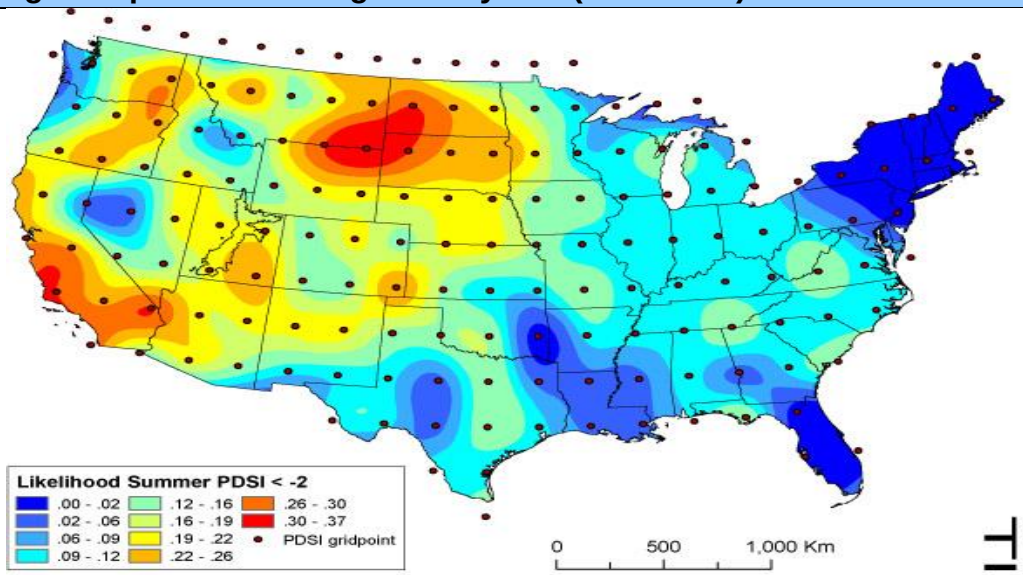
If dams have many benefits, they also can pose a risk to communities if not designed, operated, and maintained properly. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and great property damage if there are people downstream of the dam. (http://www.fema.gov/hazard/damfailure/index.shtm)

3.1.8 Drought & Heatwave

Drought is a normal, recurrent feature of climate, although many perceive it as a rare and random event. In fact, each year some part of the U.S. has severe or extreme drought. Although it has many definitions, drought originates from a deficiency of precipitation over an extended period, usually a season or more (National Drought Mitigation Center). It produces a complex web of impacts that spans many sectors of the economy and reaches well beyond the area producing physical drought. This complexity exists because water is essential to our ability to produce goods and provide services.

A few examples of direct impacts of drought are: reduced crop, rangeland, and forest productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality rates; and damage to wildlife and fish habitat. Social impacts include public safety; health; conflicts between water users; reduced quality of life; and inequities in the distribution of impacts and disaster relief. Income loss is another indicator used in assessing the impacts of drought; reduced income for farmers has a ripple effect throughout the region's economy (National Drought Mitigation Center).

Figure 3.1.8 Grid points of the Palmer Drought Severity Index (PDSI), and drought map for the average of 20 years (1971-1990).



(http://www.forestencyclopedia.net/i/i2328/?searchterm=drought)

The web of impacts is so diffused that it is very difficult to come up with financial estimates of damages. However, the Federal Emergency Management Agency (FEMA) estimates $6-8 billion in losses as the annual average.

Temperatures that remain 10 degrees or more above the average daily high temperature for a region and last for several weeks are defined as extreme heat. The Average Temperatures for Walton County by season:

Season	Highs	Lows
Winter	64° F	41° F
Spring	79° F	57° F
Summer	91° F	71° F
Fall	80° F	58° F

If the daily high temperature remains at 101 for several weeks, it is considered extreme heat for Walton County.

“Heat Waves are dangerous because heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. Among the large continental family of natural hazards, only the cold of winter - not lightning, hurricanes, tornadoes, floods, or earthquakes - takes a greater toll. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the disastrous heat wave of 1980, more than 1,250 people died. The July 1995 heat wave caused more than 1,000 heat-related deaths across the Midwest and East Coast and these are the direct casualties. No one can know how many more deaths are advanced by heat wave weather - how

many diseased or aging hearts surrender that under better conditions would have continued functioning."
(http://www.co.pasquotank.nc.us/departments/911/webpage/heatwaves.htm)

Human bodies dissipate heat in one of three ways: by varying the rate and depth of blood circulation; by losing water through the skin and sweat glands; and by panting. As the blood is heated to above 98.6 degrees, the heart begins to pump more blood, blood vessels dilate to accommodate the increased flow, and the bundles of tiny capillaries penetrating through the upper layers of skin are put into operation. The body's blood is circulated closer to the surface, and excess heat is released into the cooler atmosphere. Water diffuses through the skin as perspiration. The skin handles about 90% of the body's heat dissipating function.

Heat disorders generally have to do with a reduction or collapse of the body's ability to cool itself by circulatory changes and sweating, or a chemical (salt) imbalance caused by too much sweating. When the body cannot cool itself, or when it cannot compensate for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise and heat-related illness may develop. Studies indicate that, other factors being equal, the severity of heat disorders tend to increase with age. Heat cramps in a 17-year-old may be heat exhaustion in someone 40 and heat stroke in a person over 60.

When the temperature gets extremely high, the Weather Service has increased its efforts to alert the public as well as the appropriate authorities by issuing Special Weather Statements. Residents should heed these warnings to prevent heat related medical complications. Because of the latest research findings, the NWS has devised the "Heat Index" (HI). The HI, given in degrees Fahrenheit, is an accurate measure of how hot it really feels when relative humidity is added to the actual air temperature.

Figure 3.1.8 (a) Heat Index Table

HEAT INDEX °F (°C)													
	RELATIVE HUMIDITY (%)												
Temp.	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**
110 (47)	136 (58)												
108 (43)	130 (54)	137 (58)											
106 (41)	124 (51)	130 (54)	137 (58)										
104 (40)	119 (48)	124 (51)	131 (55)	137 (58)									
102 (39)	114 (46)	119 (48)	124 (51)	130 (54)	137 (58)								

100 (38)	109 (43)	114 (46)	118 (48)	124 (51)	129 (54)	136 (58)							
98 (37)	105 (41)	109 (43)	113 (45)	117 (47)	123 (51)	128 (53)	134 (57)						
96 (36)	101 (38)	104 (40)	108 (42)	112 (44)	116 (47)	121 (49)	126 (52)	132 (56)					
94 (34)	97 (36)	100 (38)	103 (39)	106 (41)	110 (43)	114 (46)	119 (48)	124 (51)	129 (54)	135 (57)			
92 (33)	94 (34)	96 (36)	99 (37)	101 (38)	105 (41)	108 (42)	112 (44)	116 (47)	121 (49)	126 (52)	131 (55)		
90 (32)	91 (33)	93 (34)	95 (35)	97 (36)	100 (38)	103 (39)	106 (41)	109 (43)	113 (45)	117 (47)	122 (50)	127 (53)	132 (56)
88 (31)	88 (31)	89 (32)	91 (33)	93 (34)	95 (35)	98 (37)	100 (38)	103 (39)	106 (41)	110 (43)	113 (45)	117 (47)	121 (49)
86 (30)	85 (29)	87 (31)	88 (31)	89 (32)	91 (33)	93 (34)	95 (35)	97 (36)	100 (38)	102 (39)	105 (41)	108 (42)	112 (44)
84 (29)	83 (28)	84 (29)	85 (29)	86 (30)	88 (31)	89 (32)	90 (32)	92 (33)	94 (34)	96 (36)	98 (37)	100 (38)	103 (39)
82 (28)	81 (27)	82 (28)	83 (28)	84 (29)	84 (29)	85 (29)	86 (30)	88 (31)	89 (32)	90 (32)	91 (33)	93 (34)	95 (35)
80 (27)	80 (27)	80 (27)	81 (27)	81 (27)	82 (28)	82 (28)	83 (28)	84 (29)	84 (29)	85 (29)	86 (30)	86 (30)	87 (31)

TO DETERMINE THE HEAT INDEX, LOOK AT THE HEAT INDEX CHART ABOVE. AS AN EXAMPLE, IF THE AIR TEMPERATURE IS 96 DEGREES F (FOUND ON THE LEFT SIDE OF THE TABLE) AND THE RH IS 55% (FOUND AT THE TOP OF THE TABLE), THE HI - OR HOW HOT IT REALLY FEELS - IS 112 DEGREES F. THIS IS AT THE INTERSECTION OF THE 96 DEGREE ROW AND THE 55% COLUMN. IMPORTANT...SINCE HI VALUES WERE DEVISED FOR SHADY, LIGHT WIND CONDITIONS, EXPOSURE TO FULL SUNSHINE CAN INCREASE HI VALUES BY UP TO 15 DEGREES F. ALSO, STRONG WINDS, PARTICULARLY WITH VERY HOT, DRY AIR, CAN BE EXTREMELY HAZARDOUS.
(http://www.srh.noaa.gov/ssd/html/heatwv.htm)

The Weather Service will initiate alert procedures when the HI is expected to exceed 105F for at least two consecutive days. Possible heat disorders related to the corresponding HI are listed below.

Figure 3.1.8(b) Heat Disorders Table

Heat Index of 130 or Higher	Heatstroke/Sunstroke with exposure for people in higher risk groups
Heat Index of 105-130	Sunstroke, heat cramps, and heat exhaustion likely and heatstroke possible with prolonged physical activity

Heat Index of 90-105	Sunstroke, heat cramps with prolonged exposure
Heat Index of 80-90	Fatigue possible with prolonged exposure and physical activity

(http://www.srh.noaa.gov/ssd/html/heatwv.htm)

3.1.9 Winter Storms & Freezes

According to the Department of Agriculture and Consumer Services, a moderate freeze may be expected every one to two years. Severe freezes may be expected on an average of once every 15 to 20 years. Freezes pose a major hazard to the agricultural industry on a recurring basis, and are a significant threat to the economic vitality of the state's vital agricultural industry.

Both [the frost advisory and the freeze warning] are only issued during the growing season. A Frost Advisory is issued when the predicted temperature is expected to fall to 36 degrees or lower in the next 3 to 30 hours during the growing season. So temperatures 35 to 40 range would also dictate a frost advisory. A Freeze Warning is issued when there is an 80% or greater chance that the temperatures are expected to fall to 32 degrees (F) or lower in the next 3 to 30 hours during the growing season. If the temperature is expected to fall below 28 degrees (F) this is considered a Hard Freeze.

Winter Storm Watches and Warnings

- A winter storm watch indicates that severe winter weather may affect your area.
- A winter storm warning indicates that severe winter weather conditions are definitely on the way.

A blizzard warning means that large amounts of falling or blowing snow and sustained winds of at least 35 miles per hour are expected for several hours.

Located in the most northern part of the state, agricultural operations in Walton County are more experienced in dealing with hard freezes than are other areas in South Florida. Impacts of freezes to the County are most severe to plant nurseries, winter crops unaccustomed to severe cold and the numerous poultry and livestock farms found in central Walton.

Though most years it's just flurries, it snows somewhere in Florida every winter. The most recent snowfall event observed on the peninsula occurred in November 2006 and January 2003. Others occurred in 1997, 1987 and December 1989. The largest official 24 hour snowfall is 4" at several locations across the panhandle and northern peninsula. However unofficial totals of 5-8" fell across the NW panhandle in February 1973 and again in March 1993 with the

inaccurately media dubbed "No Name" storm. Also ocean, lake and hill effect snow flurries occur on the central peninsula virtually every winter. (http://cc.bingj.com/cache.aspx?q=nw+florida+statistics+on+cold+weather&d=4972610091094436&mkt=en-US&setlang=en-US&w=3b391082,bc12a065)

On the night of January 6-7th 2014 Northwest Florida was hit with a major freeze event. While many areas reached 18 º F, the West Florida Research & Education Center near Jay reached 14 º F.

3.2 Unlikely Hazards for Walton County

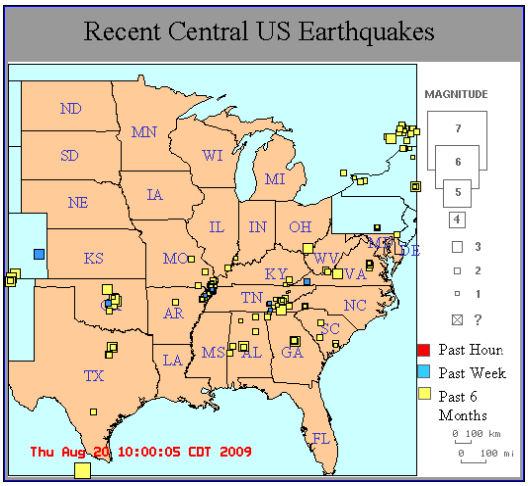
The following hazards are considered as unlikely to occur in Walton County or its municipalities:

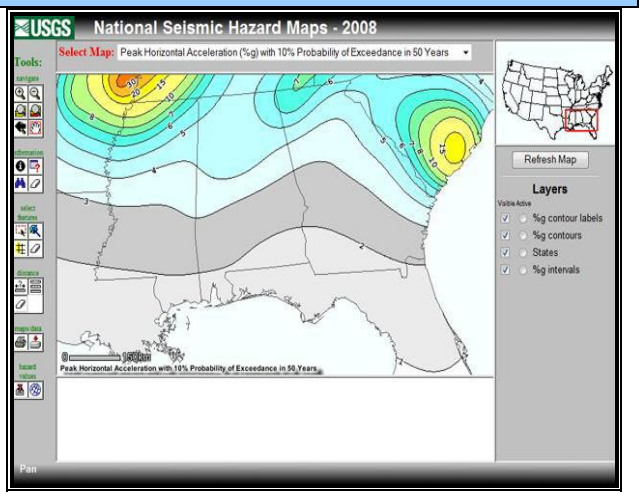
- Earthquakes
- Tsunamis/Rogue Waves
- Hazardous Materials

3.2.1 Earthquake

An earthquake is a violent shaking of the Earth's crust that may cause destruction to buildings and results from the sudden release of tectonic stress along a fault line or from volcanic activity.

Figure 3.2.1 Recent Central US Earthquakes & National Seismic Hazard Map





(www.usgs.gov 2008 National Seismic Hazard Map.)

Although Florida is not usually considered a state subject to earthquakes, seismic events have been reported from the Florida peninsula and panhandle. Charles J. Mott, in 1983 identified thirty-three earthquakes that occurred between 1727 and 1981. These quakes spanned over 250 year reports retained from Pensacola to Key West. Shocks varied from slight shudders to violent shakings that destroyed buildings. Listed below are a few of these events.

A shock occurred near St. Augustine, in the northeast part of the State, in January 1879. The Nation's oldest permanent settlement, founded by Spain in 1565, reported that heavy shaking knocked plaster from walls and articles from shelves. Similar effects were noted at Daytona Beach, 50 miles south. At Tampa, the southernmost point of the felt area, the trembling was preceded by a rumbling sound at 11:30 p.m. Two shocks were reported in other areas, at 11:45 p.m. and 11:55 p.m. The tremor was felt through north and central Florida, and at Savannah, Georgia.

In January 1880, Cuba was the center of two strong earthquakes that sent severe shock waves through the town of Key West, Florida. The tremors occurred at 11 p.m. on January 22nd and at 4 a.m. on the 23rd. At Buelta Abajo and San Christobal, Cuba, many buildings were thrown down and some people were killed.

The next tremor to be felt by Floridians also centered outside the State. It was the famous Charleston, South Carolina, shock in August 1886. The shock was felt throughout northern Florida, ringing church bells at St. Augustine and severely jolting other towns along that section of Florida's east coast. Jacksonville residents felt many of the strong aftershocks that occurred in September, October, and November 1886.

On June 20, 1893, Jacksonville experienced another slight shock, apparently local, that lasted about 10 seconds. Another minor earthquake shook Jacksonville at 11:15 a.m., October 31, 1900. It caused no damage.
A sudden jar caused doors and windows to rattle at Captiva in November 1948. The apparent earthquake was accompanied by sounds like distant heavy explosions. Captiva is located on Captiva Island, in the Gulf west of Fort Myers.

On November 18, 1952, a slight tremor was felt by many at Quincy, a small town about 20 miles northwest of Tallahassee. Windows and doors rattled, but no serious effects were noted. One source notes, "The shock interfered with writing of a parking ticket." It didn't say in what way.

The three Florida shocks of doubtful seismic origin rumbled through the Everglades - La Belle - Fort Myers area in July 1930, Tampa in December 1940, and the Miami - Everglades - Fort Myers area in January 1942. Most authorities attribute these incidents to blasting, but a few contend they were seismic.
(http://earthquake.usgs.gov/earthquakes/states/florida/history.php)
Abridged from Earthquake Information Bulletin, Volume 3, Number 5, September-October 1971.

3.2.2 Tsunamis/Rogue Waves

A tsunami is a wave train, or series of waves, generated in a body of water by an impulsive disturbance that vertically displaces the water column. Earthquakes, landslides, volcanic eruptions, explosions, and even the impact of cosmic bodies,

such as meteorites, can generate tsunamis. Tsunamis can savagely attack coastlines, causing devastating property damage and loss of life. (http://www.tsunami.noaa.gov/)

A similar risk is Rogue Waves. Rogue waves (also known as freak waves, monster waves, killer waves, and extreme waves) are relatively large and spontaneous ocean surface waves that are a threat even to large ships and ocean liners.[1] In oceanography, they are more precisely defined as waves whose height is more than twice the significant wave height (SWH), which is itself defined as the mean of the largest third of waves in a wave record. Therefore rogue waves are not necessarily the biggest waves found at sea; they are, rather, surprisingly large waves for a given sea state. "Rogue waves are not tsunamis, which are set in motion by earthquakes [and] travel at high speed, building up as they approach the shore. Rogue waves seem to occur in deep water or where a number of physical factors such as strong winds and fast currents converge. This may have a focusing effect, which can cause a number of waves to join.
(Rogue waves, Monsters of the Deep, Sep 17th 2009, From *The Economist* print edition) ; http://en.wikipedia.org/wiki/Rogue_wave_(oceanography)

3.2.3 Hazardous Materials

In general terms, materials are designated as “hazardous materials” when they pose a significant risk to people or property. (http://cms.h2e-online.org/ee/hazmat/)

Hazardous materials accidents can occur anywhere there is a road, rail line, pipeline, or fixed facility storing hazardous materials. Virtually the entire state is at risk to an unpredictable accident of some type. Most accidents are small spills and leaks, but some result in injuries, property damage, environmental contamination, and other consequences. These materials can be poisonous, corrosive, flammable, radioactive, or pose other hazards and are regulated by the Department of Transportation.

Emergencies involving hazardous materials can be expected to range from a minor accident with no off-site effects to a major accident that may result in an off-site release of hazardous or toxic materials. The overall objective of chemical emergency response planning and preparedness is to minimize exposure for a wide range of accidents that could produce off-site levels of contamination in excess of Levels of Concern (LOC) established by the U.S. Environmental Protection Agency. Minimizing this exposure will reduce the consequences of an emergency to people in the area near to facilities that manufacture, store, or process hazardous materials.

There are a number of mobile and permanent sources of hazardous materials in Walton County. Hazardous materials are routinely shipped through and within

Walton County via Interstate 10, US 90, US 98, and US 331 plus secondary state and County roads. The CSX railway and the Intracoastal Waterway are also routes for hazardous materials movement. There are also three large natural gas pipelines owned by Florida Gas Transmission that cross the County east to west roughly paralleling US 90. Water supply, wastewater treatment, and large agricultural operations also store and use numerous types of hazardous materials (primarily chlorine and its derivatives).

The most abundant hazardous materials within the County are petroleum fuels (gasoline derivatives, liquid propane gas, and natural gas). These petroleum products are the most commonly released materials in traffic accidents, overfilling of tanks, or leaks in delivery systems. There is moderately sized petroleum tank farms located along a waterway near Freeport, which is used as a distribution point for fuel shipping along the Intracoastal Waterway.

The risk of a petroleum fuel spill in water in Walton County is moderate with the consequences of this spill being based on the amount released, location, wave action, and weather. Barge, sea-going tankers, and highway shipments pose the greatest risk. A sizeable oil spill on the Gulf of Mexico coming ashore on the County's beaches would be devastating to the local tourist industry and near-shore biological resources.

The Hazardous Material Sites Map contains specific hazardous material sources displayed include chlorine tanks, lead battery sites, fuel tanks, insecticide and pesticide storage tanks, and the major land, water, and rail transport routes.

To the best of knowledge of 30-year citizens, there has never been a hazardous material incident involving mass evacuations, or affecting large numbers of the population. There was an incident in the Mossy Head community in the early 1970's in which there were no injuries, but did require short-term (hours) evacuation of 20 or so residences and businesses due to a train derailment and subsequent release of Anhydrous Ammonia. Any other incidents have been localized in nature and affected few people.

Hazardous material is transported throughout the County from every direction, on land by truck, in East and West directions on Interstate 10, as well as along Highways 98, 20 and 90. It moves North and South on Highway 331, into the County from east and west in rail cars and by boat on the Intracoastal Waterway. Additionally, the presence of shipping in the Gulf of Mexico and through the Choctawhatchee Bay may result in an open water spill of many kinds, especially oil contaminating. Murphy Oil has a depot located in Freeport, FL (Walton County), which is supported by fuel barges. Since 1992, there has been no fatality resulting from a hazardous material spill in Walton County. Hazardous material incidents can occur anywhere; however, the probability is higher on or near these major highways, rail lines and fixed facilities storing hazardous materials.

In March, 2000 a ONE-DOT team from the Office of Inspector General, United States Coast Guard, Federal Aviation Administration, Federal Motor Carrier Safety Administration, Federal Railroad Administration, and Pipeline and Hazardous Materials Safety Administration completed a DOT-wide Program Evaluation of the Hazardous Materials Transportation Programs (HMPE). The program evaluation had two broad objectives. Objective I was to document current hazardous materials movements, Operating Administrations' programs, and program delivery. Objective II was to assess the effectiveness of DOT's overall hazardous materials program as it affects each step in the hazardous materials transportation process, from packaging to receiver, recommend improvements, and identify areas for further analysis and action. The team found that DOT's hazardous materials program works reasonably well, but needs to be improved through DOT-wide strategic planning and program coordination, more focused delivery, and better data. (http://www.phmsa.dot.gov/hazmat/risk/hmpe)

Events such as the Deepwater Horizon are rare but do happen. The Deepwater Horizon oil spill began on April 20, 2010, in the Gulf of Mexico caused by an explosion on the Deepwater Horizon MC 252 drilling platform. It claimed eleven lives and is considered the largest accidental marine oil spill in the history of the petroleum industry. Following the explosion and sinking of the Deepwater Horizon oil rig, a sea-floor oil gusher flowed for 87 days, until it was capped on July 15, 2010.

http://www.gulfspillrestoration.noaa.gov/oil-spill/

The US Government estimated the total discharge at 4.9 million barrels (210 million US gallons). After several failed efforts to contain the flow, the well was declared sealed on September 10, 2010.

On June 4, 2010, the first significant amount of oil arrived on the Florida coast. State and local officials reported that gooey blobs of oil tar were washing ashore in growing numbers on the white-sand beaches of the Florida Panhandle. http://www.eoearth.org/view/article/161185/

3.3 Additional Hazards Identified

- **Power Failure**
- **Terrorism**
- **Domestic Radiation/Nuclear Accidents**

3.3.1 Power Failure (outages)

The major causes of a power failure are lightning and trees. Lightning strikes and trees falling onto power lines can shut down power for hundreds of people. Other factors that can cause a power failure may include the age of power facilities (transmission and distribution), community growth, and/or high winds.

The location of power lines underground or above ground also has significance. Lines underground have the advantage of being less vulnerable to tree foliage; however they are still at risk from other underground hazards such as tree roots. Walton County's Land Development Code requires that new developments have underground utilities

3.3.2 Terrorism

Since the attacks on the World Trade Center in 2001, a renewed awareness of terrorism in the United States has occurred. Here in Florida, the trepidation of terrorism was fully realized by the recent Anthrax incidents. Acts of terrorism committed in Florida have historically been thought of as improbable. The state has many critical and high-profile facilities, high concentrations of population and other potentially attractive venues for terrorist activity that are inherently vulnerable to a variety of terrorist methods. Governmental/political, transportation, commercial, infrastructure, cultural, academic, research, military, athletic, and other activities and facilities constitute ideal targets for terrorist attacks, which may cause catastrophic levels of property and environmental damage, injury and loss of life. Furthermore, a variety of extremist groups is known to operate within Florida and potential terrorist attacks have been investigated and averted in recent years. Terrorist attacks may take the form of the hazards described in this section when incidents of these types are executed for criminal purposes, such as induced dam or levee failures, the use of hazardous materials to injure or kill, or the use of biological weapons to create an epidemic. Acts of terrorism are capable of creating disasters that threaten the safety of a large number of citizens. Until 911, the United States was relatively

untouched by the storm of terrorist activities experienced in other parts of the world. Due to the many uncertainties in identifying the numerous possibilities that terrorists could capitalize on, the true vulnerability of Walton County to terrorism may be immeasurable.

Walton County is not immune from the threat of armed conflict, riots, terrorism, or military conflict. Eglin AFB occupies roughly one quarter of the County, making the area a sizeable target for potential enemy strike. Some might view Walton County as a prime location for performing some act of terrorism against its citizens although the likelihood of any type of conflict is viewed as low.

Terrorism may seem like mindless violence committed without logic or purpose it is not. Terrorists often attack soft and undefended targets, both people and facilities, to gain political objectives they feel are out of reach by other less violent means. Since the 1940's there has not been an actual Domestic Terrorism or WMD event in Walton County. In the 1940's an accidental military bombing of a civilian residence caused the death of several people. There have been a few bomb threats in the County through time, but none has involved an actual WMD device.

Although the United States has entered the Post-Cold War era, federal planning guidelines pertaining to military threats are in transition. Nuclear weapons, as well as conventional explosives, continue to be a serious planning concern in areas surrounding military installations. Terrorism is a serious issue in Florida; the state is particularly vulnerable due to the close proximity to Latin America, Cuba and Caribbean nations. Potential targets are unpredictable, but high-density population centers and military installations are the most likely.
http://www.fema.gov/pdf/areyouready/terrorism.pdf

3.3.3 Domestic Radiation/Nuclear Accidents

The nearest nuclear power plant to Walton County is the Joseph Farley plant operated by the Southern Company (Alabama Power) some 15 miles east of Dothan, Alabama. No portion of Walton County lies within 50 miles of the plant, with the northeast portion of the County being closest to the facility at approximately 65 miles. The risk of radiation exposure from an accidental release from the plant is low. Emergency Planning Zones have been designated for each power plant to enhance planning efforts for emergencies. The 50-mile planning zone is an ingestion exposure zone, which takes into consideration possible effects to agricultural areas.

Radioactive materials, almost entirely low-level materials, can be transported on the County's roadways. Most radioactive substances are associated with work performed by the Florida Department of Transportation and the medical industry. Increased federal performance standards for the shipment of radioactive materials have further lowered the risk of accidental release of such materials in the County.

Although faced with a number of potential natural hazards, Walton County and its municipalities are well prepared to meet their emergency management response requirements.

3.4 Profiling Hazards

§201.6(c) (2) (i): The risk assessment shall include a] description of the…location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

NOTE:
Hazards that are not probable are not mentioned in this section. Other hazards that are not required by DMA 2000 will also be omitted.

The following table represents the probability and extent of each likely hazard.

Figure 3.4 Probability and Extent for Likely Hazards

Hazards	Number of Occurrences within the past 4 years.	Probability	Extent /Possible Loss of Life	Jurisdiction
Hurricanes & Coastal Storms	2	*High, based on the number of occurrences in the state per the 2014 landfall probabilities and past events	Cat 5 / Loss of life could amount to 5 or above	All Jurisdictions can be affected
Severe Thunderstorms & Tornadoes	91	High	F2 tornado, 1.8" size hail,' 55 kts wind /Loss of life could amount to 5 or above	All Jurisdictions experience these conditions
Coastal & Riverine Erosion	26	High	Approximately 6' per year according to the amount of flooding and /Loss of life is unlikely	Walton County, City of Freeport experience the coastal and riverine erosion, DeFuniak Springs & Town of Paxton experience lake erosion
Sinkholes	0	Low	SINLNGTH 22, SINWIDTH20, SINDEPTH 7 /Loss of life is unlikely	All Jurisdiction are susceptible
Floods	57	High	In events such as FEMA 4177-DR as much as 15" within a 24 hour period causing extensive flash flooding/Depth of Riverine flooding	All Jurisdiction are susceptible

				up to 16' and Coastal Storm Surge 1- to 20 feet/ loss of life could amount to 5 or more	
Wildfires		26		Medium	There could be major impact of 6,552 acres, moderate impact of 40,779 acres and minor impact to 10,617 acres/ loss of life in the amount of 5 or more	All Jurisdictions are susceptible, however the highest probability is within our state forest and in the west area of the County, Eglin Air force Base Property
Dam Failure		0		Low	There is no historical data for any dam failures within Walton County, however repairs have taken place, and hydrological studies show that a 6.5 acre lake would have 175 acre drainage area / Per the National Inventory of Dams 2010, the highest dam in Walton County is 25' Per the Small Dam Hazard Assessment Inventory the maximum height of flood water is 75% of the dam height therefore the max flood height would be 18.75': loss of life could amount to 5 or more	Unincorporated Walton County
Drought & Heat Wave		0		Low	Highest temperatures could climb to 110 degrees/ maximum extent of D4 on the Drought Severity Classification / loss of life from Heat Stoke or related health issues could be in the amount of 5 or more	All Jurisdictions
Winter Storms &		1		Low	Lowest temperature of 4 degrees /loss of	All Jurisdictions

Freezes					life could amount to 5 or more	

***** Note: It is assumed each hurricane/coastal storm and flood event causes some type of erosion along the beaches, rivers and their tributaries.***

*****In cases such as Hurricanes and Coastal Storms, historical data was used to calculate the probability that included other research and studies within the state, beyond just actual Walton County events.***

Probability of Events: The number of years divided by the number of occurrences based on a 100% plus value as follows:		
LOW 0-33%	**MEDIUM 34-66%**	**HIGH 67-100+%**

Type of Hazards: Hazards which are likely to happen in Unincorporated Walton County, City of DeFuniak Springs, City of Freeport and Town of Paxton.

Number of Events: Data derived from NOAA Satellite and Information Service, National Climate Data Center, Local Newspaper Articles, Walton County Emergency Services.

3.4.1 Hurricanes & Coastal Storms

For many years, the risk of significant loss of life and property due to hurricanes seemed small. Hurricanes that affected Florida during the 1970s and 80s were infrequent and of relatively low intensity. Homeowners, business interests, and government officials grew to regard hurricane risk as manageable by private insurance supplemented occasionally by federal disaster funding and subsidized flood insurance. The hurricane risk did not seem sufficient to warrant increased investment in mitigation. Two major hurricanes, Andrew in 1992, and Opal in 1995 forced a reevaluation of this risk assessment. While experts sometimes disagree on the annual cost of hurricane damage, all sources agree that hurricane Andrew was one of the most costly hurricane events ever to affect the U.S. Insured losses from Hurricane Andrew topped $17 billion and most sources agree that the total cost of Hurricane Andrew exceeded $25 billion.

October 1995, Hurricane Opal made landfall near Pensacola Beach, Florida as a Category 3 hurricane. Extensive damage occurred from Pensacola Beach to Mexico Beach, a span of approximately 120 miles. A maximum storm tide of 24 feet was recorded near Ft. Walton Beach, Florida. Opal was responsible for nine deaths and at least $3 billion in damages in the United States. Fifty deaths were recorded in Mexico and

Guatemala, from floodwaters caused by rains associated Opal.

Early September, 1998, Hurricane Earl, a Category One hurricane, hit Panama City Beach, Florida causing over $7 million in damages.

September 1998, Hurricane George hit South Florida with 105 mph winds, and then moved into the Florida Panhandle. This storm caused over 250 million in damages.

September 2000, Tropical Storm Helene made landfall near Ft. Walton Beach, Florida. This storm caused flooding, tornadoes and power outages.

August 2001, Tropical Storm Barry made landfall between Panama City and Destin, Florida. Wind damage, flooding and power outages were reported. Walton County had numerous road closings because of floodwaters associated with Barry.

September 2004, Hurricane Francis, a Category 4 storm, caused over $100 million in damages to space and military facilities around Cape Canaveral. President Bush declared all of Florida a federal disaster area. Damage to the United States was approximately $9 billion, making it the 10th costliest hurricane in U.S. history. Most of Hurricane Frances's damage occurred in Florida as a result of the storm's slow movement, large size, and long duration of winds. The storm is directly responsible for seven deaths; one in the Bahamas and six in the United States. Hurricane Frances also produced a record-setting 123 tornadoes as it moved its way through the United States.

September 2004, Hurricane Ivan caused heavy damage as it made landfall on the U.S. coastline as was observed in Pensacola, Pensacola Beach, dwellings situated far inland along the shorelines of Escambia Bay, East Bay, and Blackwater Bay in Escambia County and Santa Rosa County, and Fort Walton Beach, Florida on the eastern side of the storm. The area just west of Pensacola, including the community of Warrington (which includes Pensacola NAS), Perdido Key, and Innerarity Point, took the brunt of the storm. Some of the subdivisions in this part of the County were completely destroyed, with a few key roads in the Perdido area only opened in late 2005, over a year after the storm hit. Shattered windows from gusts and flying projectiles experienced throughout the night of the storm were common. As of December 2007, roads remained closed on Pensacola Beach because of damage from Ivan's storm surge.

In Pensacola, the Interstate 10 bridge across Escambia Bay was heavily damaged, with as much as a quarter-mile (400 m) of the bridge collapsing into the bay. The causeway that carries U.S. Highway 90 across the northern part of the same bay was also heavily damaged. Virtually all of Perdido Key, an area on the outskirts of Pensacola that bore the brunt of Ivan's winds and rain, was

essentially leveled. High surf and wind brought extensive damage to Innerarity Point.

Along with the 14 deaths in Florida, Ivan is blamed for eight deaths in North Carolina, two in Georgia, and one in Mississippi. An additional 32 deaths were reported as indirectly caused by the storm.

Ivan caused an estimated US $13 billion (2004 USD) in damage in the United States alone, making it the third costliest hurricane on record at the time, being very near Hurricane Charley's US $14 billion but well below Hurricane Andrew's US$26 billion. Ivan displaced Hurricane Hugo, which had previously held the third spot, but in 2005, Hurricane Katrina caused US $81 billion in damage, displacing Ivan to fourth place, and Hurricane Wilma caused US$20.6 billion in damage, displacing Ivan again to fifth place, and in *2008, Ivan* was surpassed by another storm, Hurricane Ike, which caused upwards of $27 billion in damages.

July 2005, Hurricane Dennis made landfall on the Florida Panhandle in as a Category three storm. Dennis caused at least 89 deaths in the United States and Caribbean and caused $2.23 billion dollars in damages to the United States. In the United States, Dennis caused 15 deaths (14 in Florida), including one in Walton County.

In Walton County, a total of 11 single-family dwellings and seven non-habitable major structures (six swimming pools and one garage) were destroyed. All these structures were sited seaward of the established CCCL. Another 13 single-family dwellings and 2 multifamily dwellings sustained major damage to their nonconforming foundations. These structures were also sited seaward of the CCCL. Additionally, 25 dwellings supported on nonconforming foundations are in imminent danger of structural damage as the soil beneath the concrete slab foundations slips down the unstable slope of the eroded dune bluff. In addition, a total of 19 habitable structures sustained moderate to major damage to non-habitable understructure enclosures. Also, 400 feet of retaining walls were destroyed or sustained major damage.

August 2005, Hurricane Katrina hit the gulf coast as one of the costliest and deadliest hurricanes in the history of the United States. Katrina was the sixth-strongest Atlantic hurricane ever recorded and the third-strongest hurricane on record that made landfall in the United States. Hurricane Katrina formed over the Bahamas on August 23, 2005, and crossed southern Florida as a moderate Category 1 hurricane, causing some deaths and flooding there before strengthening rapidly in the Gulf of Mexico. The storm weakened before making its second landfall as a Category 3 storm on the morning of Monday, August 29 in southeast Louisiana. It caused severe destruction along the Gulf coast from central Florida to Texas, much of it due to the storm surge. The most severe loss of life and property damage occurred in New Orleans, Louisiana, which flooded as the levee system catastrophically failed, in many cases hours after the storm

had moved inland. Eventually 80% of the city became flooded and also large tracts of neighboring parishes, and the floodwaters lingered for weeks.
At least 1,836 people lost their lives in the actual hurricane and in the subsequent floods, making it the deadliest U.S. hurricane since the 1928 Okeechobee hurricane. Economist and crisis consultant Randall Bell wrote: "Hurricane Katrina in 2005 was the largest natural disaster in the history of the United States. Preliminary damage estimates were well in excess of $100 billion, eclipsing many times the damage wrought by Hurricane Andrew in 1992." Wikepedia/September 2009. (http://www.floridadisaster.org/Mitigation/State/3.0%20Risk%20Assessment.pdf)

In Walton County, a total of 12 single-family dwellings and one multifamily dwelling sustained major structural damage along Walton County's beaches. All were seaward of the Walton County Coastal Construction Control Line. In addition, one non-habitable major structure (a swimming pool) was destroyed, along with two small segments of wood retaining walls totaling 45 feet in length in the Inlet Beach area.

In Miramar Beach, a swimming pool was destroyed at and two single-family dwellings had their foundation slabs undermined at (Murmuring Surf). A porch also collapsed seaward of one dwelling. Along Tang-O-Mar, two pile-supported dwellings were undermined, and a single-family dwelling sustained first floor damage.

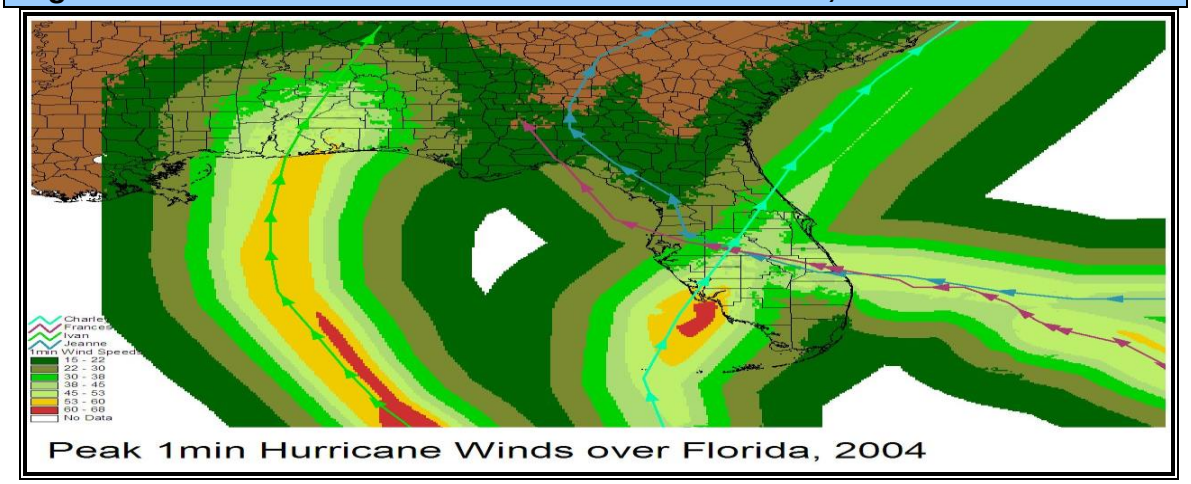
New dunes constructed along Sandestin were eroded leaving three to five-foot escarpments. In Beach Highlands, a multifamily dwelling structure sustained undermining foundation damage to its five condominium units. At the seaward west end of Fort Panic Road, a 25-foot section of wood retaining wall was destroyed.

To the east between Lake Allen and Oyster Lake, a single-family dwelling sustained undermining damage to its slab foundation and had its screened porch destroyed. Nearby, a 20-foot section of vinyl retaining wall was destroyed. To the east in Dune Allen, another single-family dwelling sustained undermining damage to its slab foundation and also sustained major roof damage. A concrete slab porch was destroyed, a covered porch was undermined and a pile-supported dwelling was undermined.

Near the east end of Blue Mountain Beach, two single-family dwellings sustained major damage. One of these dwellings sustained foundation pile damage during Dennis and sustained additional damage due to Katrina. In Gulf Trace Beach between three single-family dwellings sustained major damage. One of these dwellings had previously been damaged by Dennis and sustained additional damage by Katrina. In addition, another Gulf Trace dwelling sustained understructure damage. To the east in Grayton Beach, another single-family dwelling sustained major damage.

No major damage attributable to Hurricane Katrina was observed in eastern Walton County. Throughout the county, many recently constructed beach access stairs sustained various levels of damage.

Figure 3.4.1 Peak 1 min Hurricane Winds over Florida, 2004



On June 12, 2006 one tropical storm, Alberto, dropped rainfall across Florida for several days. The statewide precipitation maximum reached 7.08 inches (180 mm) at a station 5 miles (8 km) east of Tarpon Springs. The highest sustained winds from the storm were officially clocked at 40 mph (65 km/h) in St. Petersburg, which also saw reports of wind gusts of up to 56 mph (90 km/h). Upon making landfall on the Florida Panhandle, the storm produced a storm tide, which unofficially peaked at 7.3 feet (2.2 m) at Crystal River Power Plant. The combination of high surf and the storm tide caused surge flooding along the Florida Panhandle. Six tornadoes were spawned in the state from the outer rainbands of Alberto, none of which caused serious damage. (http://en.wikipedia.org/wiki/Tropical_Storm_Alberto_%282006%29)

The 2009 season was not at all mild. Tropical Storm Claudette poured up to 4.5 inches of rain when it made landfall at Fort Walton Beach on the Florida Panhandle in August, then quickly fizzled. (http://blog.taragana.com/n/lull-in-the-storms-2009-hurricane-season-ends-as-one-of-calmest-since-1990s-237828/)

Claudette formed as tropical depression about 90 miles west-southwest of Tampa during the early morning hours of August 16th. Claudette moved to the northwest and strengthened to a tropical storm later in the morning. A peak wind gust of 51 knots was recorded at Alligator Point in Franklin County. Claudette came ashore along the Florida Panhandle coast near Fort Walton Beach early on August 17th. The lowest sea-level pressure was 1007.7 mb at Destin/Fort Walton Beach Airport. Storm total rainfall ranged from one to four inches. Storm tides ranged were two to four feet along the Panhandle coastline. Minor beach erosion was observed along coastal Gulf County, with minor to moderate beach erosion

along coastal Walton County. A man drowned as a result of the strong surf at Panama City Beach. Minor coastal flooding occurred in Wakulla County. Sporadic wind damage was reported in Bay, Gulf and Franklin counties. More than 9,000 residents were without power from the storm. St Andrews, St Joseph Peninsula and St George Island state park officials evacuated visitors and closed campgrounds. Approximately $100,000.00 in damages occurred for the above area according to noaa.gov.

The 2010 Atlantic Hurricane Season produced 21 systems consisting of 2 tropical depressions, 7 tropical storms and 12 hurricanes. There were no damages reported on the North West Florida coastline. During this season there were rare occasions where tropical cyclones were active simultaneously. First Danielle, Earl and Fiona co-existed on August 30th -31st then Earl, Fiona and Gaston co-existed on September 1st and 2nd and third and most notable was Igor, Julia and Karl that were active September 14th through September 18th. For a brief period on the 15th, Igor and Julia were simultaneously Category 4 hurricanes.

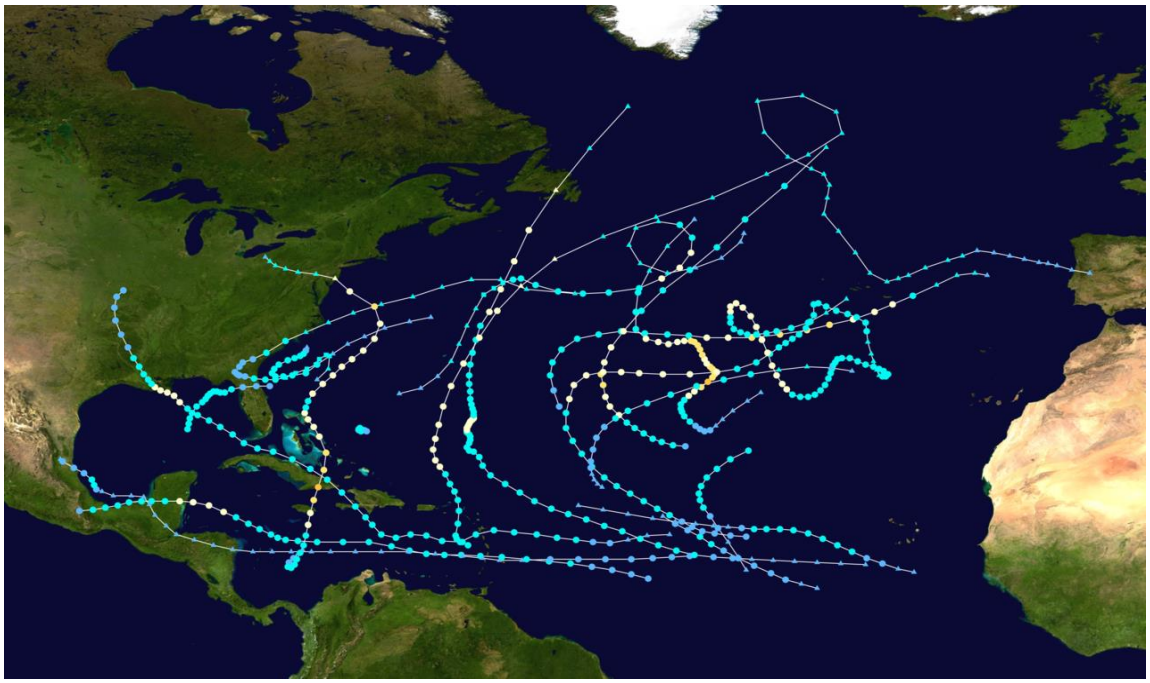
The 2011 season consisted of 1 tropical depression, 12 tropical storms and 7 hurricanes. Even though the northwest Florida gulf coast was spared a major hit from any of the above mentioned storms, the east coast was not so fortunate.

The ninth named storm, first hurricane, and first major hurricane of the 2011 Atlantic hurricane season, Irene is ranked as the seventh-costliest hurricane in United States history. On August 20, 2011 Irene became a tropical storm. After intensifying, Irene made landfall in St. Croix as a strong tropical storm. Early on August 21, the storm made a second landfall in Puerto Rico. While crossing the island, Irene strengthened into a Category 1 hurricane. The storm paralleled offshore of Hispaniola, continued to slowly intensify in the process. Shortly before making four landfalls in the Bahamas, Irene peaked as a 120 mph Category 3 hurricane.

Thereafter, the storm slowly leveled-off in intensity as it struck the Bahamas and then curved northward after passing east of Grand Bahama. Continuing to weaken, Irene was downgraded to a Category 1 hurricane before making landfall on the Outer Banks of North Carolina on August 27, becoming the first hurricane to make landfall in the United States since Hurricane Ike in 2008. Early on the following day, the storm re-emerged into the Atlantic from southeastern Virginia. Although Irene remained a hurricane over land, it weakened to a tropical storm while making yet another landfall in southeastern New Jersey on August 28. A few hours later, Irene made its ninth and final landfall in Brooklyn, New York City. Early on August 29, Irene transitioned into an extra tropical cyclone hitting Vermont/New Hampshire after remaining inland as a tropical cyclone for less than 12 hours.

Throughout its path, Irene caused widespread destruction and at least 56 deaths. Damage estimates throughout the United States are estimated near $15.6 billion which made it the seventh costliest hurricane in United States history, only behind Hurricane Andrew of 1992, Hurricane Ivan of 2004, Hurricanes Wilma and Katrina of 2005, Hurricane Ike of 2008, and Hurricane Sandy in 2012. In addition, monetary losses in the Caribbean and Canada were $830 million and $130 million respectively for a total of nearly $16.6 billion in damage.
http://en.wikipedia.org/wiki/Hurricane_Irene_(2011)

The 2012 Atlantic hurricane season was an above average season in which 19 tropical cyclones formed. All nineteen depressions attained tropical storm status, and ten of these became hurricanes. Two hurricanes further intensified into major hurricanes. Three hurricanes and three tropical storms made landfall during the season and caused 354 deaths and 68 billion in damage. Additionally, Hurricanes Leslie and Rafael also caused losses and fatalities, though neither struck land. The last storm of the season, dissipated on October 29, over a month before the official end of hurricane season on November 30.



First system formed May 19, 2012
Last system dissipated October 29, 2012
Strongest storm Sandy – 940 mbar (hPa) (27.77 inHg), 115 mph (185 km/h)
Total depressions 19
Total storms 19
First system formed, May 19, 2012
Last system dissipated, October 29, 2012
Strongest storm; Sandy – 940 mbar (hPa) (27.77 inHg), 115 mph (185 km/h)
Total depressions 19; Total storms 19
Hurricanes 10; Major hurricanes (Cat. 3+) 2
Total fatalities 200 direct, 155 indirect
Total damage; At least $70.892 billion (2012 USD)

Hurricanes 10; Major hurricanes (Cat. 3+) 2
Total fatalities 200 direct, 155 indirect
Total damage At least $70.892 billion (2012 USD)
http://en.wikipedia.org/wiki/2012_Atlantic_hurricane_season

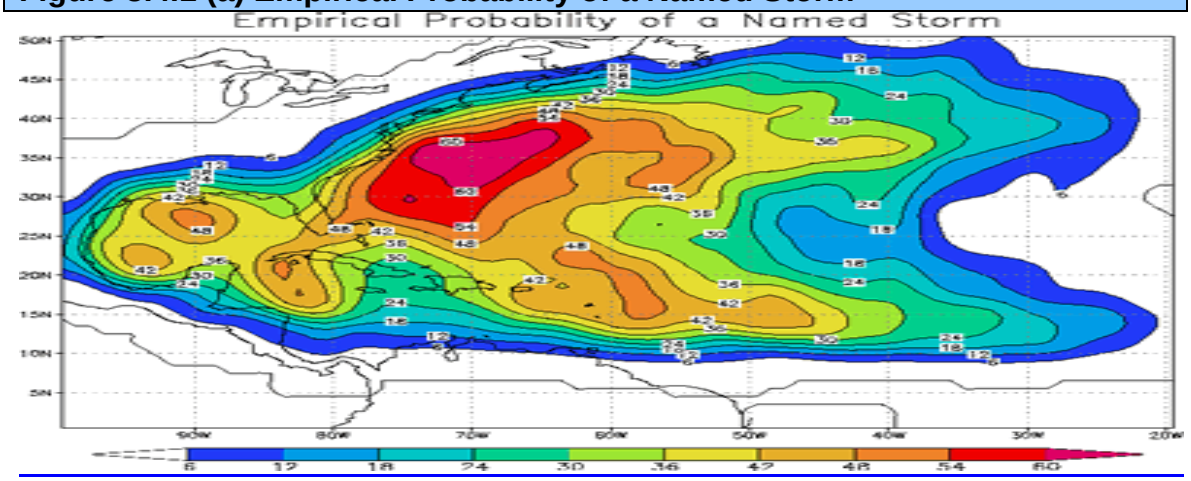
The 2013 Atlantic Hurricane Season had below normal activity. There were only 2 hurricanes with no major hurricanes and only 13 tropical storms. The season's impact was minimal; although 15 tropical cyclones developed, several were weak or remained at sea. On June 5, Tropical Storm Andrea killed four people after making landfall in Florida and moving up the East Coast of the United States.
http://en.wikipedia.org/wiki/2013_Atlantic_hurricane_season

The 2014 Hurricane season predictions are anticipated to be below normal activity.

Strongest storm, Eouard – 955 mbar (hPa) (28.21 inHg), 115 mph (185 km/h)
Total depressions 6
Total storms 5
Hurricanes 4
Major hurricanes (Cat. 3+) 1
Total fatalities 14 total
Total damage, $20.4 million (2014 USD)
http://en.wikipedia.org/wiki/2014_Atlantic_hurricane_season

Each year, on average, 10 tropical storms, of which six become hurricanes, develop over the Atlantic Ocean, Caribbean Sea, or Gulf of Mexico from June to November. Many of these remain over the ocean; however, about five hurricanes strike the United States coastline every three years. Of these five, two will be major hurricanes, category 3 or greater on the Saffir-Simpson Hurricane Scale.
(http://www.ussartf.org/hurricanes.htm)

Figure 3.4.1 (a) Empirical Probability of a Named Storm



(www.aoml.noaa.gov/hrd/tcfaq/G11.html)

The above information was based on the analysis of hurricane occurrences between the years of 1944 to 1999 for named storms and does not include tropical depressions.

According to the above information probability of a named storm impacting the Gulf Coast from the Florida Panhandle, westward to Brownsville Texas has increased approximately 10 percent since the last century, from 31 percent to 40 percent.

The following table represents the probability of a tropical cyclone prediction for the next 50 years:

2014 Tropical Cyclone Landfall Probabilities

State: Florida County: Walton

Current State Data (Climatology in Parentheses):

State Name	Probability of Hurricane Impact	Probability of Major Hurricane Impact
Florida	37.1% (51.0%)	14.2% (21.0%)

Region Number	Probability of 1 or More Named Storms Making Landfall in the Region	Probability of 1 or More Hurricanes Making Landfall in the Region	Probability of 1 or More Intense Hurricanes Making Landfall in the Region
3	41.3% (55.9%)	23.0% (33.1%)	11.1% (16.6%)

County Name	Probability of 1 or More Named Storms Making Landfall in the County	Probability of 1 or More Hurricanes Making Landfall in the County	Probability of 1 or More Intense Hurricanes Making Landfall in the County	Probability of Tropical Storm-Force (>= 40 mph) Wind Gusts in the County	Probability of Hurricane-Force (>= 75 mph) Wind Gusts in the County	Probability of Intense Hurricane-Force (>= 115 mph) Wind Gusts in the County
Walton	3.2% (4.9%)	1.6% (2.4%)	.7% (1.1%)	22.1% (31.9%)	6.5% (9.8%)	2.2% (3.3%)

50 Year Regional Data:

Region Number	50 Year Probability of 1 or More Named Storms Making Landfall in the Region	50 Year Probability of 1 or More Hurricanes Making Landfall in the Region	50 Year Probability of 1 or More Intense Hurricanes Making Landfall in the Region
3	>99.9%	>99.9%	>99.9%

50 Year County Data:

County Name	50 Year Probability of 1 or More Named Storms Making Landfall in the County	50 Year Probability of 1 or More Hurricanes Making Landfall in the County	50 Year Probability of 1 or More Intense Hurricanes Making Landfall in the County	50 Year Probability of Tropical Storm-Force (>= 40 mph) Wind Gusts in the County	50 Year Probability of Hurricane-Force (>= 75 mph) Wind Gusts in the County	50 Year Probability of Intense Hurricane-Force (>= 115 mph) Wind Gusts in the County
Walton	92.5%	71.4%	42.9%	>99.9%	99.6%	82.3%

The United States Landfalling Hurricane Web Project has been co-developed by William Gray's Tropical Meterology Research Project at Colorado State University and the GeoGraphics Laboratory at Bridgewater State University.

The severity of this type of hazard could result in loss of life, disease, property damage, reduction in property value, infrastructure damage, utility interruption, and damage to crops / livestock. Hurricanes and coastal storms are much more prominent in the southern portion of the County and structure loss and property damage can result in millions of dollars. A Category 3 storm and above will affect all of Walton County and damages could be beyond millions.

Walton County and its jurisdictions were affected by the storms listed above in 2005, 2006 and 2009. In 2005, Dennis and Katrina were listed as major disaster declarations but caused minimum damage in Walton County as previously mentioned.

Dennis, a Category 3 hurricane, moved inland just east of Gulf Breeze, FL, early Sunday afternoon, July 10. The peak wind gust and lowest sea-level pressure recorded were 67 knots and 979 mb, respectively, at Buoy 42039 located 80 miles south of Panama City, FL. Rainfall totals ranged from 3 to 4 inches in the eastern Florida Panhandle to 6 to 10 inches in the Florida Big Bend. Flooding was reported in southern Leon County where several areas were under 3 to 4 feet of water. Maximum coastal storm surge heights ranged from 4 to 8 feet in Walton, Bay, Gulf, Taylor and Dixie counties to 8 to 12 feet in Franklin, Wakulla and Jefferson counties. Moderate to severe beach erosion was observed along the beaches of Walton, Bay, Gulf, Franklin and Wakulla counties. Across coastal Walton County, all public dunes and walkovers were damaged. At St George

Island, five miles of road and numerous structures were damaged or destroyed by Dennis' storm surge. Dennis' deluge caused several rivers and creeks in the Florida Panhandle and Big Bend to exceed their flood stages, including the Ocklockonee, Aucilla, St Marks rivers, and Spring Creek. An interesting aspect to the flooding is the remarkable surge up to 8 feet that propagated up the rivers. This surge was evident from the mouth of the Suwannee River to as far west as the Choctawhatchee River. The worst property damage occurred along the coast from Walton to Wakulla County, where more than a 1,000 homes and businesses were affected. Also, there were numerous reports of downed trees and power lines across the Florida Panhandle and Big Bend, leaving about 75,000 customers without power. Bay, Dixie, Franklin, Gulf, Taylor, Wakulla and Walton counties were declared federal disaster areas. Hurricane Dennis produced approximately one million in damages to the Walton Coastal area.

After striking southeastern Louisiana, Hurricane Katrina made its final landfall in Mississippi, during which it produced a storm surge of about 5.37 ft (1.64 m) in Pensacola. The hurricane struck months after Hurricane Dennis affected the same area. In St. Marks, the surge flooded several businesses, and in Walton County, high tides flooded several roads, including portions of U.S. Highways 98 and 331. The storm caused moderate to severe beach erosion along the gulf coast, and washed sand onto many coastal roads. Winds along the Florida panhandle peaked at 56 mph (90 km/h) in Pensacola, with gusts to 71 mph (114 km/h). High winds briefly closed the Interstate 10 bridge over Escambia Bay in Pensacola. The outer rainbands of the hurricane spawned five tornadoes, all of them weak and not very damaging. Rainfall along the panhandle reached 7.80 in (198 mm) in Philpot, which caused flooding.

The winds caused damage to some trees and structures and there was some minor flooding in the panhandle. There were two indirect fatalities from Katrina in Walton County as a result of a traffic accident. Along the Florida panhandle, 77,000 customers lost power. Damage in Walton County was estimated at $750 thousand.
(http://en.wikipedia.org/wiki/Effects_of_Hurricane_Katrina_in_Florida)

In 2008 hurricane Gustav caused some storm surge but no major damages in South Walton County.

In 2009, Tropical Storm Claudette, hit within 60 miles of Walton County. In Walton County, DeFuniak Springs, CHELCO, director of marketing, Kathy Morrow, said Tropical Storm Claudette did little damage as far as power outages go. Morrow said there were only around 500 scattered power outages around Walton County Sunday night due to the storm, which is, in electrical outages, viewed as very few. All power was restored the following Monday.
Minor to moderate beach erosion was reported in Walton County at the west end of WaterSound Beach and the Alys Beach area, in the amount of 30 to 40 feet of sand lost. It was estimated that there was approximately $100,000.00 of worth of

sand eroded between Walton, Bay, Franklin and Gulf Counties. No deaths were reported in Walton County related to Tropical Storm Claudette.

After 2009, there were no reported damages from hurricanes or tropical storms in Walton per the National Climatic Data Center, National Oceanic and Atmosphere Administration. However there were news reports from Tropical Storm Debby, that did cause some environmental concerns to turtle nesting and beach erosion. Further details about the erosion is can be found in the Coastal/Riverine Erosion Section of this plan.

Based on the number of past events, the probability of a hurricane hitting or brushing Walton County and its jurisdictional partners is high.

3.4.2 Severe Thunderstorms & Tornadoes

The location of tornado strikes in Walton County since 1960 appears to be random as illustrated in the tornado location map found in the (Map Appendix). From January 1, 2004, to May 31, 2009, there were 3 tornadoes in Walton County. Two were F0 and one F1 Tornado with no deaths, injuries or crop damage, the F1 tornado caused $40,000 in property damage and one of the F0 tornadoes caused $10,000 in property damage the other F0 tornado did not cause any property damage. (http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms) The hazard mitigation strategies that will help to protect the County facilities and properties from high winds associated with hurricanes should also serve to protect these properties from tornadoes.

Walton County, FL

Date	Time (LST)	F/EF-Scale	Length (Miles)	Maximum Width (Yards)	Fatalities	Injuries	Property Damage	Source*
3/30/1960	400 am	**F2**	0.1	10	0	0	$2,500	**SD, SPC**
4/30/1963	630 am	**F2**	n/a	33	0	0	$250,000	**SD, SPC**
9/28/1963	700 am	**F1**	5.6	150	0	0	$2,500	**SD, SPC**
12/10/1967	330 am	**F3**	0.1	10	0	0	$25,000	**G, SD, SPC**
The roof and walls of a brick home were destroyed, 12m S of DeFuniak Springs. Other homes were damaged.								
5/24/1969	530 pm	**F0**	0.1	10	0	0	n/a	**SD, SPC**
5/26/1973	1200 pm	**F2**	19	10	0	0	$25,000	**SD**
2/15/1974	920 pm	**F1**	1	17	0	1	$25,000	**SD, SPC**
2/19/1974	630	**F1**	0.5	17	0	0	$25,000	**SD, SPC**

	am							
4/14/1975	140 pm	**F0**	0.1	23	0	0	$300	**SD, SPC**
11/12/1975	1000 am	**F1**	26.7	33	0	0	$250,000	**SD, SPC**
6/25/1978	1100 pm	**F0**	0.1	10	0	0	$300	**SD, SPC**
7/24/1979	1230 pm	**F1**	0.2	30	0	0	$25,000	**SD, SPC**
2/1/1983	930 am	**F2**	0.3	30	0	1	$25,000	**SD, SPC**
5/2/1985	330 am	**F0**	0.5	10	0	0	$25,000	**SD, SPC**
10/28/1985	640 am	**F1**	2	10	0	5	$2,500,000	**SD, SPC**
9/10/1988	1115 am	**F0**	1	30	0	0	$2,500	**SD, SPC**
9/10/1988	1238 pm	**F0**	1	30	0	0	$2,500	**SD, SPC**
9/10/1988	130 pm	**F0**	1	30	0	0	$2,500	**SD, SPC**
11/5/1988	1244 am	**F0**	1	30	0	0	$25,000	**SD, SPC**
5/1/1989	630 am	**F0**	0.4	50	0	0	$2,500	**SD, SPC**
12/12/1989	930 am	**F0**	0.2	10	0	0	$25,000	**SD, SPC**
9/11/1990	200 pm	**F0**	0.2	10	0	0	$300	**SD, SPC**
10/4/1995	1158 am	**F0**	0.1	20	0	0	$10,000	**SD, SPC**
A tornado briefly touched down destroying a mobile home and shed.								
10/27/1995	200 pm	**F0**	0.1	20	0	0	$1,000	**SD, SPC**
A funnel cloud was sighted over Eglin Air Force Base and touched down at Mossy Head doing roof damage to the a General Store.								
11/11/1995	857 am	**F1**	0.2	50	0	0	$50,000	**SD, SPC**
A tornado stuck causing major damage to one home and lesser damage to 12 other homes. Trees and power lines were also knocked down.								
11/11/1995	906 am	**F1**	0.1	30	0	0	$30,000	**SD, SPC**
A tornado lifted a vacant single-wide mobile home off its blocks and carried it 50 feet where it landed upside down in the middle of Rock Hill Road.								
9/17/1996	117 pm	**F0**	0.1	10	0	0	n/a	**SD, SPC**
A waterspout came ashore but caused no damage.								

1/15/1997	1049 pm	**F1**	0.2	75	0	0	$10,000	**SD, SPC**
A barn was destroyed and power poles were snapped by a tornado according to County Emergency Management.								
10/26/1997	700 am	**F1**	1	100	0	0	$500,000	**SD, SPC**
Two waterspouts moved ashore at Seagrove Beach along Walton County Road 30A and Seacrest Drive. Eleven homes were heavily damaged and one was destroyed.								
6/19/1998	645 pm	**F0**	1	10	0	0	n/a	**SD, SPC**
Tornado touchdown at the junction of Florida Highway 2 and U.S. Highway 331 about five miles southwest of Darlington. Numerous pine tree tops were snapped.								
6/19/1998	718 pm	**F0**	1	10	0	0	n/a	**SD, SPC**
Tornado touchdown at the intersection of Caney Creek and Florida Highway 2 just near Caney Creek. Numerous pine tree tops were snapped.								
9/28/1998	745 am	**F0**	0.5	45	0	0	$50,000	**SD, SPC**
A tornado touched down near the Valley View subdivision along FL Highway 183 about four miles northeast of De Funiak Springs. The tornado lifted the roof of a residence and neighboring shed, and pulverized a pump house. Debris was strewn across the highway and over adjacent timberland.								
5/26/1999	530 pm	**F1**	0.2	100	0	0	$500,000	**SD, SPC**
Walton County EMA reported a tornado touched down several times along SR 83N and CR 192 north of De Funiak Springs. Five barns were destroyed, seven outbuildings sustained minor damage, and a roof was lifted off a residence. Numerous trees and power lines were downed and electrical service was disrupted for nearly six hours to 1,200 customers.								
12/16/2000	1255 pm	**F0**	0.2	50	0	0	$2,500	**SD, SPC**
Several small trees down on County Road 6 about 1/8 mile north of Highway 20. Reported by the Walton County EMA.								
10/13/2001	915 pm	**F1**	1	100	0	0	$750,000	**SD, SPC**
An F1 tornado touched down in extreme southeastern Walton County, near the intersection of U.S. Highway 98 and Smokehouse Lake Road. During its brief, intermittent one-mile track across Smokehouse Lake Road, it destroyed two and damaged twelve trailers, damaged two homes, damaged twelve vehicles, uprooted numerous trees and downed some power lines. Before it lifted, it damaged five homes in the Steele Field area. Reported by the Walton County EMA.								
9/25/2002	300 pm	**F1**	1	100	0	0	$400,000	**SD, SPC**
A tornado touched down and damaged numerous mobile homes along U.S. Highway 98. One home was blown completely off its foundation. Numerous trees and power lines were snapped. Reported by the Walton County EMA.								
9/25/2002	400 pm	**F1**	1	100	0	0	$550,000	**SD, SPC**
A tornado touched down and damaged numerous homes near U.S. Highway 98. Numerous trees and power lines were snapped. Reported by the Walton County EMA.								

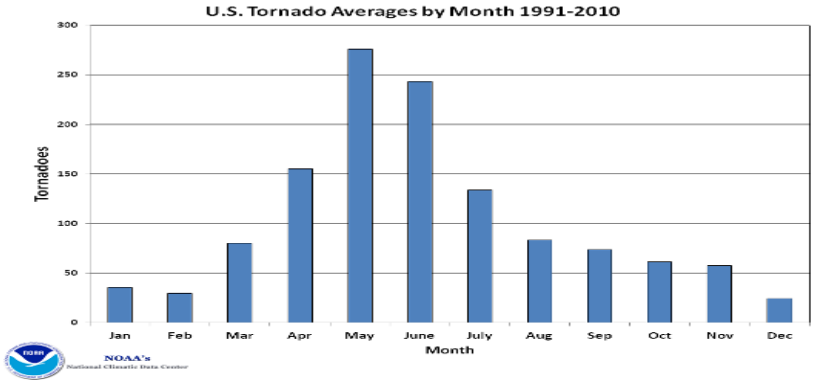
4/25/2003	420 am	**F0**	0.2	75	0	0	$100,000	**SD, SPC**
A weak tornado briefly touched down. A barn and several homes were damaged, along with downed trees. Reported by a SKYWARN storm spotter.								
11/24/2004	1041 am	**F1**	0.2	100	0	0	$40,000	**SD, SPC**
A tornado briefly touched down and damaged several homes on Pitts Bay Shore Drive along the Choctawhatchee Bay. Reported by the Walton County EMA.								
11/24/2004	1055 am	**F0**	0.2	50	0	0	$10,000	**SD, SPC**
A tornado briefly touched down at Rock Hill Road and Highway 81. A home sustained minor damage. Reported by the Walton County EMA.								
3/27/2009	537 am	**EF0**	0.2	50	0	0	n/a	**SD, SPC**
A weak tornado briefly touched down near Interstate 10 mile marker 74 just west of Mossy Head. It uprooted numerous trees, which closed several lanes. No traffic accidents or injuries were reported.								
***Sources**	**G** - Grazulis, T. P., 1993: Significant Tornadoes 1680-1991. A Chronology and Analysis of Events. Environmental Films, Tornado Project, St. Johsnbury, VT. **SD** - National Oceanic and Atmospheric Administration, 1950-2009: *Storm Data*. National Climatic Data Center, Asheville, NC. **SPC** - Storm Prediction Center Database							

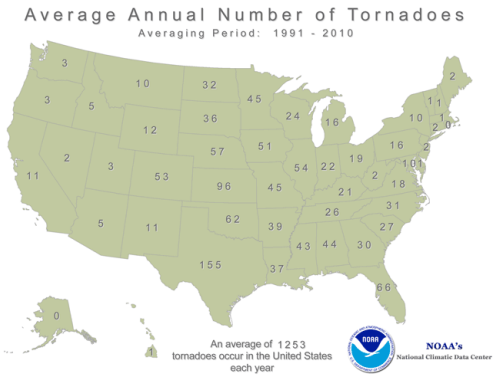
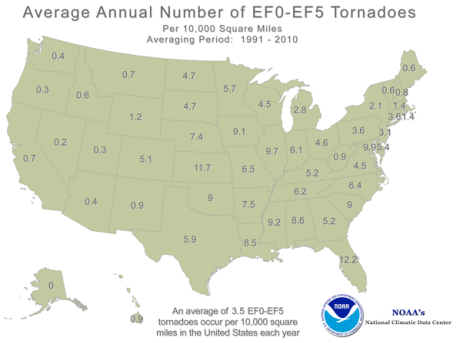
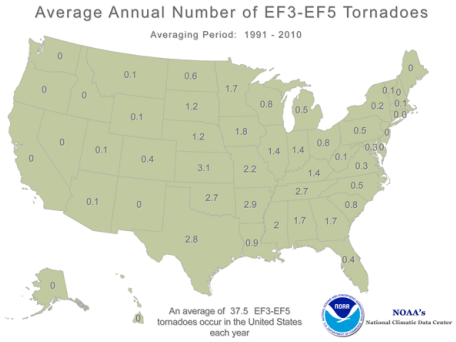
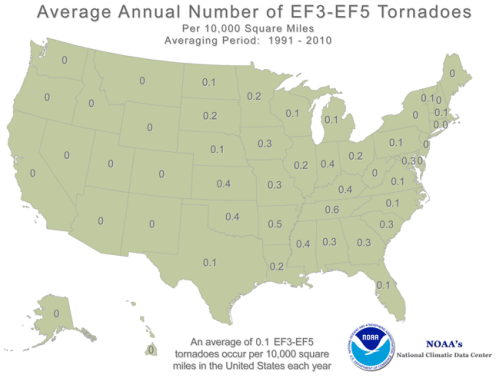
According to the Tornado History Project, no tornadoes have touched down in Walton County since 2009. This is also confirmed by the National Climatic Data Center, National Oceanic and Atmosphere Administration.

Date(s) (yyyy-mm-dd)	Tornadoes	Fatalities	Highest Fatalities	Injuries	Highest Injuries	Longest Path	Widest Path
1960-03-30 - 2009-03-27	42	1 person	1 person	11 people	5 people	105.4 miles	150 yards

Figures 3.4.2 Tornado Activity in the United States

Average Tornado Frequency by Month of Year 1991–2010



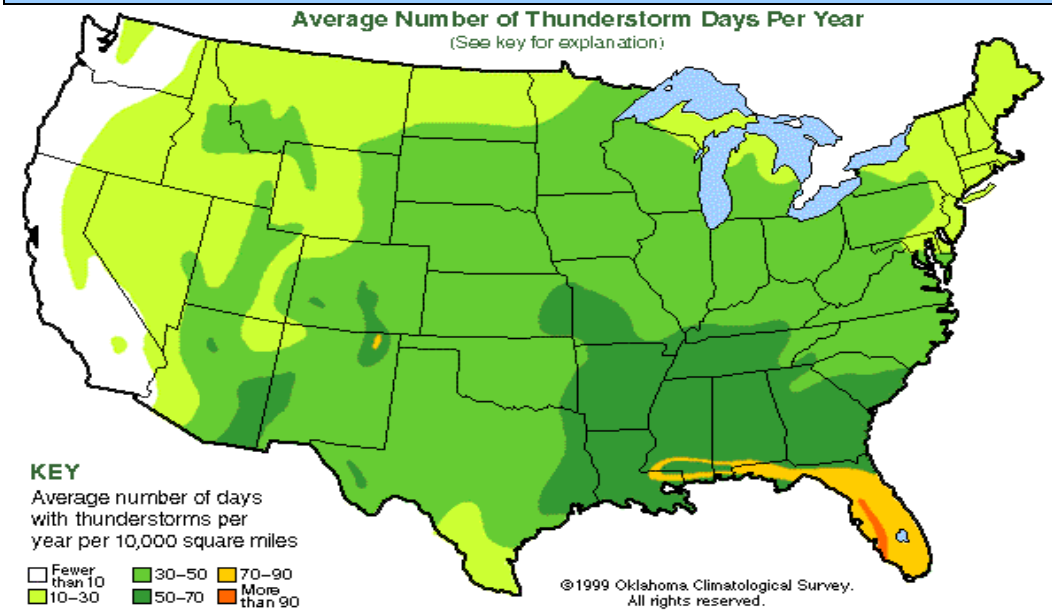
Overall Average	
Overall Average per 10,000 Square Miles	
Strong-Violent (EF-3 to EF-5) Average	
Strong-Violent (EF-3 to EF-5) Average per 10,000 Square Miles	

Number of Recorded Major Tornadoes	Areas Affected
< 1	All or most of Washington, Oregon, California, Idaho, Utah, Arizona, Montana, Wyoming, Colorado, New Mexico, Maine, New Hampshire, Vermont and Rhode Island. Parts of North Dakota, Minnesota, Wisconsin, Michigan, Texas, Florida, Delaware, Alaska, Hawaii, American Somoa, Puerto Rico and Virgin Islands. Isolated areas in Massachusetts, New York, Connecticut, Pennsylvania, Maryland, Ohio, Kentucky and Louisiana.
1 - 5	Most of South Dakota, Virginia, West Virginia, and North Carolina. Parts of North Dakota, Nebraska, Texas, Minnesota, Wisconsin, Michigan, New York, Pennsylvania, Maryland, Washington DC, and South Carolina. Isolated areas in Washington, Oregon, Montana, Wyoming, Kansas, New Mexico, Ohio, Kentucky, Tennessee, Maine, Georgia and Florida.
6 - 15	Parts of South Dakota, Nebraska, Kansas, Texas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Mississippi, Ohio, Alabama, and Pennsylvania. Isolated areas of Oklahoma, Arkansas, Louisiana, New Hampshire, Massachusetts, New York, West Virginia, Kentucky, North Carolina, South Carolina, Georgia, and Florida.
16 - 25	Half of Indiana, parts of Kansas, Texas, Iowa, Kansas, Missouri, Arkansas, Louisiana, Indiana, Kentucky, Tennessee, Mississippi, Alabama and Georgia. Isolated areas in the following states: North Dakota, Minnesota, Wisconsin, Michigan, Louisiana, Michigan, Ohio, Virginia, North Carolina, and South Carolina.
> 25	Most of Oklahoma, half of Indiana, and isolated areas in the following states: Nebraska, Kansas, Texas, Missouri, Arkansas, Louisiana, Ohio, Kentucky, Tennessee, Mississippi, Alabama and Georgia.

Last Updated:
07/24/2014 - 16:00 http://www.fema.gov/safe-rooms/tornado-activity-united-states

Severe thunderstorms with high wind speeds and accompanying hailstorms, strike Walton County on the average over 80 times a year. These severe thunderstorms, in association with heavy localized rains, can cause damage through flooding, lightning, wind, and hail damage. Travelers and commuters are at particular risk due to blinding conditions due to heavy rainfall and slick roadways. In addition, lightning is almost always associated with severe weather. Fire, electrocution, property destruction, and electronic equipment damage are all possible with lightning strikes.

Figure 3.4.2 (a) Average Number of Thunderstorms Days Per Year



Walton County experiences thunderstorms year round but mostly in the spring and summer months. Most severe damage is caused by tornadoes spawned by these fronts moving through the area and in the event of hurricanes. Florida ranks fourth in the nation in the occurrences of tornadoes. In the 32 years between 1959 and 1999, Florida reported 1,689 tornadoes, which represents a yearly average of 42, and 69 deaths directly resulting from the violent winds associated with them. However, tornado-related damage in Florida is less than the national average because Florida's tornadoes are generally of shorter duration (3 miles) and have narrower paths (125 yards wide). The most devastating tornado in Florida history occurred March 31, 1962 in Milton, FL about 50 miles from Walton County. It left a path of destruction 8 miles long and 150 yards wide. Although only about 2 miles of the path ran through a heavily populated area, 51 homes were completely destroyed and 64 suffered major damage. The casualty toll –17 killed and 46 seriously injured – was tragically high because the storm struck at about 9:00 a.m. on Sunday morning, an hour when most people were at home.

72 storm events were reported in Walton County Florida between 06/01/2010 and 10/01/2014 according to the National Environmental Satellite, Data, and Information Service, National Climatic Data Center, NCDC, U.S. Department of Commerce (Appendix D1).

There were numerous thunderstorm events that occurred within the County and the County's jurisdictional partners.

On August 8, 2011, a thunderstorm produced winds of 50 knots that blew down several trees on Lake Holly Circle off of US Hwy 331 North. This same thunderstorm also caused a tree to be blown down on County Hwy 1084 in the Glendale area. No loss of life.

On September 5, 2011, another strong thunderstorm caused damage to several areas throughout the County. This storm was an aftermath of tropical storm Lee, that produced strong wind gusts, combined with periods of heavy rain and wet soils, and led to numerous trees and power lines falling throughout the day and into the evening hours. Two trees were blown down along Interstate 10. Power lines were blown down near Highway 20 between Business 331 and the 331 bypass. Trees were blown down near the intersection of Bond Drive and Cosson Road. The emergency manager reported a total of 16 trees down and 28 power lines down by the end of the day. Of those 28 power lines, 10 of them sparked fires as a result of blowing down. Communities that were affected by power outages and down trees were City of Freeport, Pleasant Ridge, Alpine Heights, City of DeFuniak Springs, and Liberty. No loss of life during this event.

On July 31, 2012, a thunderstorm caused peak wind gusts up to 60 mph in the Eucheeanna area. A duplex home along Gulf Shore Drive (Blue Mountain Beach) experienced a lightning strike to the roof and sustained moderate damage. An unoccupied beach house was hit by lightning on E St. Lucia Lane (Blue Mountain Beach). The house suffered significant fire damage. Two firefighters suffered minor injuries while responding to the fire. No loss of life during this event.

On December 20, 2012, A strong upper level trough and cold front moved through the area. There was sufficient instability and shear for a few strong to severe thunderstorms to move across the area. Multiple power lines were blown down in southern Walton County. There was also one tree reported down in the Glendale area located in North Walton County.

On July 23, 2013, communities such as New Harmony, Douglas Crossroads, and Redbay, (all located North Walton County) experienced winds up to 50 knots. Scattered to numerous showers and thunderstorms occurred during July 21-23 with some storms becoming severe and knocking several trees down. A tree was blown down on County Highway 81. A tree was also blown down on County Highway 183. No loss of life during this event.

On April 5, 2014, a thunderstorm hit the Mossy Head area with winds up to 50 knots. In the Piney Grove area, hail was reported as quarter size hail at a store just south of I-10 at MM70. Minor damage was reported in each area.

On April 29, 2014, During the April 29-30 time period, a strong MCS developed along the Gulf coast and trained across the area, producing extremely heavy rainfall rates and amounts on top of what had already been a very wet month

with additional rainfall amounts of 6 to 10 inches common across the area. This led to serious flooding across portions of the Florida panhandle with several million dollars in damage reported, mainly to roads. However, several structures were also impacted by flood waters, especially in Walton County, and a FEMA disaster declaration was obtained across the area. No loss of life during this event.

On June 17, 2014, a tree was blown down across State Highway 81 north of State Road 20 in the Red Bay area, and a tree was blown down in the Bruce area. Minimum damage was reported with no loss of life.

The annual probability of a severe thunderstorm occurring or tornado touching down in Walton County is high based on the average number of days with thunderstorms per year and average number of tornadoes that have touched down in this area as shown in the illustrations above..

The severity of this type of hazard could result in loss of life, property damage, reduction in property value, infrastructure damage, utility interruption, and damage to crops / livestock.

3.4.3 Coastal & Riverine Erosion

According to the Bureau of Beaches and Coastal Systems, Division of Water Resource Management, Department of Environmental Protection, for the State of Florida, June 2005, "The 2004 hurricane season was the most active storm season in Florida since weather records began in 1851. Hurricanes Charley, Frances, Ivan and Jeanne, along with Tropical Storm Bonnie, damaged the beach and dune system, upland structures and properties, and infrastructure in the majority of Florida's coastal counties. The cumulative impact of these storms exacerbated erosion conditions throughout the state. The 2005 updated listing adds 42.6 miles (roughly a 13.2 increase) to the statewide total of critically eroded beaches. In southwest Florida, 1.1 mile of critically eroded beach was added to Lee County due to the impact of Hurricane Charley. On the Atlantic coast with the combined impact of Hurricanes Frances and Jeanne, significant increases in critically eroded areas were evident in Flagler (2.3 miles), Volusia (5.4), Brevard (11.5 miles), Indian River (6.6. miles), St. Lucie (3.7 miles), and Martin (1.6 miles) Counties, along with minor increases in St. Johns (0.2 mile) and Palm Beach (0.3 mile) Counties. On the northern Gulf of Mexico coast with the impact of Hurricane Ivan, critically eroded segments were added in Escambia (1.2 miles), Santa Rosa (0.7 mile), Okaloosa (2.8miles), Walton (5.1 miles), and Gulf(0.5 mil) Counties. A public beach in Citrus County was also added (0.2 mile). (Critically Eroded Beaches in Florida, Bureau of Beaches and Coastal Systems, Division of Water Resource Management, Department of Environmental Protection State of Florida ; updated June, 2005)

States bordering the Gulf of Mexico have the nation's highest average annual erosion rates (6 feet/year). The rates vary greatly from location to location and year to year. A major storm can erode the coast inland 100 feet or more in a day. The coastline often accretes partway back over the next decade. Both the Atlantic and Gulf coasts are bordered by a chain of roughly 300 barrier islands, which are composed primarily of loose sand and are the most dynamic land masses along the open-ocean coast. Barrier island coastlines have been retreating landward for thousands of years in response to slowly rising sea levels.

(http://www.fema.gov/pdf/library/erosion.pdf)

Figure 3.4.3 Estimated Economic Impact of Erosion in 60-Year Erosion Hazard Areas Nation Wide

TABLE S.4 Estimated Economic Impacts of Erosion in 60-Year Erosion Hazard Areas Nationwide (in Millions of Dollars)

	Atlantic Coast	Gulf Coast	Great Lakes	Pacific Coast	Total
Loss in property value	$1,700–$2,700	$100–$200	$600–$900	$900–$1,000	$3,300–$4,800
Loss in property value, assuming all empty lots are filled	$2,500–$3,800	$200–$300	$900–1,300[a]	$1000–$1,200	$4,600–$6,600

[a] Percentage of empty lots extrapolated from average of other regions.
The loss in property value represents depression in property price prior to any damage.
Data may not add to totals because of rounding.

(http://www.fema.gov/pdf/library/erosion.pdf)

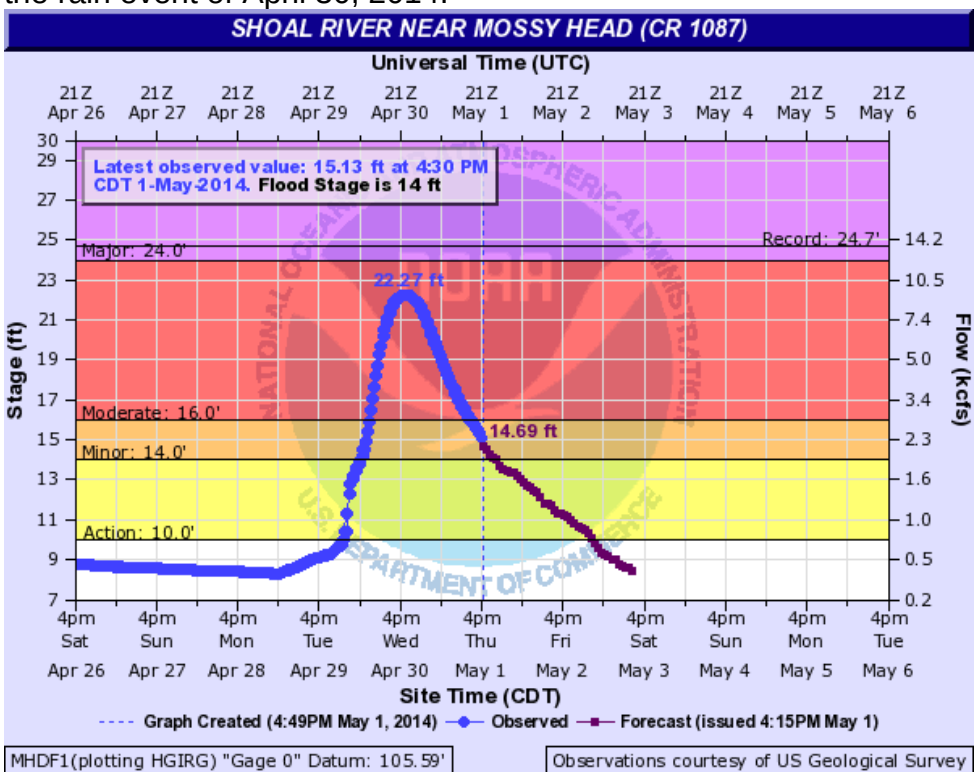
Erosion along riverbanks, such as the Choctawhatchee River Bank, is a common issue. There are private commercial and residential parcels located along the river, generally on small bluffs five to ten feet above normal water level. Much of the Choctawhatchee River Bank consists of conservation land and is part of the Choctawhatchee River Water Basin The Nature Conservancy in Florida owns and manages the 2,750-acre Choctawhatchee River Delta Preserve in Walton County. Because the majority of the Choctawhatchee River and its tributaries are in conservation, there are no serious reports of soil erosion within the Choctawhatchee River bank areas that lie within Walton County. However, it does cause issues with sediment in the Choctawhatchee Bay.

This does not mean there is no soil erosion along the Choctawhatchee River. There were 13 major floods in the Choctawhatchee River in the 20th century, including 2 in the 1990s (Northwest Florida Water Management District, 1996). The flood of 1929 reportedly created the inlet at East Pass. Local residents dug a trench where an intermittent stream connected with the Gulf of Mexico to help relieve the swelled bay. The U.S. Army Corps of Engineers has maintained the pass since Congress approved maintenance of it in 1930. Tropical Storm Alberto (1994) caused extreme flooding in the Choctawhatchee Bay watershed, providing inputs of large amounts of fresh water, sediments, and nutrients to

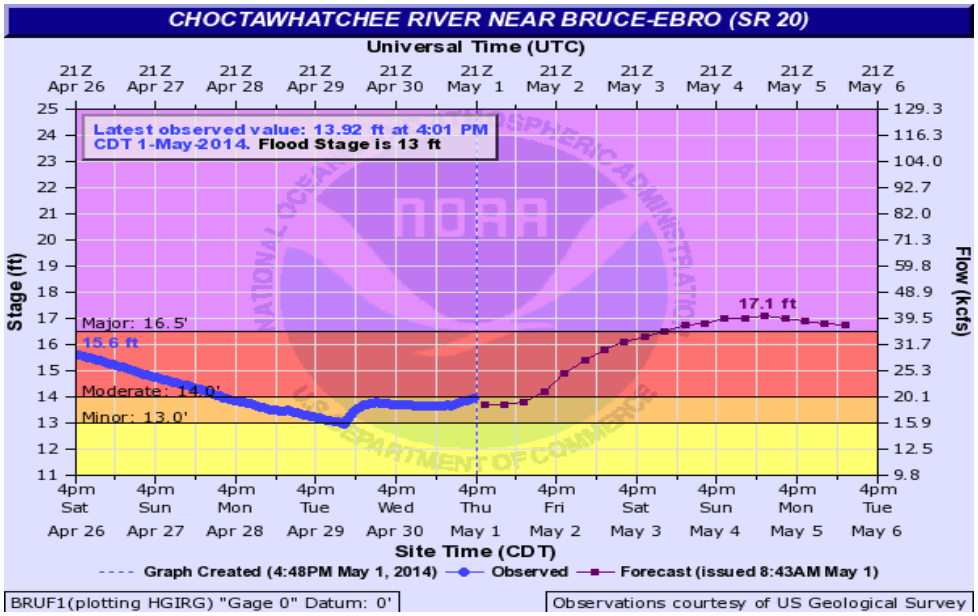
Choctawhatchee Bay. Hurricane Opal (1995), a category 3 hurricane, came ashore just east of Fort Walton Beach on the western edge of the bay and caused significant damage to the area, including washing large amounts of sand into the southern portion of the bay. In 1999 the area began experiencing a drought that resulted in rainfall amounts 25–38 cm (10–15 inches) below annual averages. Drought conditions continued through summer 2002. The lack of rainfall reduced stormwater runoff, providing less nutrient and sediment loading to the system. Salinity levels increased because less fresh water entered the bay through the Choctawhatchee River and local creeks.
http://pubs.usgs.gov/sir/2006/5287/pdf/ChoctawhatcheeBay.pdf

The Shoal River, which runs just north of Mossy Head in the northwest region of the County, has also suffered from floods and erosion. In March and April of 2009 the flooding was so severe it required evacuations and many road closings. Part of the river has a residential subdivision along its banks. Much of this part of the river has high bluffs; however, some of the creeks and tributaries are much more susceptible to flooding.

As can be seen by the graph below, the Shoal River recently flooded again, in the rain event of April 30, 2014:



There was also flooding of the Choctawhatchee River as seen below:



In June of 2012, Tropical Storm Debby caused erosion damage to the Blue Mountain Beach area in South Walton County. In some areas the waves from Debby reached the dune lines and some walk ways. Recent environmental impacts due to current beach conditions are as follows:

According to US Army Corps of Engineers | Mobile District, Walton County Hurricane and Storm Damage Reduction Study; Walton County is home to four types of nesting sea turtles.

1. Loggerhead,
2. Leatherback,
3. Kemp's Ridley and
4. Green

In 2012, Tropical Storm Debby and Hurricane Isaac produced a storm surge large enough to overtop beaches and impact sea turtle nesting.

- 97 nests were slain in 2012;
- 3 nests were lost to Tropical Storm Debby;
- 11 nests were lost to Hurricane Isaac.

http://www.usace.army.mil/Portals/2/docs/civilworks/CWRB/walton/walton_briefing.pdf

Due to storm impacts in 2012 from Tropical Storm Debby and Hurricane Sandy, funds were provided by the Legislature for many congressionally-authorized beach nourishment projects eligible for significant federal rehabilitation assistance.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Beach Management Funding Assistance Program
FY 2013/2014 Financial Summary and Accountability Report
TABLE 7. NEW PROJECTS: DESIGN PHASE/FEASIBILITY STUDIES

Project Name: Walton County Federal Shore Protection Project, $55,652
Western Walton Beach Restoration, $34,925

According to Florida Department of Environmental Protection, Florida Beach Management Program, Long Range Budget Plan –FY 2010-2020:
The Department developed the State of Florida Strategic Beach Management Plan to meet the intent of Section 161.091(2), Florida Statutes to recommend actions that address the critically eroded shoreline on the Atlantic Ocean, Gulf of Mexico and Straits of Florida. The Strategic Plan divides the state into regions and sub-regions based upon geology and sand movement in order to promote regional solutions and cost effectiveness. Local governments may choose to become project sponsors and request state cost-sharing to implement projects consistent with the Strategic Plan. The Strategic Plan was updated by the Department in May 2008. Walton County is a project sponsor for 2 projects listed below.

The Long Range Budget Plan projects the 10-year funding needs for federal, state and local governments necessary to implement the Strategic Plan. The information contained in the Budget Plan is based primarily upon formal projections for funding furnished to the Department from local sponsors, and upon information provided by the USACE Jacksonville and Mobile District Offices.

A summary table of the projects by region is presented in the "Regional Summary" section, which provides funding request totals (federal, state, and local) for each of the next five budget years. The first year of the Budget Plan, FY2010-11, summarizes the Department's Local Government Funding Request submitted to the 2010 Florida Legislature for funding consideration. Years 2-5 of each budget projects the estimated costs of the planned phase. Years 6-10 indicate the anticipated project phase only, as project costs are difficult to estimate in advance more than five years. Funding estimates for FY2011-12 and beyond are subject to revision and revalidation by the Department to reflect changes in project scope, cost estimates, project eligibility and availability of state, local and federal funds.
(http://www.dep.state.fl.us/beaches/programs/pdf/LRBP2-10FIN.pdf)

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Beaches and Coastal Systems

Panhandle Coast (in thousands of dollars)

Project	FY 10/11			FY 11/12			FY 12/13			FY 13/14			FY 14/15			TOTAL	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20
	Federal	State	Local	Federal	State	Local	Federal	State	Local	Federal	State	Local	Federal	State	Local						
Pleistocene Mainland - Okaloosa/Walton Co. Line to Walton/Bay Co. Line																					
[redacted]																					
Walton County																					
Destin/Walton Beach Restoration (Walton) (R1-R23.5)																					
Feasibility	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			C		
Monitoring	0.0	10.4	27.9	0.0	0.0	0.0	0.0	40.8	109.2	0.0	0.0	0.0	0.0	40.8	109.2	338.3		M	M		M
Subtotal	0.0	10.4	27.9	0.0	0.0	0.0	0.0	40.8	109.2	0.0	0.0	0.0	0.0	40.8	109.2	338.3					
Walton County																					
Walton County Beach Restoration (30-A) (R41-R127)																					
Feasibility	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Construction	0.0	8399.0	37001.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45400.0					
Monitoring	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	325.0	0.0	75.0	325.0	0.0	75.0	325.0	1200.0	M		M		M
Subtotal	0.0	8399.0	37001.0	0.0	0.0	0.0	0.0	75.0	325.0	0.0	75.0	325.0	0.0	75.0	325.0	46600.0					

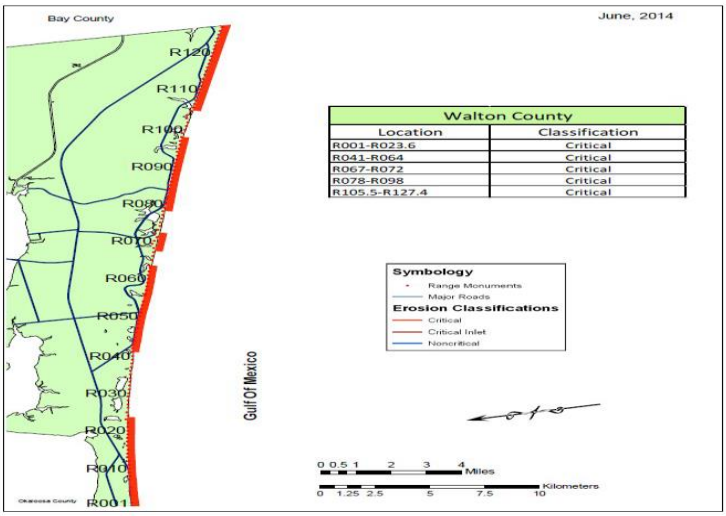
2/1/2010

Panhandle Gulf Coast
Page 2 of 3

As of June 2014, FDEP described critically eroded areas as follows:
Critically eroded area is a segment of the shoreline where natural processes or human activity have caused or contributed to erosion and recession of the beach or dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost. Critically eroded areas may also include peripheral segments or gaps between identified critically eroded areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects.
http://www.dep.state.fl.us/beaches/publications/pdf/CriticalErosionReport.pdf

There are 18 acres out of the 26 acres of Walton County's Beaches that are considered critically eroded as seen in the table below:

Walton	R1 – R23.6	Critical	5.2
Walton	R41 – R64	Critical	4.5
Walton	R67 – R72	Critical	1.0
Walton	R78 – R98	Critical	3.9
Walton	R105.5 – R127.4	Critical	4.2
Total			18.8



Coastal erosion is not a hazard for all the municipalities, Freeport being the exception, but is a serious hazard for South Walton County in the form of beach erosion. North Walton County is also hit hard by riverine erosion, which can be expected with each significant rain and flood event. The probability of some type of Beach and/or Riverine Erosion is high.

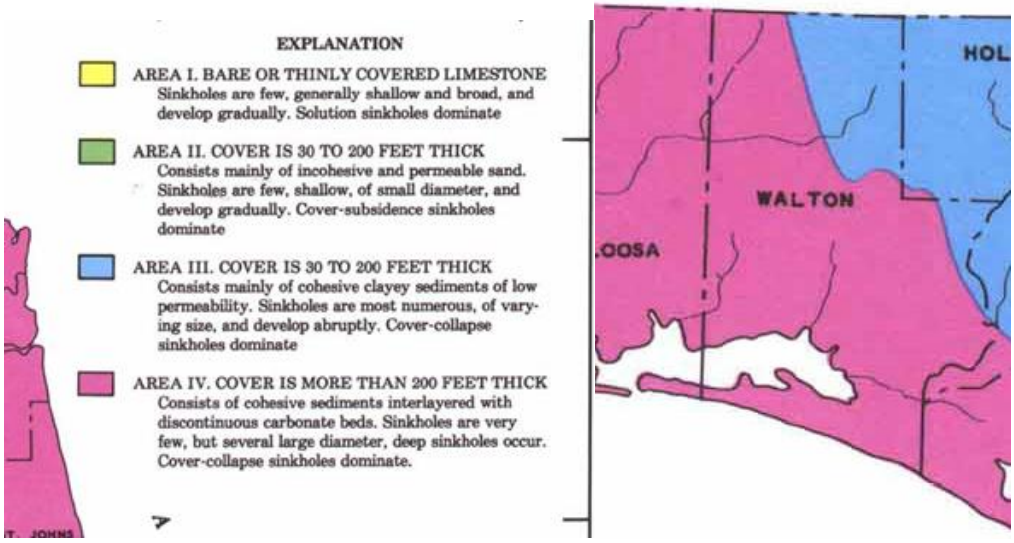
<u>The severity of this type of hazard could result in property damage, reduction in property value, infrastructure damage, utility interruption, and damage to crops / livestock. Beach erosion due to hurricanes and coastal storms, are much more prominent in the southern portion of the County and structure loss and property damage can result in millions of dollars.</u>

3.4.4 Sinkholes

According to the Subsidence Incident Reports_2014 March_WGS84, Sinkholes arrived from geologic data that was developed by the Florida Department of Environmental Protection (FDEP) - Florida Geological Survey (FGS) to carry out agency responsibilities related to management, protection, and development of Florida's natural resources. Although efforts have been made to make the information accurate and useful, the FDEP/FGS assumes no responsibility for errors in the information and does not guarantee that the data is free from errors or inaccuracies, there are 3 sink holes in Walton County as shown below:

COUNTY	LATDEC	TWNSHP	RANGE	SECTION_	QUAD	SINLNGTH	SINWIDTH	SINDEPTH	SLOPE	PROPD	REPAIRED
WALTON	30.689887	0	18W	10	PONCE DE LEON	22	20	7	90	Y	Y
WALTON	30.725441	0	19W	26	CRESTVIEW	10	0	10	0	Y	Y
WALTON	30.477728	1	21W	22	NICEVILLE	5	5	0	0	Y	U

The occurrence of each of the above sinkholes is found below in the same order as above:
9/20/1985: this sink hole damaged a road section of interstate 10 (developed under concrete) in the eastbound lane
7/12/2007: Sinkhole reported on SR 83 at East Burdick Ave., Approx. 10' across and 10' deep. SR 83 closed. No structures impacted. DOT on scene. UPDATE: 7/24/07 - SR 83 Open.
8/11/2007: 5X5 FT Sinkhole opened in minor Rd. County Road, (W. Kathy Lane) Crews Blocked off area, Traffic continued around affected area. County construction will address the filling of the sinkhole.



There has been no sinkhole occurrence within Walton County in the past 5 years. However, if a sinkhole was to occur, depending on the location, could cause property damage and even endanger lives.

Areas that have previously been affected by a sinkhole such as Interstate 10, a major transportation arterial roadway which is the principle east and west trade for the trucking industry. Such road closures, cause huge traffic delays.

The sinkhole reported at East Burdick and SR 83, caused no structure damage but did have the FDOT, Florida Department of Transportation on site assessing the damages to the roadway. The sinkhole was repaired and the road reopened. It is assumed that the 10' x 10' hole was filled. No persons were injured during the incident.

Another sinkhole that was located on West Kathy Lane, just north of State Hwy 20, and west of City of Freeport in the community of Portland. This could have been detrimental to the people in this community; however, no persons or structures were reported hurt or damaged during this incident. A sink hole on or near US Hwy 20 West could upset traffic flow and place a burden on the population west of Hwy 20 trying to commute to work or other appointments in Okaloosa County such as Blue Water Bay or Niceville

The severity of this type of hazard could result in loss of life, property damage, and reduction in property value, utility interruption, and damage to crops / livestock. A sinkhole in the southern portion of the County along the beaches could be much more costly than if it occurred in the northern portion of the County on agriculture property because of the higher density and intensity of south Walton County.

The probability of a sinkhole anywhere in Walton County is low.

3.4.5 Flooding

Flooding caused by localized rainfalls, rainfall associated with Tropical Storms and Hurricanes within the County boundaries, and rainfall associated with storms in neighboring Counties and States can all contribute to local flooding. In 1994, Tropical Storm Alberto caused extensive flooding in Walton County due to rains that fell in Georgia. In 1998, Hurricane Georges also caused extensive flooding in Walton County due to rainfalls in Walton County and in Georgia counties.

Former spring floods have focused attention on the management of the floodplain areas within the County. Mitigation of homes and commercial structures through buyout, relocation or elevation is the only means available to residents to protect their structures. Floods are natural occurrences that become problematic when vulnerable land uses occupy flood-prone lands or when hydrologic systems are altered resulting in changes to patterns of natural flooding. As stated above, a relatively minor tropical storm can cause severe flooding conditions to the County.

Walton County was affected by severe river flood events in 1990 and TS Alberto (1994). The March 1998 (El Nino) flash floods caused nearly 30 inches of rainfall. This flash flood was one of the more devastating events affecting this County. Some homes received a tremendous amount of damage. Many roads and bridges were washed away or were impassable.
(http://ourgeorgiahistory.com/ogh/Tropical_Storm_Alberto)

There have been other river flood events and flash flood events, such as flooding along Black Creek and Shoal River. March and April rains of 2009 caused flooding in both of these areas.

Additional flood events took place in 2013 and 2014. The 2013 flood event which took place in February washed out roads and bridges, and caused flooding around the McKinnon Bridge over Bruce Creek in Walton County. Approximately 8-12 inches of rain fell during a 5 day period, making February 2013 the wettest February on record for this area. Significant areal flooding occurred across Walton County due to prolonged periods of moderate to heavy rainfall. Four day rainfall totals of 8-12 inches were estimated across the county between Feb 22-26. Several creeks overflowed their banks and flooded several bridges and

roadways. Monetary damage was estimated. Most of the damage cost was due to road repair. Several pictures of the flooding were posted on social media.

On 07-06-2013, disastrous areal flooding occurred across Walton county with a large number of county roads flooded. Transportation was severely impacted across the county. A listing of incidences of water over roads or flood-damaged roads in the county included 87 total reports. Preliminary damage estimates for the county were around $11 million.

McKinnone Bridge, Walton County, February 2013.

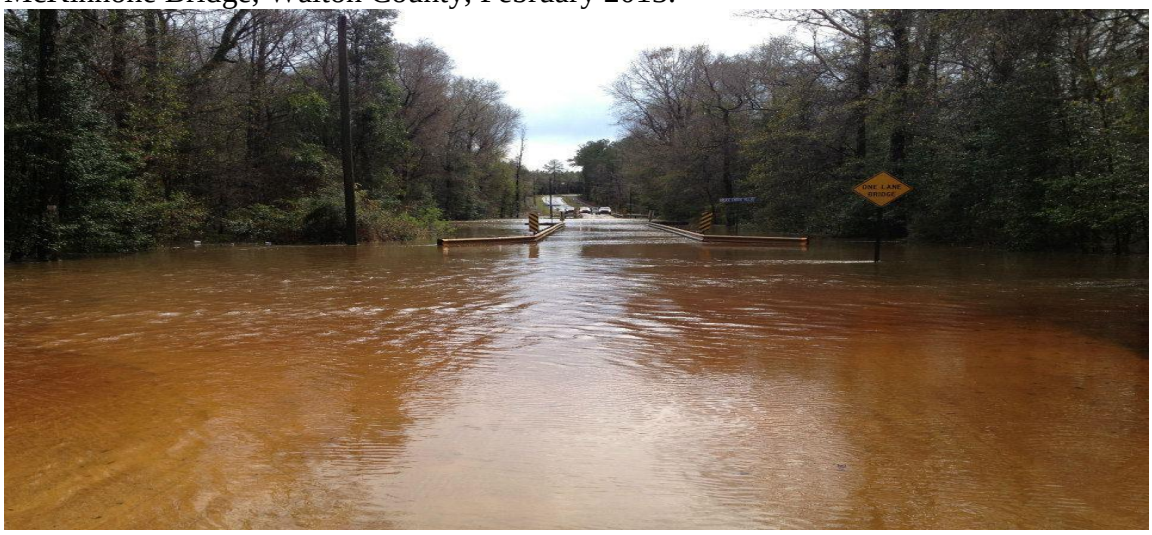


Photo courtesy of WJHG-TV's Chris Smith. http://www.srh.noaa.gov/tae/?n=event-20130222-26-flooding-severewx

In 2014, a historical flash flood event took place on April 29-30, in the North Central Gulf Coast area. The western Florida Panhandle received up to 8 inches of rain on April 29, 2014, and an additional 10-15 inches on April 30, 2014. In some areas there were over 20 inches of rain that fell during a 48 hour duration According to local news articles, the water rose very fast in the Shoal river area, houses were flooded and numerous roads were closed. Emergency officials say the Shoal River rose more than 14 feet in some areas, cresting at 22.7 feet (Appendix D2). Bridges and roads were washed out as well as chest-high water in some homes. Numerous calls came in to County Officials for storm water issues in areas that were not designated in a 100 year flood plain. Many homes were damaged, and many businesses were shut down. Abandoned vehicles littered the streets in many areas of South Walton due to impassible roads. Road damage in the county was estimated at $1,464,696. At least 10 businesses were impacted with damage estimated at approximately $300,000. Additionally there were health issues due to continuous standing water once the storm had past. Reports of septic tank leaks into flooded areas caused additional health hazards.

On August 18, 2014 a flash flood event hit many of the same areas impacted by the July flooding. Highway 30A partially collapsed on the north side over Big Red

Fish Lake due to recent heavy rainfall combined with heavy rainfall in July. Monetary damage was estimated at $500,000.

The August 18, 2014 event also increased water flow on Bruce Creek, the bridge at Indian Creek Ranch Road was displaced. Monetary damage was also estimated at estimated $500,000.
http://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=475878
Flood damage to Walton County from these flood events alone has resulted in millions of dollars in individual and public assistance. For the majority of the state, the primary causes of flooding are hurricanes or tropical storms, which generally occur from June to November during the rainy season.

Because the frequency of the above events happens at least once a year, probability of flooding in Walton County and Freeport is high, yet less likely in the City of DeFuniak Springs and Town of Paxton.

The severity of this type of hazard could result in loss of life, disease outbreak, millions in property damage and value, infrastructure damage, utility interruption, and damage to crops / livestock.

3.4.6 Wildfires (Urban Interface Zone)

While conflagration poses a constant threat to the heavily populated areas within Walton County, there is no history of such an occurrence. The frequency of fire events has increased significantly in the late 1990's and into the new millennium. The near-drought conditions have resulted in many burn restrictions.

Even though there have been reductions in numbers of incendiary fires over the past 20 years, suspected incendiary fires are on the increase and continue to be one of the worst causes of wildland fires in Walton County. Incendiary fires and debris burning are the major focus of the Division of Forestry's fire prevention efforts.

There were two (2) wildland fires in 2007. One was in the area of Seagrove on County Road 30A, May 7, 2007, and encountered approximately 300 acres; the runaway fire that appeared to jump a fire lane from a prescribed burn damaged three homes. The second fire was located in the Blackcreek area just off US. Hwy 20, and encountered approximately 1300 acres, June 7, 2007.
(www.usatoday.com/weather/news/207-05-08 wildfires and
www.disasternews.net/news/article/php?articleid=3158)

On June 15, 2011, The Florida Forest Service responded to a call Thursday afternoon of a woods fire on some vacant land behind South Walton High School. Even though the fire was small it still created a nuisance with smoke Smoke signs were posted along nearby highways including US Highway 331.
http://www.wjhg.com/news/headlines/Walton_County_Wildfire_Under_Control_125666013.html

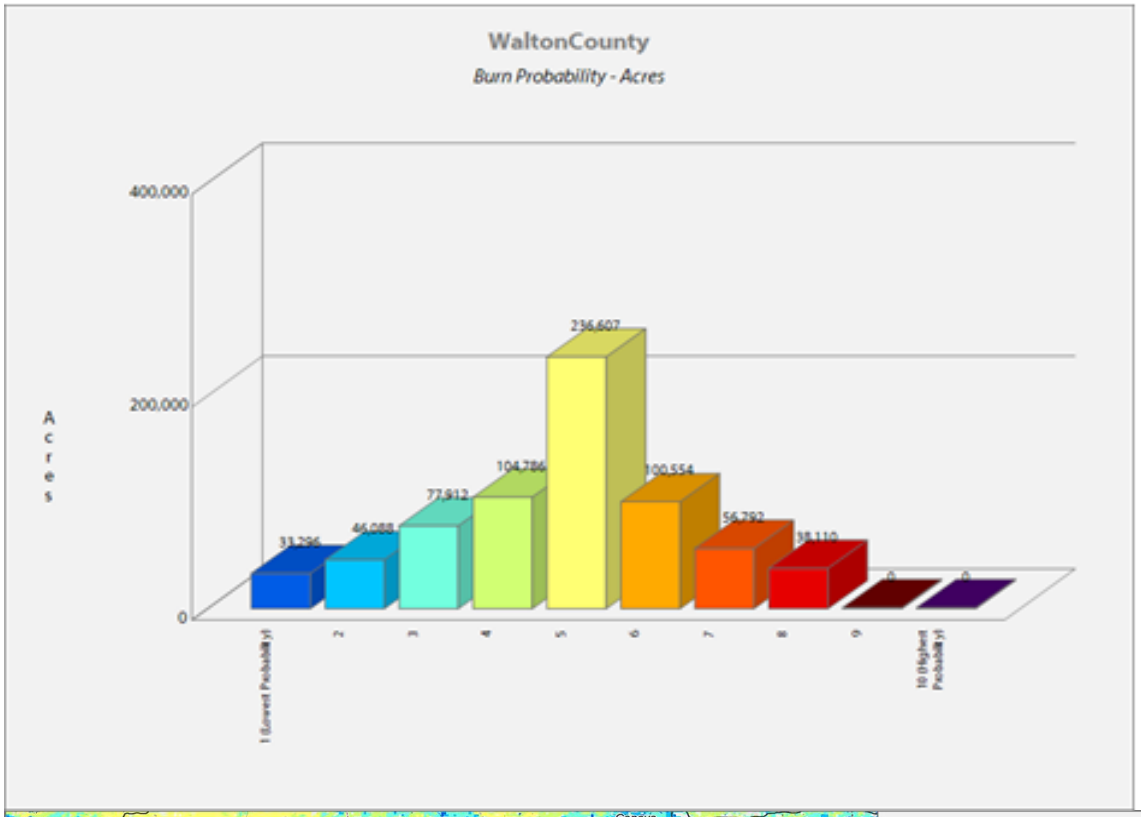
On December 14, 2012, a wildfire which was originally suspected to be approximately 100 acres as reported was for the most part 'contained' and a final estimation of burned wildland acreage 80 acres. The wildfire took place in the vicinity of Brown Road. No one reported being injured and no structures were damaged in the wildfire.

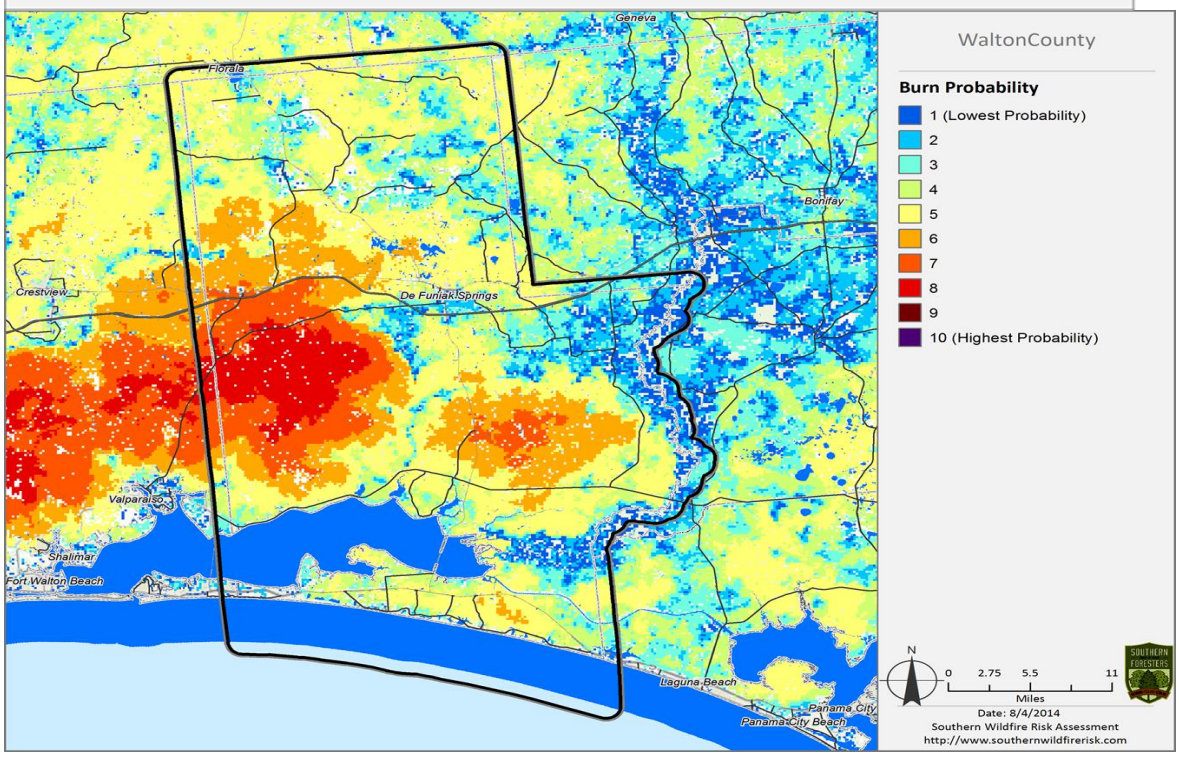
On November 13, 2013, there were several fires that took place, a 3 acre fire off State Road 87, another one Marsh Drive off State Road 20, then a 50-acre burn jumped a plow line and spread to County Road 3280 about 2 miles from SR 20. Each fire was controlled within less than 4 hours. There were no structures damaged and no loss of life.

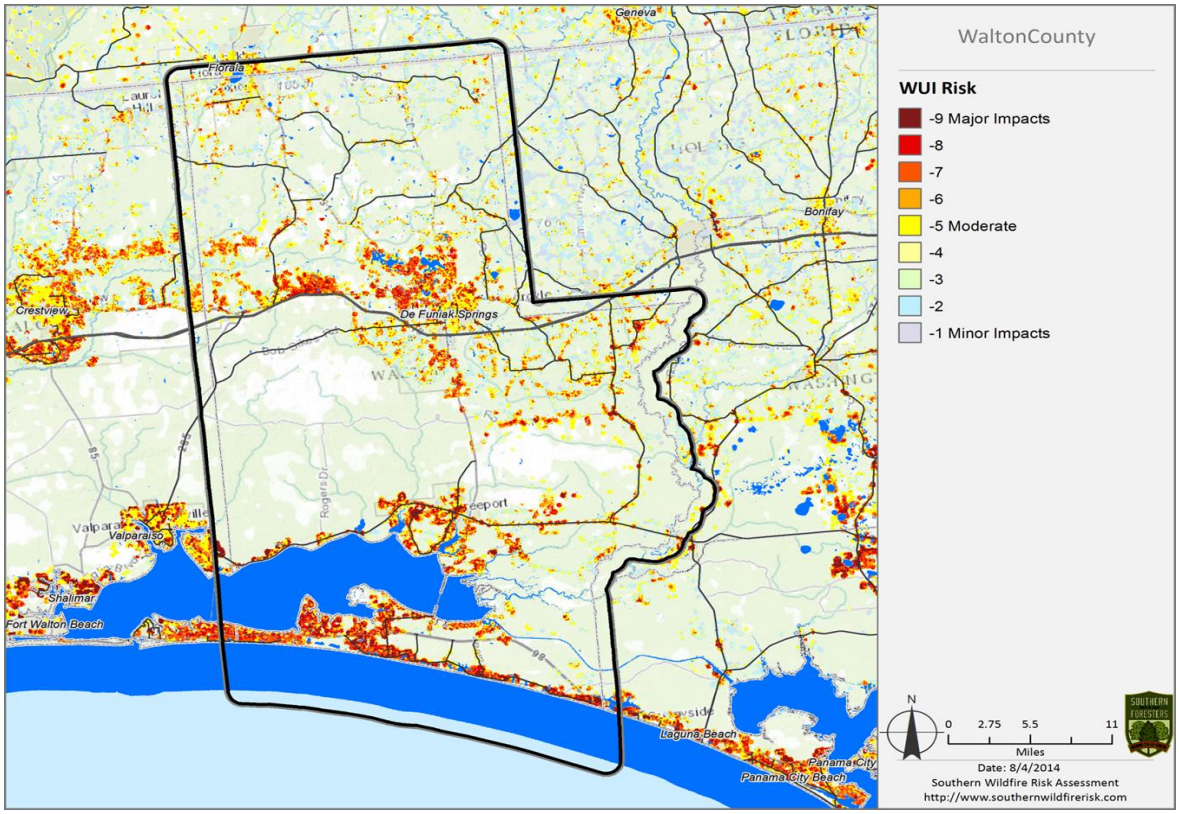
On January 24, 2014, a brush fire burned in Santa Rosa Beach. An estimated 40 firefighters responded to battle the blaze. A 10- to 15-acre fire near Mussett Bayou Road in Santa Rosa Beach started about 4:30 p.m. on January 24th. Then a second fire started just after 3 a.m. Friday, near Nuit Road in Santa Rosa Beach. The "fast-moving" fire threatened several structures and damaged a vacant home, according to the Fire District, about 10 acres were burned. There was no loss of life in the incident. http://www.nwfdailynews.com/local/firefighters-battle-two-brush-fires-in-south-walton-1.267590

In addition to the above incidents, the Florida Forest Service, Florida Department of Agriculture and Consumer Services provided a list of registered fires that took place in Walton County from 2010-2014 (Appendix D3) The Forest Service was unable to provide a dollar amount for the damages.

The severity of this type of hazard could result in loss of life, utility interruption, death of wildlife, reduction in sivilculture, property damage, property value, and damage to crops / livestock.


WaltonCounty
Burn Probability - Acres
400,000
200,000
0
Acres
33,296
46,088
77,912
104,786
236,607
100,554
56,792
38,110
0
0


Geneva
Florala
Bonifay
Crestview
De Funiak Springs
Valparaiso
Shalimar
Fort Walton Beach
Laguna Beach
Panama City
Panama City Beach
WaltonCounty
Burn Probability
1 (Lowest Probability)
2
3
4
5
6
7
8
9
10 (Highest Probability)
N
0 2.75 5.5 11
Miles
Date: 8/4/2014
Southern Wildfire Risk Assessment
http://www.southernwildfirerisk.com



The probability rating for Walton County and its municipalities are Medium.

3.4.7 Dam Failure

There are man-made lake dams and farm pond dams throughout Walton County. Lakes within the County that could have a potential dam break that would cause substantial damages are as follows: Kings Lake, Lake Holley, and Juniper Lake. Many of these dams are surrounded by residential subdivisions. The NWFWMD has provided a list of the permitted dams for Walton County. There are 134 dams within Walton County (M-D01) There are no reported issues with these dams; however, the potential is possible due to frequent flood events, although the probability is low.

Highest Dam Height in Walton County according to National inventory of dams 2010 is 25'. This dataset contains the Florida subset of the 2010 National Inventory of Dams (NID). The NID is a congressionally authorized database, which documents dams in the U.S. and its territories. The NID was most recently reauthorized in the Dam Safety Act of 2006. The current NID, published in 2010, includes information on 84,000 dams that are more than 25 feet high, hold more than 50 acre-feet of water, or are

considered a significant hazard if they fail. The NID is maintained and published by USACE, in cooperation with the Association of State Dam Safety Officials (ASDSO), the states and territories, and federal dam-regulating agencies. The database contains information about the dam's location, size, purpose, type, last inspection, regulatory facts, and other technical data. The information contained in the NID is updated approximately every two years. This layer is an update to the FGDL layer EPADAM.shp (1996).
http://dnrc.mt.gov/wrd/water_op/dam_safety/dam_owners/small_dam_hazard_assesment_inventory.pdf

There have been no dam failures within the past or the past five years in Walton County or its jurisdictions. No new dams have been built in Walton County in the past 5 years.

The severity and extent of this type of hazard could result in loss of life, reduction in property value, property damage, infrastructure damage, utility interruption, and damage to crops / livestock. Any dam failure can cause destruction of property and life; however, no data is available for effective cost estimates of down stream properties.

3.4.8 Drought/Heat Waves

Walton County was in "severe drought" range as determined by the National Weather Service for the months of June – September 1999. According to the National Drought Mitigation Center, from August 2000 until September 2009 there have been 89 reported drought impacts for Walton County. These impacts include agriculture, fire, water/energy, environmental, social and other. Drought increases public water consumption because of additional landscape irrigation on public and commercial sites. As determined by the NWFWMD, drought is a serious component in our water resource management. A portion of Walton County lies within the Water Resource Caution Area (WRCA) designated by the NWFWMD, in rule 40A-2.904, F.A. C. Walton County adopted a Xeriscape Ordinance into the Walton County Land Development Code in 2008 (Appendix D4) to help with conservation efforts.

Additionally, the NWFWMD published Water Supply Projections 2005-2025. According to the report, the estimated drought-related public supply increase from County to County ranged from minimal to severe, with a District-wide increase of 13 Mgal/d (Appendix D5).

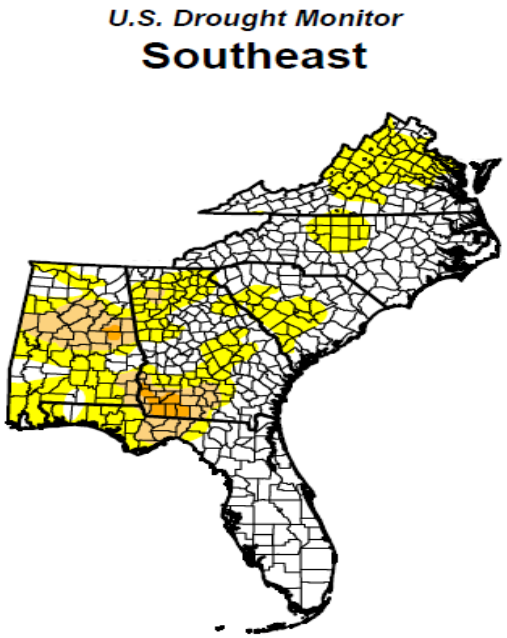
Currently, Walton County does not have a water shortage issue according to NWFWMD. With the County's increasing population, it is important that the County and municipalities mitigate, with conservation efforts, for possible disasters that lie ahead. The following drought fact sheet, also expresses the importance of planning for this type of possible disaster (Appendix D6), (Northwest Florida Water Management District Fact Sheet).

In the summer of 1998, a severe heat wave affected the Southern United States.

Drought and extreme heat affected a significant area of the south from Texas and Oklahoma, eastward to the Carolinas, Georgia, and Florida. Florida had approximately $175 million in losses for agriculture (crops, cattle, etc). Overall, economic costs were probably two to three times the agricultural losses. In addition, at least 200 heat-related deaths occurred nationwide.

Figure 3.4.8 Frequency of Droughts

The table below lists the number of years that the United States has had severe or extreme drought in the 100 years from 1896 to 1995, based on the Palmer Drought Severity Index (PDSI). The data is further divided and analyzed based on NOAA "river basins," which do not always correspond to geographical river basins (particularly in the case of the "California" river basin division). The chart shows that some part of the United States has experienced a severe or extreme drought in each year from 1896 to 1995, and that in 72 years, droughts covered more than 10% of the country. At the river basin level, the chart shows that some part of the Missouri River Basin has experienced a severe or extreme drought in 90 of the 100 years, but the Missouri is a particularly large basin. The figure below is a graphic depiction of the data.



October 7, 2014
(Released Thursday, Oct. 9, 2014)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

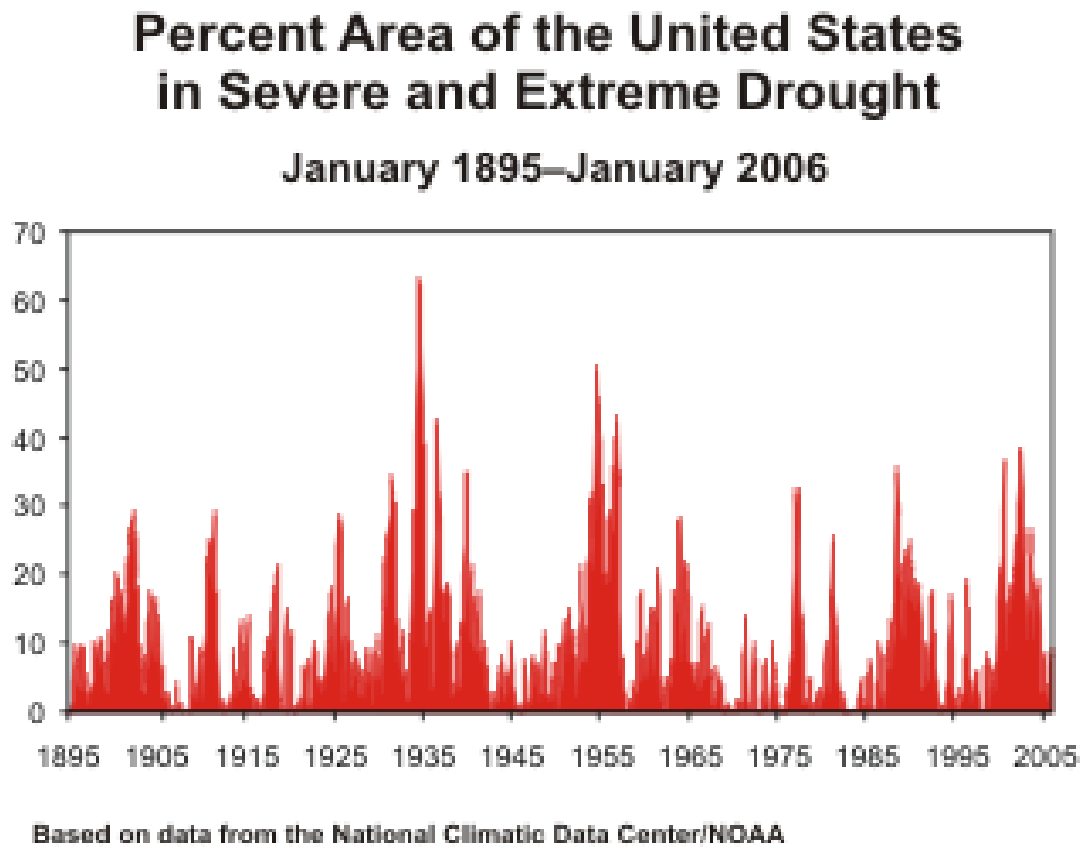
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	59.26	40.74	9.02	1.20	0.00	0.00
Last Week 9/30/2014	54.60	45.40	9.31	1.20	0.00	0.00
3 Months Ago 7/8/2014	86.57	13.43	0.23	0.00	0.00	0.00
Start of Calendar Year 12/31/2013	91.82	8.18	0.00	0.00	0.00	0.00
Start of Water Year 9/30/2014	54.60	45.40	9.31	1.20	0.00	0.00
One Year Ago 10/8/2013	91.26	8.74	0.00	0.00	0.00	0.00

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

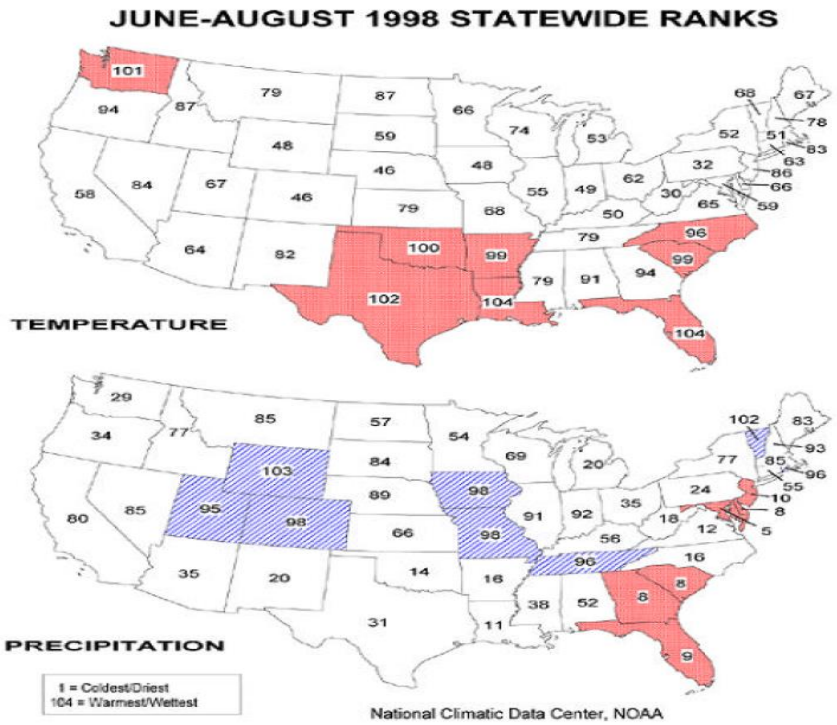
Author:
Mark Svoboda
National Drought Mitigation Center

http://droughtmonitor.unl.edu/



http://drought.unl.edu/risk/us/compare.htm

Figure 3.4.8 (a) National Climatic Data Center Technical Report No. 98-03



Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1998. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 95-104) are shaded.

<u>The severity of this type of hazard could result in loss of life, utility interruption, and damage to crops / livestock.</u>

There have been some reported drought conditions in Walton County and within the County's municipalities.

On October 31, 2010, it was reported that severe drought conditions (D2) developed across portions of Calhoun, Bay, and southern Walton counties on October 19th and continued into November.

On July 1, 2011, the National Climate Data Center reported:
The month started with exceptional drought conditions (D4) across portions of Walton, Holmes, Washington, Bay, Jackson, Calhoun, extreme northern Liberty, northern Gadsden, extreme northern Leon, extreme northern Jefferson, and extreme northern Madison counties. Extreme drought conditions (D3) were present over most of Gulf, Franklin, Liberty, Wakulla, Leon, Jefferson, Madison, and extreme northern Lafayette counties. Severe drought conditions (D2) were present over most of Taylor and Lafayette counties. Beneficial rain fell during the middle of the month and drought conditions improved by roughly one category in most areas by the end of the month and continued into August, although D2 conditions remained prevalent across Taylor and Lafayette counties.

There has been moderate drought but no severe droughts or heatwaves in Walton County or its jurisdictions in the past five years. Any drought or heatwave would affect all of Walton County and could possibly be devastating to the northern part of the unincorporated County where most of the farming communities are located.
http://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=319950

April 1, 2012, drought conditions expanded across the Florida Panhandle and Big Bend during April. By the end of the month, the entire region was in at least D2 severe drought status, and portions of southeast Taylor, Lafayette, and Dixie counties were in D4 exceptional drought status.
http://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=369245

No fatalities or crop loss was reported with any of the above drought conditions within Walton County or its jurisdictional partners as can be seen below:

Storm Events Database

Data Access
- Search
- Bulk Data Download (CSV)
- Storm Data Publication

Documentation
- Database Details
- Version History
- Storm Data FAQ
- NOAA's NWS Documentation
- Tornado EF Scale

External Resources
- NOAA's SPC Reports
- NOAA's SPC WCM Page
- NOAA's NWS Damage Assessment Toolkit
- ESRI/FEMA Civil Air Patrol Images
- SHELDUS
- USDA Cause of Loss Data

Data Export: (current results)

Storm Events Database

Search Results for Walton County, Florida

Event Types: Drought

Walton county contains the following zones:
'North Walton', 'Central Walton', 'South Walton'

28 events were reported between 01/01/2010 and 12/31/2014 (1826 days)

Summary Info:

Number of County/Zone areas affected:	3
Number of Days with Event:	15
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

*Click on **Location** below to display details.*
Available Event Types have changed over time. Please refer to the Database Details for more information.

Sort By: Date/Time (Oldest)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Map	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	10/19/2010	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	11/01/2010	00:00	EST-5	Drought		0	0	0.00K	0.00K
CENTRAL WALTON (ZONE)	CENTRAL WALTON (ZONE)	FL	05/10/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	05/10/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	06/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
CENTRAL WALTON (ZONE)	CENTRAL WALTON (ZONE)	FL	06/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
CENTRAL WALTON (ZONE)	CENTRAL WALTON (ZONE)	FL	07/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	07/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
COASTAL WALTON (ZONE)	COASTAL WALTON (ZONE)	FL	08/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	08/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
COASTAL WALTON (ZONE)	COASTAL WALTON (ZONE)	FL	09/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	09/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	10/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
CENTRAL WALTON (ZONE)	CENTRAL WALTON (ZONE)	FL	10/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	11/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
COASTAL WALTON (ZONE)	COASTAL WALTON (ZONE)	FL	11/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	12/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
CENTRAL WALTON (ZONE)	CENTRAL WALTON (ZONE)	FL	12/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	01/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
COASTAL WALTON (ZONE)	COASTAL WALTON (ZONE)	FL	01/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	02/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
COASTAL WALTON (ZONE)	COASTAL WALTON (ZONE)	FL	02/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	04/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
CENTRAL WALTON (ZONE)	CENTRAL WALTON (ZONE)	FL	04/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	05/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
COASTAL WALTON (ZONE)	COASTAL WALTON (ZONE)	FL	05/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
COASTAL WALTON (ZONE)	COASTAL WALTON (ZONE)	FL	06/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
SOUTH WALTON (ZONE)	SOUTH WALTON (ZONE)	FL	06/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

In addition, there were no drought conditions in 2013 and 2014.

The probability of this type of hazard is low for all of Walton County.

3.4.9 Winter Storms/Freezes

Florida has experienced a number of severe or disastrous freezes, when the majority of the winter crops were lost. The lowest temperature ever recorded in the state is -2ºF (National Climatic Data Center). Since December 1889, there have been at least 22 recorded severe freezes; the most recent being in 1996, when a Presidential Disaster Declaration was issued for crop losses exceeding $90 billion.

On average, wintertime lows dip down to near 40 degrees Fahrenheit at Tallahassee in January to 65 °F (18 °C) in Key West while daytime highs range from 64 °F (18 °C) at Tallahassee to 75 °F (24 °C) at Key West. Predominant easterly winds across southern Florida keep temperatures moderate during the winter, as the nearby Gulf Stream modifies cooler air moving in from the northeast and east. El Niño winters tend to be cooler due to increased cloud cover, but tend to have fewer freezes. Despite its warm, southern location, there have been freezes detrimental to citrus production in North and Central Florida's history in the years 1835, 1894-1895, 1899, 1917, 1934, 1940, 1957, 1962, 1977, 1981, 1983, 1985, 1986 and 1989. The record low Climate of Florida. (2009, September 8). Retrieved 15:24, September 8, 2009, from temperature for Florida was −2 °F (−18.9 °C) at Tallahassee in 1899.

The earliest recorded occurrence of snow or sleet occurred in 1774. The most recent occurrence of snow was on January 21, 2009. The state record for snowfall is 5 inches (125 mm), set in northern Florida during January 1800. The earliest in the fall snow or sleet occurred was during the Late November 2006 Nor'easter on November 21 across central Florida. The latest occurrence of snow or sleet in the spring fell on April 8, 2007. A trace of snowfall has been recorded as far south as Homestead, mainly during a January 19, 1977 event.
Climate of Florida. (2009, September 8). In Wikipedia, The Free Encyclopedia.
http://en.wikipedia.org/w/index.php?title=Climate_of_Florida&oldid=312602079

Events as referenced above can cause major economic hardship for local farmers and agriculture related businesses.

On April 3, 2003, U.S. Small Business Administration (SBA) declared 13 Florida Counties, including Walton County, because of freezing temperatures that occurred beginning November 2002 and continued through February 2003. The funds were available to small businesses and small agricultural cooperatives that had significant economic impact caused by the freezing temperatures. Loans were not eligible to apply to farmers (Appendix D7).

> MIAMI/JACKSONVILLE, FL - As a result of freezing temperatures that occurred beginning November 2002 and continuing through February 2003, small businesses and small agricultural cooperatives located in Bay, Brevard, Broward, Charlotte, Citrus, Dade, Duval, Franklin, Gulf, Hillsborough, Okaloosa, Santa Rosa, and Taylor Counties and the contiguous Counties of Baker, Calhoun, Clay, Collier, DeSoto, Dixie, Escambia, Glades, Hardee, Hendry, Hernando, Highlands, Indian River, Jackson, Jefferson, Lafayette, Lee, Levy, Liberty, Madison, Manatee, Marion, Monroe, Nassau, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Sarasota, Seminole, St. Johns, Sumter, Volusia, Wakulla, Walton, and Washington in theState of Florida; and Covington and Escambia Counties in the State of Alabama are now eligible for lowinterest economic injury disaster loan assistance from the U. S. Small Business Administration (SBA), Disaster Assistance Program, according to SBA Disaster Area Director Michael C. Allen.
> (www.floridadisaster.org/.../MiamiTornadoes/SBAdeclarationRelease.pdf)

The Division of Emergency Management "SERT" issued on December 6, 2006, an official release requesting residents across north Florida to prepare for record cold temperatures and low wind chills. Temperatures were forecasted to be in the 20s across most of north Florida with wind chills into the teens during that night.

In January of 2014, a once in a decade ice storm hit Northwest Florida The storm shut down miles of Interstate Highway 10, (over 100 miles) closed schools and businesses. Due to the rareness of such storms the County and its jurisdictions were unprepared. The Florida Department of Transportation and the County's Public Works crews, as well as the other jurisdictional partner's transportation crews worked desperately to put sand on bridges to keep roads passible. Residences were urged to stay home and off the roads due to the unsafe conditions. Residences were warned of falling tree limbs and downed power lines caused by the ice buildup. The predominant precipitation types were sleet and freezing rain. Total liquid equivalent estimates were estimated to be greater than a quarter inch across portions of most of the Florida Panhandle counties. Most bridges were closed at one point from Tallahassee westward, and during the peak of the event, there was no road access to cross over the Apalachicola River. This led to very large transportation impacts with significant monetary losses for some trucking companies. Approximately, $133,000 worth of property damage occurred.

Section 4 Assessing Vulnerabilities

Requirement §201.6(c) (2) (ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c) (2) (i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

A risk assessment is measuring the potential loss from a hazard event by assessing the vulnerability of buildings, infrastructure and people. It identifies the characteristics and potential consequences of hazards, how much of the community could be affected by a hazard, and the impact on community assets. A risk assessment consists of three components: hazard identification, vulnerability analysis and risk analysis. Technically, these are three different items, but the terms are sometimes used interchangeably.

Previously discussed have been the IFR requirements §201.6 (c) (2) (i) which has covered previous occurrences, and probability of future events. The following information will cover IFR requirements for §201.6(c) (ii) (A) & (B) and §201.6 (C) (2) (iii).

The LMS working group has identified several hazards that are addressed in the County's Hazard Mitigation Plan. These hazards were identified through a process that utilized input from the LMS working group, public, FEMA, and research of past declarations in the County, and assessments completed by the State and County Emergency Management Agencies.

4.1 Hazard Identification and Vulnerabilities, Overview

The following table represents the hazards and vulnerability for Walton County and its jurisdictional partners.

Figure 4.1 Hazard Identification and Vulnerability

HAZARD	HOW IDENTIFIED	WHY IDENTIFIED/ JURISDICTION	SOURCE	VULNERABILITY
Hurricanes & Coastal Storms	Review of past disasters/Weather Reports/County Emergency Management Risk Assessments	South Walton County is hit approximately every 3 years by a hurricane/life and safety/ economic hardship for public. ***JURISDICTION*** *Overall County*	Fema/Cert/New spaper/ Reports from FDEP/ Reports from CORPS of Engineers	People, utilities, transportation facilities, and all other structures located in the unincorporated southern portion of the County are most vulnerable to Hurricanes and Coastal Storms. The severity of these storms determines the amount of vulnerability to structures in the other participating jurisdictions. A Category 4 or 5 Hurricane could cause total devastation to all of Walton County, including loss of life, destruction of structures, utilities and infrastructures.

Severe Thunderstorms & Tornadoes	Review of past disasters/Weather Reports/County Emergency Management Risk Assessments	Walton County and its municipalities are under a severe thunderstorm watch and/or warning repetitively throughout a year/life and safety ***JURISDICTION*** *Overall County*	Weather Service/ Radio/ Newspaper	The County and its municipalities are equally vulnerable to damages, which are caused from lightning, high winds, hail, to flash flooding from severe thunderstorms. People, above ground structures, infrastructure, utilities and critical facilities are all vulnerable to these common events.
Coastal & Riverine Erosion	Input from Corps of Engineers/Input from Conservation Agency/Input from FDEP	All jurisdictions have water bodies that are subject to erosion; *most prominent are the unincorporated areas of the County* along Shoal and, Choctawhatchee River, Choctawhatchee Bay and the Gulf of Mexico. Property damage/water quality/life and safety ***JURISDICTION*** *City of Freeport and Unincorporated Walton County*	Reports from NWFWMD, Reports from Corps of Engineers, Reports from FDEP	Riverine Erosion is normally notable after an extensive time period, with adequate warning to protect life; however, structure damage can occur. Coastal Erosion can occur quickly upon the arrival of a hurricane or coastal storm, causing major damage to structures, utilities, and infrastructure. The Choctawhatchee Bay is most susceptible to sedimentation from its contributories' such as Black Creek and Choctawhatchee River, causing poor water quality within the Bay.
Sinkholes	No new sinkholes have occurred in the past 5 years	There are sinkholes within this region/life and safety ***JURISDICTION*** *Overall County*	News reported hazard	A sinkhole could occur anywhere in the County; however, no occurrences have been noted, If such an occurrence did happen it would encounter any person, structure, utility and infrastructure located within its range or diameter.
Flooding	Review of past disasters/Weather Reports/County Emergency Management Risk Assessments Identification of NFIP repetitive loss properties in the County and municipalities	Walton County has Coastal Properties and Rivers, as well as properties located within a 100 year flood plain/life and safety ***JURISDICTION*** *City of Freeport & Unincorporated Walton County*	FEMA FIRM maps	All persons, structures, utilities, infrastructure are vulnerable to flash floods within a flood plain area through the Walton County. These risks are increased due to the number of water bodies within the County, including Rivers Creeks, Bay and the Gulf of Mexico.
Wildfires	Review of past disasters/Newspaper/ County Emergency Management Risk Assessments	Walton County has vast forest/ timber land /conservation lands/state park areas/life and safety ***JURISDICTION*** *City of Freeport & Unincorporated Walton County*	Conservation Agency /Fire Wise	Forest, Agriculture, People, structures, utilities are susceptible to wild fires
Dam Failure	Research (no reported hazards for Walton County)	There are lake dams and farm pond dams within the County/life and safety/ flooding potential ***JURISDICTION*** *Unincorporated Walton County*	GIS/ Public input/ NWFWMD	Farm Ponds, Residential Land Value, Structures, Infrastructure, and utilities are vulnerable to these events

Drought/ Heat Wave	Review of past disasters/Weather Reports/County Emergency Management Risk Assessments	Agriculture concerns for farmlands/life and safety ***JURISDICTION*** *Overall Walton County*	Weather Service/ Newspaper/ Radio	Loss of Life, Agriculture Related Economic Hardship
Winter Storms/ Freezes.	Review of past disasters/Weather Reports/County Emergency Management Risk Assessments	Agriculture concerns for farmlands/life and safety ***JURISDICTION*** *Overall Walton County*	Weather Service/ Newspaper/ Radio	Loss of Life, Agriculture Related Economic Hardship, Power Failure(utilities)

4.2 Addressing Repetitive Loss Properties

Requirement § 201.6 (c) (2) (ii): [the risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

In response to mounting losses from flooding nationwide, the United States Congress initiated the National Flood Insurance Program in 1968. The program is administered through FEMA. Under this program, FEMA produces maps, which show areas subject to various levels of flooding under different conditions. This flood risk information is based on historic, meteorological, hydrologic, and hydraulic data, as well as open-space conditions, flood control mechanisms, and development. This information can be used to identify structures subject to repetitive flood losses. The Federal Emergency Management Agency defines repetitive loss as: Properties that have had two or more claims of more than $1,000 paid by the National Flood Insurance Program (NFIP) within any 10-year period since 1978. Although some of these properties have had mitigation measures applied to them, most remain at risk of flooding.

A severe repetitive loss property is a structure that:

(a) Is covered under a contract for flood insurance made available under the NFIP; and

(b) Has incurred flood related damage

(i) For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or

(ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

If a property was in a (Special Flood Hazard Area) SFHA and now is outside of the mapped floodplain, it's possible it has been mitigated from repetitive flooding and the record should be updated to reflect this mitigation.

From the evaluation of the 2009 NFIP RLP list, 46 of the repetitive loss properties occurred during 1998 were not repeated in the 2004 and 2005 coastal storms.

As part of Walton County's acceptance into the Community Rating System (CRS) Walton County staff (GIS, Flood Plain Manager) is re-evaluating the 271 properties on the NFIP 2013 repetitive loss list by cross referencing the 2014 property rolls to see which of these properties are currently vacant, showing that the repetitive loss structure has been removed, and then cross referencing the parcel identification numbers for the repetitive loss properties to building permits issued with the past 5 years, in which planning and building has required elevation certificates, showing that these properties are now above the required flood elevation. This review also provided that there are 8 non residential, commercial properties consisting of office, restaurant, stores and churches use per Occupancy A from FEMAs RL list; and 163 residential properties, all of which are located within the unincorporated area of the County.

This review provided that 12 of the current repetitive loss properties are currently vacant. Another 7 parcels either had demolition permits and/or were issued additional permits under the review process of requiring elevation certificates. The Flood Plain Manager has a list of these properties which have not been provided in this document for protection of privacy. As a continuance of the required process to remove the repetitive loss properties from the NFIP RLP list, the Flood Plain Manager will complete the necessary NFIP Repetitive Loss Update Worksheets (AW-501).

Also, the Flood Plain Manager with assistance from GIS, Planners and technical staff, sent out letters to all the repetitive loss areas as part of our acceptance into the CRS program. The Flood Plain Manager will continue to yearly evaluate these areas and send out information on mitigating these properties.

According to the information provided from the planning and development departments of the municipalities within the County, there are *no repetitive losses within their areas*.

A map of the current repetitive loss properties are on file as well as FEMA RL list, but have not been placed in this document to protect the privacy of the property owners.

HMGP Mitigation of Properties:
Through the HMGP efforts Walton County was allowed to mitigate the following properties.

Hurricane Alberto, 1994 Seventeen properties were bought–out from the HMGP 1035 for Alberto (Appendix E1).

Hurricane Opal, 1995 eight properties were bought-out under the HMGP 1069 for Opal (Appendix E2).

Hurricane George, 1998 eight properties were bought-out under the HMPG 1249 for George (Appendix E3).

Two properties were acquired from the 1195 El Nino HMPG contract.

Additionally, the County has used the FMA Program to elevate two properties that have been repetitively damaged (Appendix E4).
(Note: Above lists were provided by Walton County Grants Department.)

The following strategies have been taken to diminish the counts for repetitive loss.

- The County and its jurisdictional partners participate in the NFIP;
- The County and its jurisdictional partners use the FEMA FIRM Maps to review developments and construction /building permits (M-H01, M-J07);
- The County has adopted a revised flood plain ordinance as of January 28, 2014 (Ordinance 2014-05) (Appendix E5); the cities of Walton County also have adopted flood plain ordinances (Appendix E6);
- The City of DeFuniak Springs has adopted a new flood plain ordinance (Ordinance 833)(Appendix E7)
- The City of Freeport has adopted 2 Articles in their Land Development Codes, Article 2, Administration and Enforcement and Article 4, Resource Protection Standards (Appendix E8).
- The County now requires three building elevation certificates certified by a licensed surveyor on properties allowed to build in a flood zone.
- The County's Flood Plain Manager reviews all development and building permits within a flood zone.
- The County's Engineering Department reviews all developments for storm water compliance;
- The County's Environmental Department reviews all structures related to a sensitive environmental areas.
- The County follows FEMA CFR 44 guidelines for construction;
- The County has revised the elements within the County's Comprehensive Plan to incorporate local mitigation strategy measures and policies.

Per the Walton County Comprehensive Plan, Coastal Zone, and Conservation Element:

> Objective C-2.4: To enhance and accommodate post disaster redevelopment. In order to reduce or eliminate exposure of human life and public and private property to natural and manmade hazards, the County will implement the recommendations of the County's Local Mitigation Strategy (LMS) and prepare a post-disaster redevelopment plan.

The County adopted a Post Disaster Redevelopment Plan as of November 13, 2012, that is located on the County's Website at:
http://www.co.walton.fl.us/DocumentCenter/Home/View/6236.

RESOLUTION
2012-69

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF WALTON COUNTY ADOPTING A POST DISASTER REDEVELOPMENT PLAN (PDRP); AND SETTING AN EFFECTIVE DATE.

NOW BE IT RESOLVED by the Board of County Commissioners of Walton County, Florida, as follows.

1. **Authority; Intent**

Walton County is located in an area that is vulnerable to an array of natural and man-made disasters. Pursuant to Objective C-2.4, of the Walton County Comprehensive Plan, Walton County has the authority and is required to maintain a Post Disaster Redevelopment Plan. The purpose of the Post Disaster Redevelopment Plan is to provide Walton County with a single reference for guiding decision-making during the difficult long-term disaster recovery period and to detail the actions that can be taken before and after a disaster occurs to help speed the recovery and redevelopment process. Walton County was awarded grant funds from FEMA through the State of Florida Division of Emergency Management to develop the Post Disaster Redevelopment Plan that complies with County, State, and Federal requirements.

2. **Adoption of Plan**

The Post Disaster Redevelopment Plan, as approved by the Florida Division of Emergency Management on June 12, 2012, is consistent with Objective C-2.4, of the Walton County Comprehensive Plan. Therefore, the Board hereby adopts the Walton County Post Disaster Redevelopment Plan, as approved by the Florida Division of Emergency Management on June 12, 2012. A copy of the adopted Plan can be viewed at the Planning & Development Offices at 31 Coastal Centre Blvd., South Walton Courthouse Annex, Santa Rosa Beach, FL 32459, (850) 267-1955.

3. **Effective Date**

This resolution shall become effective immediately upon its adoption.

PASSED and ADOPTED on November 13, 2012.

BOARD OF COUNTY COMMISSIONERS
WALTON COUNTY, FLORIDA

Scott A. Brannon, Chairman

Attest: Martha Ingle, Clerk

4.3 Identifying Structures

Requirement § 201.6 (c) (2 (ii) (A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area…

Walton County like other coastal counties in the Florida Panhandle has experienced hurricanes, flooding, storm surge, wildfire and other hazards. This experience can be illustrated by maps from the GIS, based on storm surge model and wind speed delineations as provided by the dataset that was created to delineate wind speed lines for Walton County based on local landmarks determined by the Walton County Building Department. This data was created at the request and under the supervision of the Walton County Building Official using local landmarks and wind speed lines supplied by the state of Florida per section 1609 in the 2010 Florida Building Code. This data was provided to the state when approved by local building official on 2/29/2012.

The County's GIS Department has used USDA Soils Layer, SLOSH, Federal Emergency Management Agency Flood Insurance Rate Map 2010, repetitive loss properties supplied by FEMA, and the layer provided from Walton County Property Appraiser's data, to assemble the maps to represent the hazard potential for critical and vulnerable structures for Walton County and its municipalities (M-J04, M-J08, M-J07, M-J01 & M-J02):

4.3.1 Hurricanes and Tropical Storms

A hurricane is the County's worst natural hazard. *Storm surge and winds* as well as the spawned tornadoes and torrential rains can wreak havoc on a community.
An overall assessment for the County was taken (including municipalities) of the structures that were most vulnerable to storm surge, for a 1-5 hurricane. The following table represents the residential and commercial structures, and their values that lie within those surge areas, including the number of critical and vulnerable facilities.

Storm Surge Zones					
Category 1 Hurricane					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	116	0	4,266	4,382
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	26	0	2,243	2,269
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$16,613,808	$0	$1,835,500,124	$1,852,113,932
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$1,976,467	$0	$482,712,550	$484,689,017
Number of Critical Facilities in affected area	0	4	0	9	13
Number of Vulnerable Facilities in affected area	0	0	0	0	0
Approximate Acreage	0	311	0	73701	74011

TOTAL number of affected structures		2,282

Category 2 Hurricane (includes Category 1 data)					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	128	0	5,542	5,670
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	27	0	2,759	2,786
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$17,489,178	$0	$2,207,794,254	$2,225,283,432
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$1,994,175	$0	$610,654,770	$612,648,945
Number of Critical Facilities in affected area	0	5	0	12	17
Number of Vulnerable Facilities in affected area	0	0	0	3	3
Approximate Acreage	0	436	0	77555	77990
TOTAL number of affected structures					2,806

Category 3 Hurricane (includes Category 1 and 2 data)					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	173	0	12,164	12,337
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	34	0	6,103	6,137
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$19,944,467	$0	$3,646,367,995	$3,666,312,462
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$2,390,068	$0	$1,292,724,836	$1,295,114,904
Number of Critical Facilities in affected area	0	6	0	49	55
Number of Vulnerable Facilities in affected area	0	0	0	11	11
Approximate Acreage	0	777	0	87768	88545
TOTAL number of affected structures					6,203

Category 4 Hurricane (includes Category 1, 2, and 3 data)					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	278	0	18,751	19,029
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	78	0	8,819	8,897

Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$25,745,727	$0	$5,218,650,688	$5,244,396,415
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$5,265,929	$0	$1,857,717,313	$1,862,983,242
Number of Critical Facilities in affected area	0	14	0	103	117
Number of Vulnerable Facilities in affected area	0	0	0	19	19
Approximate Acreage	0	1354	0	97608	98961
TOTAL number of affected structures					9,033

Category 5 Hurricane (includes Category 1, 2, 3, and 4 data)					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	354	0	22,600	22,954
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	114	0	10,300	10,414
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$30,790,881	$0	$6,428,262,121	$6,459,053,002
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$7,533,132	$0	$2,243,949,797	$2,251,482,929
Number of Critical Facilities in affected area	0	17	0	143	160
Number of Vulnerable Facilities in affected area	0	1	0	29	30
Approximate Acreage	0	1955	0	105180	107136
TOTAL number of affected structures					10,604

As previously indicated, hurricanes can be devastating due to wind speeds that can be as high as 150 plus miles per hour. The tables below show the estimated property and structure values as well as the number of critical and vulnerable facilities in these areas.

Wind Speeds for Risk Category II Buildings and other Structures					
120 MPH to 130 MPH Zone					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	0	0	579	579
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	0	0	343	343
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$0	$0	$18,710,033	$18,710,033
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$0	$0	$13,549,056	$13,549,056

Number of Critical Facilities in affected area	0	0	0	13	13
Number of Vulnerable Facilities in affected area	0	0	0	8	8
Approximate Acreage	0	0	0	19681	19681
TOTAL number of affected structures					364

130 MPH to 140 MPH Zone					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	3,499	3429	398	51,419	58,745
Number of Buildings in affected Area (Property Appraiser's Building Count*)	2,672	1133	336	24,362	28,503
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$271,280,664	$220,440,631	$17,168,341	$9,044,860,018	$9,553,749,654
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$185,434,055	$113,335,559	$14,570,172	$3,806,781,488	$4,120,121,274
Number of Critical Facilities in affected area	105	108	20	530	763
Number of Vulnerable Facilities in affected area	61	21	6	211	299
Approximate Acreage	9098	11909	2480	632043	655531
TOTAL number of affected structures					29,565

140 MPH to 150 MPH Zone					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	0	0	17,846	17,846
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	0	0	6,716	6,716
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$0	$0	$4,930,216,744	$4,930,216,744
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$0	$0	$1,564,015,669	$1,564,015,669
Number of Critical Facilities in affected area	0	0	0	114	114
Number of Vulnerable Facilities in affected area	0	0	0	29	29
Approximate Acreage	0	0	0	9363	9363
TOTAL number of affected structures					6,859

Pursuant to 44 CFR 59.1 [Title 44 -- Emergency Management and Assistance Chapter I -- Federal Emergency Management Agency, Department of Homeland Security], the term coastal high hazard area means "an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources." Walton County has 74,011 acres of coastal high hazard area. The following tables represent the amount of damages and number of critical and vulnerable structures that could be damaged within Walton County's coastal high hazard areas.

Coastal High Hazard Area					
Coastal High Hazard Area					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	116	0	4,266	4,382
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	26	0	2,243	2,269
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$16,613,808	$0	$1,835,500,124	$1,852,113,932
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$1,976,467	$0	$482,712,550	$484,689,017
Number of Critical Facilities in affected area	0	4	0	9	13
Number of Vulnerable Facilities in affected area	0	0	0	0	0
Approximate Acreage	0	311	0	73701	74011
TOTAL number of affected structures					2,282

* Property Appraiser Building information will not include Townhomes or Condominiums due to the appraisal method.

Data for Parcels in Storm Surge zones areas were Created from Walton County Property Appraiser Parcel Data from 9/18/2014. Parcels intersecting a Storm Surge zone were selected.

Data for Critical and Vulnerable facilities in Special Flood Hazard areas was created by Walton County GIS Department. Last updated for Fire Station locations on 9/23/2014.

Data for Storm Surge zones was created using a Surge Modeling application created for the Florida Statewide Regional Evacuation Update Study. The data was derived from National Hurricane Center SLOSH model runs on the parabolic basin for this particular region in Florida. Original dataset provided by West Florida Regional Planning Council 12/16/2010.

4.4 Vulnerable Structures:

Walton County and its municipalities have a number of vulnerable structures within each defined hazard area. The previous tables provided hurricane vulnerability. The following tables represent vulnerability of flood, thunderstorms, wildfire, and erosion. Additionally, the County has mapped these vulnerable structures which include each jurisdiction (M-C01, M-C02). Complete tables representing the type of hazard, number of structures, for each jurisdiction is addressed in the tables below:

Thunderstorm, Tornado and Hail risks for Walton County					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	3,499	3429	398	69,844	77,170
Number of Buildings in affected Area (Property Appraiser's Building Count*)	2,672	1133	336	31,421	35,562
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$271,280,664	$220,440,631	$17,168,341	$13,993,786,795	$14,502,676,431
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$185,434,055	$113,335,559	$14,570,172	$5,384,346,213	$5,697,685,999
Number of Critical Facilities in affected area	105	108	20	661	894
Number of Vulnerable Facilities in affected area	61	21	6	248	336
Approximate Acreage	9098	11909	2480	661088	684575
TOTAL number of affected structures					41,430

* Property Appraiser Building information will not include Townhomes or Condominiums due to the appraisal method. The Estimated value of Parcels will include the value of Condominiums and Townhomes.

Data for Parcels in Thunderstorm and Hail areas was Created from Walton County Property Appraiser Parcel Data from 9/18/2014.

Data for Critical and Vulnerable facilities in Thunderstorm and Hail areas was created by Walton County GIS Department. Last updated for Fire Station locations on 9/23/2014.

Special Flood Hazard Areas					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	475	603	52	22,855	23,985
Number of Buildings in affected Area (Property Appraiser's Building Count*)	290	194	29	10,813	11,326
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$62,536,861	$60,434,387	$2,158,833	$5,047,981,551	$5,173,111,632
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$36,538,799	$15,055,641	$1,436,575	$1,790,178,796	$1,843,209,811
Number of Critical Facilities in affected area	8	19	1	155	183
Number of Vulnerable Facilities in affected area	0	0	0	17	17
Approximate Acreage	5214	8640	2643	175318	191816
TOTAL number of affected structures					11,526

* Property Appraiser Building information will not include Townhomes or Condominiums due to the appraisal method.

Data for Parcels in Special Flood Hazard areas were Created from Walton County Property Appraiser Parcel Data from 9/18/2014. Parcels intersecting a Special Flood Hazard Area were selected.

Data for Critical and Vulnerable facilities in Special Flood Hazard areas was created by Walton County GIS Department. Last updated for Fire Station locations on 9/23/2014.

Special Flood Hazard Areas are areas designated by the 2010 Digital Flood Insurance Rate Map as being in zone A, AE, or VE.

Wildfire risk probability					
Low Probability					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	1,773	235	77	31,196	33,281
Number of Buildings in affected Area (Property Appraiser's Building Count*)	1,492	68	54	12,520	14,134
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$149,484,658	$11,402,181	$2,534,496	$9,243,570,994	$9,406,992,329
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$99,666,537	$4,900,062	$2,202,380	$3,042,273,690	$3,149,042,669
Number of Critical Facilities in affected area	61	15	8	275	359
Number of Vulnerable Facilities in affected area	41	8	1	95	145
Approximate Acreage	3663	798	550	264577	269588
TOTAL number of affected structures					14,638
Medium Probability					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	1,726	2,631	321	31,587	36,265
Number of Buildings in affected Area (Property Appraiser's Building Count*)	1,180	972	282	16,266	18,700
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$121,796,006	$171,520,273	$14,633,845	$4,518,183,372	$4,826,133,496
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$85,767,518	$92,502,417	$12,367,792	$2,217,652,786	$2,408,290,513
Number of Critical Facilities in affected area	44	73	12	341	470

Number of Vulnerable Facilities in affected area	20	13	5	144	182
Approximate Acreage	5409	8079	1930	403796	419215
TOTAL number of affected structures					19,352
High Probability					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	563	0	7,061	7,624
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	93	0	2,635	2,728
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$37,518,177	$0	$232,032,429	$269,550,606
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$15,933,080	$0	$124,419,737	$140,352,817
Number of Critical Facilities in affected area	0	20	0	45	65
Number of Vulnerable Facilities in affected area	0	0	0	9	9
Approximate Acreage	0	3099	0	192390	195489
TOTAL number of affected structures					2,802

* Property Appraiser Building information will not include Townhomes or Condominiums due to the appraisal method.

Data for Parcels in Burn Probability areas were Created from Walton County Property Appraiser Parcel Data from 9/18/2014. Parcels intersecting a group of Burn Probability Areas were selected.

Data for Critical and Vulnerable facilities in Special Flood Hazard areas was created by Walton County GIS Department. Last updated for Fire Station locations on 9/23/2014. Burn Probability was obtained from Southern Wildfire Risk website http://www.southernwildfirerisk.com/ on 10/8/2014. The wildfire risk data is provided by the Fire Program Analysis (FPA) System or US Forest Service Missoula Fire Sciences Laboratory. The data supplied gives an approximate fire probability on a 1 to 10 scale based on Values in the Burn Probability (BP) data layer. This number indicates, for each pixel, the number of times that cell was burned by an FSim-modeled fire, divided by the total number of annual weather scenarios simulated. Walton County's highest risk is 8 lowest is 0. These were grouped into Low (0 to 2) Medium (3 to 5) and High (6 to 8) for creation of this table.

Parcels within 500 feet of Critically Eroded Beach					
	DeFuniak Springs	Freeport	Paxton	Unincorporated	Total
Number of Parcels in affected Area	0	0	0	1,497	1,497
Number of Buildings in affected Area (Property Appraiser's Building Count*)	0	0	0	593	593
Estimated Value of Parcels in affected Area (Property Appraiser's Appraised Value)	$0	$0	$0	$1,342,686,966	$1,342,686,966
Estimated Value of Buildings in affected Area (Property Appraiser's Building Value *)	$0	$0	$0	$259,616,067	$259,616,067
Number of Critical Facilities in affected area	0	0	0	0	0
Number of Vulnerable Facilities in affected area	0	0	0	0	0
Approximate Acreage	0	0	0	1139	1139
TOTAL number of affected structures					593

4.4.1 Types of Vulnerable Structures

- Large animal facilities
- Correctional facilities
- Churches
- Nursing and convalescent homes
- Mobile Home Parks
- Recreational Vehicle Parks

4.5 Critical Facilities

A series of discussions were held during the Walton County LMS monthly meetings to determine what facilities should be considered “critical” versus “non-critical”. The issue is very subjective depending on the type of hazard expected and the circumstances associated with emergency response options. A good example of this subjectivity was the designation of “shelters”. The head of the Walton County Emergency Operation Center (EOC) stated that there are a number of facilities that the EOC recommends be used as shelters during major thunderstorm events (with high winds, rain, hail), but would not recommend them as shelters during hurricane events (because of their proximity to the coast and potential for flooding). Similar types of discussions were conducted concerning the various types of Walton County infrastructure (water meters, lift stations, transformers, etc.). For purposes of producing this LMS document, the following facilities were designated as critical.

4.5.1 Essential Facilities

- Emergency Management
  Services locations, including the Emergency Operating Center
- Fire departments
- Red cross operation centers

- Hospitals
- Schools (shelters)
- Designated shelters
- Sheriff and police facilities

4.5.2 Transportation Systems

- Primary evacuation route roads and major intersections
- Bridges on evacuation routes
- Culverts on evacuation routes
- Transportation facilities
- Airports and aircraft landing zones
- Military facilities

4.5.3 Lifeline Utility Systems

- Electrical substations
- Water storage tanks
- Well heads
- Sewage treatment plants

4.5.4 Hazardous Material Facilities

- Hazardous materials sites
- Large industrial sites
- Communications, towers and facilities
- Sewage lift stations

4.5.5 Vulnerable Economy, Populations and Environment

4.5.5.1 Hurricanes and Coastal Storms

Economy: Tourism

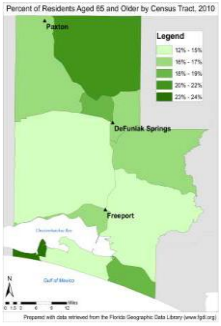
South Walton County's worst economic impact from a hurricane or coastal storm would be on the tourist industry. Hurricane season starts June 1st of every year and can have a significant impact on the tourist population, visitors, short-term rentals and tourist industry for areas located in the southern portion of Walton County, south of the Choctawhatchee Bay Bridge. According to the University of Florida's Population Forecast for 2040, Walton County is economically dependent on its tourism. There are 16 plus beach resorts existing in South Walton County along the 26 miles of beaches, consisting of over 3000 visitor and short term rental housing units. The TDC estimates that tourism offers $1 billion annually to the economy of Walton County. Eight of the major employers in South Walton County are Sandestin Golf & Beach Resort Accommodation with 691 employees, Sacred Heart on the Emerald Coast Health care and social assistance with 540 Employees, Resort Quest Accommodation with 500 employees, Publix Super Markets Retail Trade with 425 employees, Hilton Sandestin Beach Golf Resort & Spa Accommodation with 400 employees, WaterColor Inn and Resort Accommodation 275 employees, St. Joe Company Real estate and rental and leasing/ Construction with 250 employees and Health Mark Regional Medical Center Health Care with 200 employees.

Sandestin and St. Joe's Companies are just part of the resort tourism industry in South Walton County. There are 11 DRIs (Development of Regional Impacts) such as Seaside, Seascape, Emerald Bay, Hidden Dunes, Edgewater, Prominence, Tops'l, Silver Sands, Sandestin, WaterColor and WaterSound. All which support the tourism industry with short-term rental and major commercial development. Other resort areas along the beaches of South Walton include Alys Beach, Seagrove, Rosemary Beach, and Inlet Beach. Each of these resort areas have short-term rental and commercial businesses that could be devastated by a hurricane and even a tropical storm.

Walton County's tourist industry is a large contributor to the economic security of the County and if hit directly by a category 3 or above hurricane there would also be other repercussions to the economy such as roads and bridges may be damaged along the coast as well. Roads like CR 30A and Scenic Gulf Drive, can may cost millions of dollars to repair, thereby increasing the deficit in the County's budget, resulting in an economic downfall, which is why sufficient budget preparations must be made for an unforeseen hurricane or coastal storm.

Population: Elderly and Disable

Per the 2013 predicted census information, there are 6,070 persons over the age of 65 and 9,305 persons with disabilities in Walton County. There are 2 assisted living/nursing homes within South Walton County, each of which are located at Grand Blvd, within the Sandestin Development of Regional Impact located west of US 331, north of US Hwy 98.



According to the 2010 Census Tract the highest percentage of residences aged 65 or over are located from the Okaloosa County line to the Miramar Beach area also known as Sandestin, at 23% -24%.

Evacuation of these areas in case of a category 3 or larger hurricane must be a priority.

Environment: South Walton County Beaches are unique with its crystal white sand and coastal dune lakes. Walton County is home to 15 named coastal dune lakes along 26 miles of coastline. These lakes are a unique geographical feature and are only found in Madagascar, Australia, New Zealand, Oregon, and here in Walton County.

Our coastal dune lakes share an intermittent connection with the Gulf of Mexico. The lake water is fed by streams, groundwater seepage, rain, and storm surge. The connection with the Gulf, called an outfall, is a flood control and pours lake water into the Gulf as needed.

Salt water and organisms flow back into the lake, depending on tides and weather. Each lake's outfall and chemistry is different. Water conditions between lakes can vary greatly, from completely fresh to significantly saline.

Coastal dune lakes, located within a ½ mile of the gulf, are tremendously impacted, by hurricane or tropical storm activity. Hurricanes and tropical storms with their storm surges can dramatically change water chemistry of the coastal dune lakes and impact outlets. The huge amount of sand and saltwater being forced by wind over the beach changes everything, including the many
forms of saltwater vegetation.

4.5.5.2 Severe Thunderstorms and Tornadoes

Economy, Businesses and Siviculture

Severe Thunderstorms and Tornadoes can affect the overall County including all the jurisdictional partners. Lightning strikes from severe thunderstorms can reap havoc on local businesses by hitting expensive equipment, computers and may also be a fire hazard. The most common destruction is to silviculture/timberland. Each community has some timberland associated as shown in the tables below:

DEFUNIAK SPRINGS	005400	TIMBERLAND	936.41
DEFUNIAK SPRINGS	005500	TIMBERLAND	727.217
FREEPORT	005400	TIMBERLAND	2399.934
FREEPORT	005500	TIMBERLAND	179.77
FREEPORT	005900	TIMBERLAND	58.82
PAXTON	005400	TIMBERLAND	495.51
PAXTON	005500	TIMBERLAND	157
UNINCORPORATED WALTON COUNTY	005400	TIMBERLAND	116911.857
UNINCORPORATED WALTON COUNTY	005500	TIMBERLAND	36473.575
UNINCORPORATED WALTON COUNTY	005600	TIMBERLAND	153.225
UNINCORPORATED WALTON COUNTY	005800	TIMBERLAND	9994.13
UNINCORPORATED WALTON COUNTY	005900	TIMBERLAND	5446.79

The majority of timberland than can be affected is located in the unincorporated areas of the County. Each section of the County has timberland that can be affected. A major

area of concern in South Walton is the Point Washington Forest and Tops' Hill State Park. Timberland areas in North Walton that may be affected are Glendale, Gaskin and Paxton areas. TR Miller Timber Company in the North Walton area around Glendale/Gaskin could be devastated by such a fire if the fire was not reported quickly due to the rural nature of the area.

Additional economic impact could be to farmlands which are also located mostly in the north of the county in the Glendale, Gaskin areas. Hail could destroy valuable crops on thousands of acres in these communities.

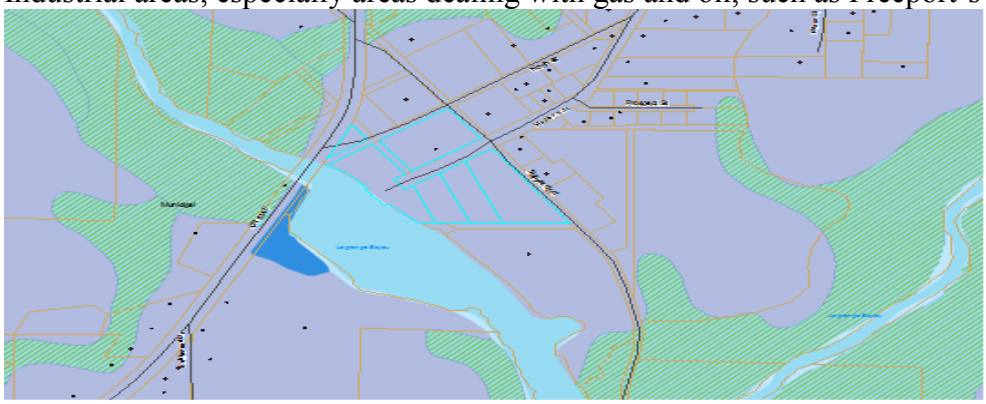
Population: Mobile Home Parks:
Tornadoes are not common in Walton County unless associated with a hurricane or coastal storm but could happen with any major thunderstorm. The last reported tornado was in 2009. Warnings and watches give ample opportunity to help those who live in mobile homes, or located in mobile home parks and those located in recreational vehicle (RV) parks. As the cost of housing increases, it is becoming ever more difficult for Americans to purchase their own single-family home. This means that for many Americans, the ''manufactured home'' is increasingly an attractive, low-cost alternative to standard built'' homes. Unfortunately, manufactured homes are much less safe than site-built homes during a tornado (BPAT, 1999; Brooks and Deswell, 2002). According to the Walton County Building Department there were 113 mobile home permits (MHP) in 2010, 90 MHPs in 2011, 86 MHPs in 2021, 91MHPs in 2013, and 106 MHPs in 2014. All of which are susceptible to tornado damage.

There are a number of mobile home and RV Parks throughout the County. The following list was derived from the State Health Department Records that provides the address and number of lots that could be affected by a tornado.

County Name	Company Name	Location_Complete Street Address	Location_City	Location _State	Location _ZipCode	ProgramSub Type	Number Of Mobile HomeSpaces	Number Of Recreational VehicleSpaces	Number Of Tenting Spaces	Number Of Beds In Barracks	Number Of BedsIn Cabins	Number Of Tents	Number Of Barracks	Number Of Cabins	Number of Other Housing	Number of Beds in Other Housing	Number Of Total Occupants
Walton	Sun Glo Mobile Home Park	1949 County Highway 81 S	Bruce	FL	32455	Mobile Home Park	9	0	0	0	0	0	0	0	0	0	9
Walton	Bass Haven Campground	350 Bass Haven Drive	Defuniak Springs	FL	32433	Recreational Vehicle Park	0	19	6	0	1	0	0	1	0	0	0
Walton	Cherokee Park	456 S 19th Street	Defuniak Springs	FL	32435	Mobile Home Park	7	0	0	0	0	0	0	0	0	0	0
Walton	CIP Mobile Home Park	3110 Hwy 90 W	Defuniak Springs	FL	32433	Mobile Home Park	16	0	0	0	0	0	0	0	0	0	0
Walton	Magnolia Branch Mobile Home	Jennie Circle	Defuniak Springs	FL	32433	Mobile Home Park	7	1	0	0	0	0	0	0	0	0	0
Walton	Green Acres South Mobile	295 Juniper Lake Road	Defuniak Springs	FL	32433	Mobile Home Park	16	2	0	0	0	0	0	0	0	0	0
Walton	Howell Avenue Trailer Park	195 Howell Avenue	Defuniak Springs	FL	32433	Mobile Home Park	8	0	0	0	0	0	0	0	0	0	0
Walton	Freedom Family Partnership LTD	108 Smith Road	Defuniak Springs	FL	32433	Mobile Home Park	8	0	0	0	0	0	0	0	0	0	0
Walton	Freedom Family Partnership LTD	108 Smith Road	Defuniak Springs	FL	32433	Mobile Home Park	8	0	0	0	0	0	0	0	0	0	0
Walton	Juniper Lake Campground	363 Black Bass Boulevard	Defuniak Springs	FL	32433	Recreational Vehicle Park	0	20	0	0	0	0	0	0	0	0	0
Walton	Norwood Park	141 Charlie Brown Road	Defuniak Springs	FL	32435	Mobile Home Park	7	0	0	0	0	0	0	0	0	0	0
Walton	Summerfield	320 Rushing Court	Defuniak Springs	FL	32433	Mobile Home Park	16	10	0	0	0	0	0	0	0	0	0
Walton	Seminole Park	150 Seminole Drive	Defuniak Springs	FL	32435	Mobile Home Park	9	0	0	0	0	0	0	0	0	0	0
Walton	Springs Mobile Home Park	150 Springs Avenue	Defuniak Springs	FL	32433	Mobile Home Park	12	0	0	0	0	0	0	0	0	0	0
Walton	Sunset King Campground	366 Paradise Island Drive	Defuniak Springs	FL	32433	Recreational Vehicle Park	3	208	10	0	11	0	0	0	0	0	198
Walton	Twenty-First Street Trailer	32 S 21st Street	Defuniak Springs	FL	32435	Mobile Home Park	16	0	0	0	0	0	0	0	0	0	0
Walton	Faze's Acres	121 Wakelyn Drive	Defuniak Springs	FL	32433	Mobile Home Park	17	0	0	0	0	0	0	0	0	0	0
Walton	Woodlawn Mobile Home	4979 Highway 331 S	Defuniak Springs	FL	32435	Mobile Home Park	13	0	0	0	0	0	0	0	0	0	0
Walton	His Lodging Park	495 Bass Haven Drive	Defuniak Springs	FL	32433	Mobile Home Park	13	0	0	0	0	0	0	0	0	0	13
Walton	Tri State Christian Camp	100 Christian Camp Road	Defuniak Springs	FL	32433	Recreational Camp	0	7	0	6	0	0	6	0	0	0	0
Walton	Spanish Trail Boy Scout Reservation	315 Pat Covell Road	Defuniak Springs	FL	32433	Recreational Camp	8	0	159	0	0	0	0	0	0	0	186
Walton	Leach MH Park	82 Bluegill Loop	Defuniak Springs	FL	32433	Mobile Home Park	9	0	0	0	0	0	0	0	0	0	0
Walton	Freedom Family Partnership Argyle Park	Railroad Avenue	Defuniak Springs	FL	32435	Mobile Home Park	10	0	0	0	0	0	0	0	0	0	0
Walton	Freedom Family Partnership Argyle Park	Railroad Avenue	Defuniak Springs	FL	32435	Mobile Home Park	10	0	0	0	0	0	0	0	0	0	0
Walton	Ashley's Landing	419 Joe Anderson Road	Defuniak Springs	FL	32435	Mobile Home Park	12	0	0	0	0	0	0	0	0	0	0
Walton	Poole Property	Leonardo Lane	Defuniak Springs	FL	32433	Mobile Home Park	5	0	0	0	0	0	0	0	0	0	0
Walton	Florala Bible Methodist	Grace Drive	Defuniak Springs	FL	32433	Recreational Camp	0	4	0	9	0	0	4	0	0	0	0
Walton	Camping On The Gulf Holiday	10005 W Emerald Coast Parkway	Destin	FL	32541	Recreational Vehicle Park	0	250	0	0	0	0	0	0	0	0	0
Walton	Destin East Mobile Home	9950 US Highway 98 W F-2	Destin	FL	32550	Mobile Home Park	200	0	0	0	0	0	0	0	0	0	200
Walton	Destin R.V. Beach Resort	362 Miramar Beach Drive	Destin	FL	32550	Recreational Vehicle Park	0	36	0	0	0	0	0	0	0	0	0
Walton	Black Creek	710 Black Creek	Freeport	FL	32439	Mobile Home	19	0	0	0	0	0	0	0	0	0	0
Walton	Magnolia Court (Carousel)	621 Live Oak	Freeport	FL	32439	Mobile Home Park	6	0	0	0	0	0	0	0	0	0	0
Walton	Hoot Owl Ridge Trailer Park	710 Black Creek Lodge Road	Freeport	FL	32439	Mobile Home Park	12	0	0	0	0	0	0	0	0	0	0
Walton	Calypso Cove RV Park LLC	18655 US Hwy 331 S	Freeport	FL	32439	Recreational Vehicle Park	0	41	0	0	0	0	0	0	0	0	0
Walton	Quail Ridge Trailer Park	710 Black Creek Lodge Road	Freeport	FL	32439	Mobile Home Park	12	0	0	0	0	0	0	0	0	0	0
Walton	Racoon Ridge Trailer Park	710 Black Creek Lodge Road	Freeport	FL	32439	Mobile Home Park	12	0	0	0	0	0	0	0	0	0	0
Walton	Sarah's Mobile Home Court	20 Black Creek Lodge Road	Freeport	FL	32439	Mobile Home Park	11	0	0	0	0	0	0	0	0	0	0
Walton	The Outpost for Bikers, LLC	4576 Hwy 3280	Freeport	FL	32439	Recreational Vehicle Park	0	6	0	0	0	0	0	0	0	0	0
Walton	Country Living Mobile Home	230 Earl Godwin Road	Freeport	FL	32439	Mobile Home Park	9	0	0	0	0	0	0	0	0	0	7
Walton	Beulah Mobile Home Park	8 W Beulah Drive	Freeport	FL	32439	Mobile Home Park	20	0	0	0	0	0	0	0	0	0	0
Walton	Loop Village	180 County 83 Highway	Freeport	FL	32439	Mobile Home Park	22	0	0	0	0	0	0	0	0	0	0
Walton	Live Oak Landing RV Park	229 Pitts Avenue	Freeport	FL	32439	Recreational Vehicle Park	0	59	0	0	24	0	0	0	0	0	0
Walton	Geronimo RV Resort	75 Arnett Lane	Miramar Beach	FL	32550	Recreational Vehicle Park	0	34	0	0	0	0	0	0	0	0	0
Walton	Nature Trail Park	306 S Geronimo Street	Miramar Beach	FL	32550	Recreational Vehicle Park	0	16	0	0	0	0	0	0	0	0	0
Walton	Bayview Trailer	13792 W Hwy 20	Niceville	FL	32578	Mobile Home	9	0	0	0	0	0	0	0	0	0	9
Walton	Circle X Trailer	36 Winfield Street	Niceville	FL	32578	Mobile Home	12	0	0	0	0	0	0	0	0	0	0
Walton	Headrick's Rentals	292 Nimrod Circle	Niceville	FL	32578	Mobile Home Park	14	0	0	0	0	0	0	0	0	0	0
Walton	Pahl Trailer Park	Homestead Street	Niceville	FL	32578	Mobile Home	9	0	0	0	0	0	0	0	0	0	0
Walton	Simpler's Fish Camp and Rv	108 McCuen Street	Ponce De Leon	FL	32455	Recreational Vehicle Park	0	11	0	0	0	0	0	0	0	0	0
Walton	Smokehouse RV Park	173 Herring Road	Ponce De Leon	FL	32455	Recreational Vehicle Park	0	8	0	0	0	0	0	0	0	0	0
Walton	Christian International	177 Apostles Way	Santa Rosa Beach	FL	32459	Mobile Home Park	22	0	0	0	0	0	0	0	0	0	0
Walton	Topsail Hill RV Resort	7525 W County Hwy 30-A	Santa Rosa Beach	FL	32459	Recreational Vehicle Park	0	156	22	0	35	0	0	0	0	0	0
Walton	Grayton Beach State Park	357 Main Park Road	Santa Rosa Beach	FL	32459	Recreational Vehicle Park	0	59	0	0	0	0	0	0	0	0	0
Walton	Willows Campground	82 Veterans Road	Santa Rosa Beach	FL	32459	Recreational Vehicle Park	0	24	0	0	0	0	0	0	0	0	0
Walton	Peach Creek RV Park	4401 US Highway 98 E	Santa Rosa Beach	FL	32459	Recreational Vehicle Park	0	14	0	0	0	0	0	0	0	0	0
Walton	Dawn Lane MH Park (Wish)	40 Dawn Lane	Santa Rosa Beach	FL	32459	Mobile Home Park	6	0	0	0	0	0	0	0	0	0	0
Walton	Arnett's Gulfside Trail Rides, LLC	613 County Road 393 S	Santa Rosa Beach	FL	32459	Recreational Vehicle Park	0	16	4	0	0	0	0	0	0	0	0
TOTALS							**634**	**1,001**	**201**	**15**	**71**	**0**	**10**	**1**	**0**	**0**	**622**

Environment:
Tornadoes may endanger the environment through the contamination of toxic waste in many ways. Buildings built prior to environmental regulations that control the use of lead paint and asbestos, could lead to contamination of the waterways, as well as soil. The downing of electrical transformers runs the risk of leaking carcinogenic oil and the highly toxic polychlorinated biphenyls. Even though the County now has regulations requiring underground power for new developments, there are power lines and transformers throughout the County and its jurisdictions.

Industrial areas, especially areas dealing with gas and oil, such as Freeport's Murphy Oil



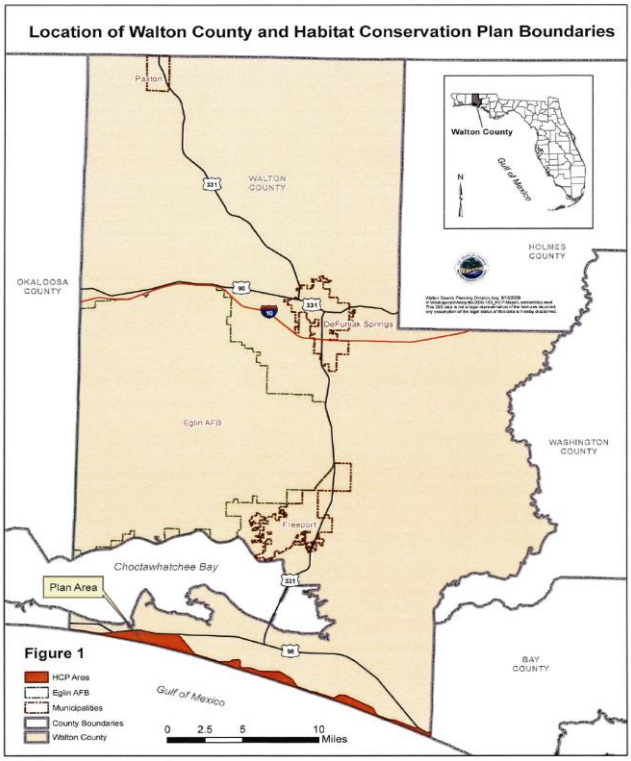
USA, Inc., located on Shipyard Road and Madison Street in the City of Freeport just east of Lagrange Bayou, are compromised by the threat of a tornado. A tornado hitting this area could contaminate Lagrange Bayou as well as the Choctawhatchee Bay, not to mention the wetland vegetation and marine life.

4.5.5.3 **Coastal and Riverine Erosion:**
Economy:
Coastal erosion along the 26 miles of South Walton is a major economic concern for the tourism industry. Much of the County's revenue comes from tourism and the beautiful white sands of the County's Beaches are the major attraction. Currently, there is much debate in progress concerning the financing of re-nourishing our beaches from past storm events that have already eroded our beaches. There have been debates on property rights, color of the sand, and the financing of the work. The Corp of Engineers has already invested a great deal in the nourishment plan, and the County Commissioners have reviewed and have had numerous meeting and hired consultants to implement. However, the cost and private property owner's rights are still an issue (see 4.9).

Riverine erosion is less debated and less costly. The Shoal River and the Alaqua, Black, Bruce, Caney, Lafayette, Little Alaqua, Limestone, Natural Bridge, Rocky, and Seven Runs Creeks all have the potential for some erosion, however no critical erosion has been reported.

Population:
Beach erosion threatens the very resource that residents and visitors enjoy in Walton County. Probably the main concern from an erosion standpoint in this County is the fact that the primary bluff or dune face is vulnerable to recession during major storm events, threatening buildings that may be sited too close to the edge or with inadequate foundations (Shoreline Change Rate Estimates, Walton County 2000; FDEP Report # BCS-2000-02, Emmet R. Foster). These areas are primarily located at Blue Mountain and Seagrove Beach. Researching the property appraiser's records for this area reveals that there are approximately 700 plus parcels located south of CR 30A in the Seagrove area and just as many or more in the Blue Mountain Beach area. Not all parcels have homes located along the bluffs, but there are few older homes that are not pile supported that remain. An example of this would be the single family subdivision of Seahighland. Out of 17 lots located along the bluff area, 11 of them were built prior to 1960. One home was built as early as 1948. Another area of concern is the Seagrove One, Seagrove 2nd addition and Seagrove 3rd addition subdivisions that have approximately 45 lots along beach and bluff area, in which 14 were built prior to 1985, and 11 of which were prior to 1965. The population in these areas is at risk, if the bluffs in which they sit erode.

Environment:
According to the Walton County and Habitat Conservation Plan "Draft", still under review, there is approximately 5,714 acres (2,312 hectares) of coastal habitat area located within Walton County, along the 26 miles of Walton County Beaches.



The information provided below came from the proposed Habitat and Conservation Plan Draft:

Beach/Dune
"The beach and dune system is likely the largest intact natural community remaining within the Plan Area, although it has been impacted by development. The FNAI characterizes the beach/dune as a dynamic and mobile environment, consisting of a wind deposited foredune and wave deposited upper beach. The shifting beach sand zone is typically un-vegetated, while the foredune and lands farther inland can be sparsely to densely vegetated with a variety of xeric, pioneer plant species. Within the Florida Panhandle, typical vegetation includes sea oats, beach morning glory, evening primrose, sand spur, sea purslane, panic grass, Spanish bayonet and saw palmetto.
Despite the harsh environment of the beach/dune system, this community provides extremely important habitat for a variety of species. The most conspicuous and characteristic resident animal species on the beach is the ghost crab.
CBM inhabit the primary, secondary, and occasionally tertiary sand dunes; however, their known distribution is largely limited to those undeveloped sections of coastline within the State parks. A variety of infaunal macroinvertebrates, including the coquina crab, and mole crab inhabit the swash zone and intertidal sands, and these same areas provide important juvenile developmental habitat for a variety of surf fish, including pompano. Migratory song birds feed upon the sea oats along the dunes and shorebirds utilize the beach for resting, foraging and nesting. Although sea turtles depend on the beach as nesting habitat; they are present only during summer months."

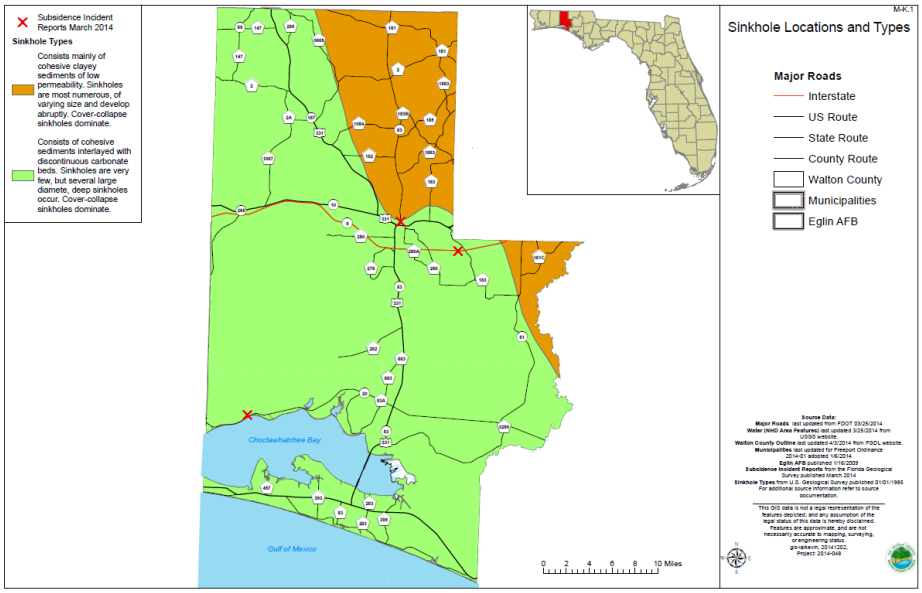
Erosion of Walton County Beaches can endanger all the species indicated above. "The erosive effects of wind, wave and storm surge are compounded by extra-tropical weather events. Large wave heights, above-average water levels (i.e., storm surge), and strong on-shore winds associated with hurricanes and other tropical storm events can cause exaggerated damage to the beach and dune system. Since 1975, the beaches of the Florida panhandle have been impacted by 12 hurricanes: Eloise (1975), Frederic (1979), Elena (1985), Erin (1995), Opal (1995), Danny (1997), Earl (1998), Georges (1998), Ivan (2004), Dennis (2005), Katrina (2005), and Rita (2005)."

4.5.5.4 Sinkholes

Economy:

Sinkholes are not a common feature in Walton County, even though they are common in other areas of the state. There are only 3 sinkholes located within of Walton County. Though the likelihood of sinkholes forming underneath any of the City's or County's essential/critical facilities is low, a slight potential risk exists. Currently one sinkhole is located in proximity of US Hwy 20, in Choctaw Beach, approximately 10 miles west of the City of Freeport. Another sinkhole in this location could possibly damage US Hwy 20 and could cost thousands of dollars in repair. This could also be a major interruption of the traffic flow for any commuter coming from the east of the area trying to go west on Hwy 20. This traffic would either have to go north and hit I-10 or Hwy 90 to commute to Blue Water Bay or Niceville. If trying to use the Mid Bay Bridge, they would have to use the US 331, Clyde Wells Bay Bridge and US Hwy 98 to go west.

The other 2 known sinkholes are located near the Rock Hill Community. An Industrial site that does military testing for Eglin Air force Base could be affected. The residential density for this area is mostly agriculture or low density of 1 unit per 5 acres. Timberland would be the likeliest economic setback.



Population:

As stated above, a sink hole on or near US Hwy 20 West could upset traffic flow and place a burden on the population west of Hwy 20 trying to commute to work or other appointments in Okaloosa County such as Blue Water Bay or Niceville. This is a mid County East and West Corridor that would not have an easy detour. Being the density in the Rock Hill area is low, and mostly agriculture, we would not expect a major cause of concern for the population in these areas.

Environment:

If a sinkhole occurred in an agriculture area, this could create a waste land area for what could have been previously used as timberland, grazing or any type of farming operation for that area. Regardless of where a sinkhole happens, it can threaten water supplies by draining unfiltered water from streams, lakes and wetlands directly into the aquifer (underground water supply).

4.5.5.5 Flooding:

Economy:

There are many ways that flooding affects our economy. Floods can destroy infrastructure such as roads, and utilities, homes, and businesses. During floods emergency personnel, such as firemen, and police are dispatched and in some cases even the National Guard is required to restore order in a community. All these come at a heavy cost to people, county, state, and federal government. It can take years for flooded communities to be re-built and businesses to regain economic stability. In areas such as

the South Walton, where Coastal Flooding can and will likely mitigating environmental damages, adjusting to decreased tourism, and helping displaced workers find new employment opportunities will also be an issue.

In Walton County, the Tourist Development Tax rate is 4.5% and applies to rentals of properties located south of the Intracoastal Waterway. This area includes Hwy. 30-A, Hwy. 98, Emerald Coast Parkway, Scenic Gulf Drive, and all of Walton County's beaches south of Choctawhatchee Bay. This 4% decrease in revenue alone will be significant amount of loss for the County if and when there is a coastal flooding event. In the event that a category 3 or above hurricane hits Walton County directly, such a coastal flooding could happen. After administrative costs, the revenue from the 4.5% Tourist Development Tax is used as follows: 2% for marketing/promotion and beach maintenance, 1% for shoulder season promotion and new product development, 1% for beach nourishment and restoration, and .05% for the promotion of emerging markets. In addition, retail sales tax will decrease without the normal tourism attraction, while businesses such as the Silver Sands Outlet Mall located on US Hwy 98 just west of Sandestin, will suffer as well as the tax base.

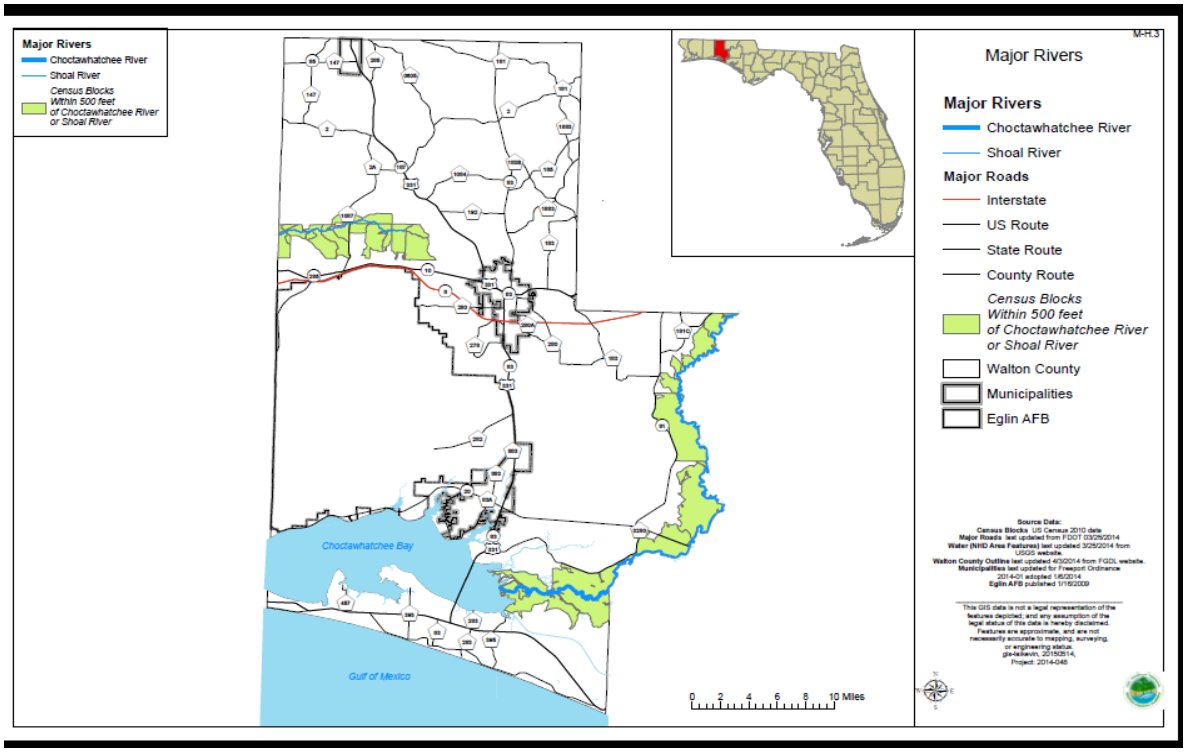
South Walton area roads such as County Road 30A, Scenic Gulf Drive, and Mid Walton area road US Hwy 20 (Choctaw Beach Area) will likely be damaged by a storm surge and require immediate attention. These roads are significant, but recent flooding events have shown that local neighborhood streets will be and stormwater infrastructure in also a major economic strain. The additional man power from the County's Public Works Department is still evident form the 2013 and 2014 flood events. The County's resources are limited when it comes to private roads and storm water in private subdivisions. The County is currently working on a revised South Walton Master Storm water Plan to help elevate these issues. The Board of County Commissioners has already allotted $500,000 for a study of these areas. The South Walton Master Storm water plan is also priority mitigation project on the LMS Mitigation List. Further information is provided in Section 4.9

Population:

Everyone south of Choctawhatchee Bridge will be affected in the event of a major Coastal Flood caused by major hurricane. The people living in structures located in areas described above and noted in the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model storm surge map (M-J01) are susceptible to effects of storm surge. M-J01, illustrates the storm surge potential to Walton County. The elderly and disabled population referred to in the Hurricane Section of this plan, will likely face the same scenario in a major coastal flooding event. Such an event will also bring rains that will affect the bay and rivers and their tributaries. There is some populace located along the Shoal River in North Walton, north of the Mossy Head area that will also be affected. Flooding events can devastate lower income families. Below is an estimate of the population that could be affected during a major flooding event, along the rivers and their tributaries:

Census Block intersecting Storm Surge Areas:	20716 Total Populations
Census Block intersecting Special Flood Hazard Areas:	41406 Total Populations

Census Block within 500 feet of Choctawhatchee River or Shoal River:	951 Total Populations



Environment:
Floods disrupt normal drainage systems and overwhelm sewer systems. Thus, raw or partially raw sewage spills are common in flooded areas. Additionally, if the flood is severe enough, destruction of buildings that can contain a large array of toxic materials (paints, pesticides, gasoline, etc.) can cause the release of these materials into the local environment. Chemicals and other hazardous substances end up in the water and eventually contaminate the water bodies. When floodwaters recede, affected areas are often blanketed in silt and mud. Dangerous mold blooms can quickly overwhelm water-soaked structures. Residents of flooded areas can be left without power and clean drinking water, leading to outbreaks of deadly waterborne diseases like typhoid, hepatitis A, and cholera.

4.5.5.6 Wildfires

Economy:
Walton has 676,900 acres of land. Forests are the major land use covering 76% of the area. In the event of a wildland fire, our timberland could be destroyed. Following is a list of economic hardships that could occur in the county in the event wildland fires.

This list of the forest products in Walton County does not include recreation, or other non-timber products and environmental services forests provide. Products include revenues from hunting leases, pine straw, and ecotourism. Services forests provide

include greenspace, landscape diversity, visual aesthetics, water quality, and soil conservation.

- Value of standing timber: **$443 million**
- Value of harvest (1996): **$9 million**
- Direct employees: **N/A**
- Indirect employees: **N/A**
- Payroll receipts: **N/A**
- Forest manufacturing & forest value added: **N/A**
- Total sale value of agriculture products (crop, animals, orchard) : **$22 million**

Table 3.12 Top Three Basic Industries in Walton County, the Region, and the State of Florida, 2010

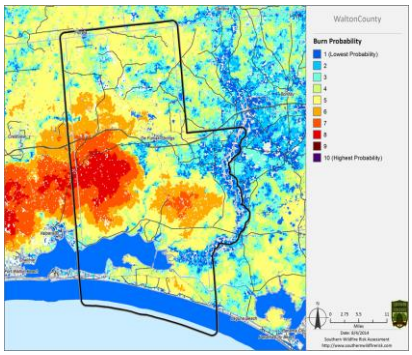
NAICS Code & Industry		Location Quotient	Basic Employees	Total Employees	% of Total Employees
Walton County					
487	Scenic & Sightseeing Transportation	10.639	37	41	90.2
721	Accommodation	5.152	1,375	1,706	80.6
448	Clothing & Clothing Accessories Stores	3.915	810	1,088	74.4
Region					
487	Scenic & Sightseeing Transportation	6.220	149	177	84.2
113	Forestry & Logging	2.379	99	171	57.9
448	Clothing & Clothing Accessories Stores	1.860	1,765	3,817	46.2
Florida					
483	Water Transportation	3.726	10,008	13,680	73.2
561	Administration & Support Services	2.238	635,373	1,148,506	55.3
115	Support Activities for Agriculture & Forestry	1.788	4,444	10,086	44.1

Source: US Census Bureau 2010 County Business Patterns, DEO-Quarterly Census of Employment and Wages 2010

Compiled by Dr. M. Jacobson and John Vericker, School of Forest Resources and Conservation, IFAS, University of Florida

Population:

The highest risk areas for the population vulnerability are located within the Midwest area of the county in the Mossy Head Community. As seen in the map below, the highest risk areas are located within Elgin Air Force Base property which has no associated density and the Nokuse Plantation, which is a habitat conservation area for relocation of endangered species.



An intersection of the Fire risk areas 6 – 8 with census blocks provides that there are 9,432 people that are in census blocks that intersect with a

Environment:
Wildland fires contain good and bad environmental issues. It is known that fire can be beneficial by removing dead vegetation and maintaining the growth of herbs, berries, wildflowers, grasses, and low shrubs. Benefits of wildland fires in the Florida Landscape include the following:

• Prevents heavy buildup of fuels and reduces the occurrence and severity of wildfires
• Maintains native fire-adapted ecosystems in a balanced condition
• Maintains/improves habitat conditions for fire-adapted plants and animals
• Adds ash to the soil, enhancing nutrient cycling and reducing soil acidity
• Improves nutritional quality of plants for wild and domestic grazing animals
• Promotes flowering of herbaceous plants and fruit production of woody plants
• Controls some plant diseases
• Maintains natural species composition (e.g., reduces weedy hardwoods in pine forests)
• Reduces some weedy and invasive plants and helps to control others
• Reduces some insect pests
• Increases populations of insects that serve as food for game birds and other wildlife
• Creates aesthetically pleasing open forests and scenic vistas
• Increases visibility in the forest for recreation or hunting

Fires that happen during dry seasons every 1 to 3 years help maintain the marsh by reducing invading shrubs and limiting muck buildup, which would eventually fill in the marsh. Fires during severe droughts are problematic, however, because of the possibility of muck fires (fires burning in organic material under the soil surface). Prescribed fire must be used very carefully in marsh ecosystems. Without fire, a marsh will gradually fill up with shrubs and trees.

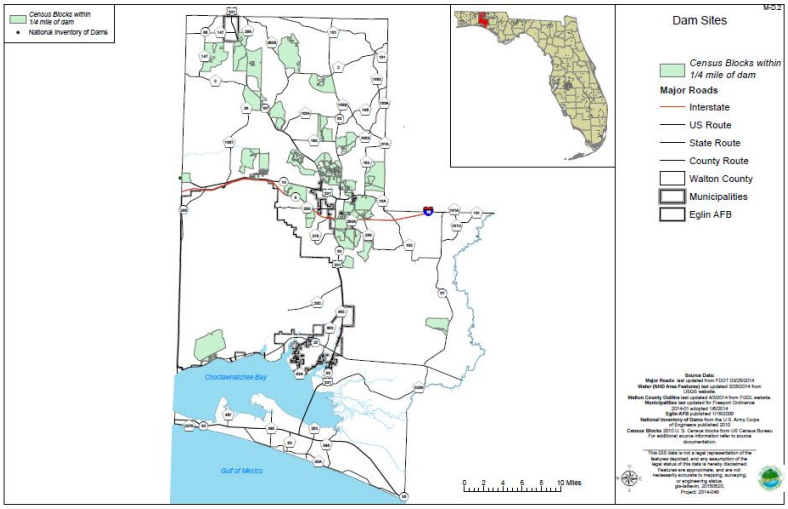
However wildland fires can also be devastating to the environment.
Impacts of Fire in the Florida Landscape are as follows:
• Contributes to temporarily reduced air quality
• Can contribute to smoke or fog conditions on low-lying highways (i.e., accident risk)
• Creates temporary visual degradation (char) of the land
• Can escape control if conditions unexpectedly change
• Causes damage to commercial forests and human property if it is uncontrolled
• May injure or kill some individual animals
• Contributes to the spread of some weedy and invasive plants in newly burned areas
(http://freshfromflorida.s3.amazonaws.com/Wildfire_Risk_Reduction_in_FL.pdf)

An overview of each municipality and unincorporated area of the County will follow. Most current population came from City-Data.com as of 2012.

4.5.5.7 Dam Failure
Economy:
Walton County has numerous farm pond dams. These dams protect the watering sources for their agriculture products. The majority of the farm pons and associated dams are located within the northern portion of the county in areas such as Glendale and Paxton.

As stated earlier agriculture the total sale value of agriculture products (crop, animals, orchard is $22 million) and 44.1 % or the employee percentage in Walton County work in this industry. Farms and horticultural industries will also be affected by the reduction of water supply. Additionally there are the dams that support the fresh water fishing attraction for this area. Just north of DeFuniak Springs, in the unincorporated areas of the county there are several lakes that have camp grounds that have year round occupants. Juniper and Kings/Holley Dams are on 2 recreational lakes within Walton County.
If the dams broke and were not repaired immediately, the property values on the single family lots located in the subdivision that surrounds the 2 lakes would decrease in appraised value, no longer being lakefront properties.

Population:
Kings/Holley Lake and Juniper Lake have residential subdivisions surrounding them. The people in these subdivisions could be endangered by a dam break as well as those downstream from the dam. An assessment by the County's GIS Department revealed there are 5,133 people in per the census block that intersects with ¼ mile buffer around dam based on National Inventory of Dams published in 2010 and U.S. Census 2010.



Environment:
Any dam break in Walton County creates possible long-term loss or deterioration of fisheries habitat and/or wildlife habitat, rare or endangered species, and unique landscapes. Displacement of snakes and reptiles can create havoc on residential and business properties located in close proximity of the waterbody the dam protected. Land degradation in the form of extensive soil erosion is also caused by dam failure.

4.5.5.8 Drought and Heat Waves

Economic:
Drought and Heat waves cause the most damage to the agriculture businesses. Local farmers can lose their crops that cost millions (22 million +/-) of revenue loss with a result of unemployment in that industry. Drought often accompanies a heat wave and agriculture is usually the first industry that suffers. Livestock suffers heat stress. Irrigation water becomes scarce.

Heat can severely interrupt transportation. Mechanical failures in trucks, cars, trains and buses are common in heat waves. Heavy traffic damages the softened asphalt on roads, leaving the community with expensive repairs. The need for constant air conditioning raises power bills and can be challenging to lower income families, as well as a strain to the power industries to produce the additional required power.

Heat waves and drought can also set the stage for more wildand fires. During long periods without rain, /the dry conditions of the forest acts as fuel for a fire and with 443 million worth of timber in our County it sets the stage for an economic disaster. The County has state forest that exist in south and north of US Hwy 98 in South Walton County, such as Point Washington and Topsail Hill State Parks, and then there is TR Miller Timber, mostly located in the Glendale area in the northern portion of the County of US Hwy 83.

Population:
Walton County has a wide range of populace that can be affected by heat waves and drought. The elderly population would be the most vulnerable, consisting of 18.1 % of 61,530 population noted for 2014, which is 11,075 elderly persons that could be affected along with 17. 9 % of the of the population being poverty stricken as well as young children under the age of 5 that is 5.5 % of the 2014 population consisting of approximately 3,384 children.

Environment:
Heat waves and drought can affect plant life and crops. Crops and animals can suffer serious declines, and food and water shortages can also occur. Droughts can compound water-management problems, as private citizens use more water for watering lawns and power stations need more water to cool their electricity-generating plants. Droughts create stagnant waterways and mud flats along the Shoal and Choctawhatchee River. It also affects the parks such as Morrison Springs. The springs are vital to a variety of natural ecosystems, and provide significant economic resources through aesthetic and recreational activities for residents and visitors.

4.5.5.9 Winter Storms and Freezes

Economic:

Even though most winters in Walton County are mild compared to our northern counterparts, an occasional winter storm or freeze will happen. If a winter storm causes a major freeze, then businesses and schools will close. Ice storms, snow, sleet, and frozen conditions can immobilize the County as whole. Vehicle wrecks are more prominent due to the lack of practice on icy roads, creating more need for law enforcement and emergency services. Power outages, (due to frozen power lines), leads to loss of power that leads to no heat and no communications. The winter months have visitors (tourist) that stay till warmer weather returns, who normally, would be shopping or enjoying recreational activities which are abruptly on hold creating a loss in economic revenue. Because our area is not use to brutal winters, farmers also take a loss, due to pasture land and winter rye growth that would create extra expenditures to protect their live stocks.

Population:

As with extreme heat, cold affects the elderly population, consisting of 18.1 % of 61,530 population noted for 2014, which is 11,075 elderly persons that could be affected and 17. 9 % of the population and third, young children under the age of 5 that is 5.5 % of the 2014 population prediction, consisting of approximately 3384 children will be affected by the extreme cold. In addition, anyone is susceptible to die in a traffic accident on the icy roads and of hypothermia from prolonged exposure to cold.

Environment:

One concern of winter storms, specifically ice storms is the damage that can occur to agriculture plants. Freeze injury symptoms can include blackening or bleaching of foliage, tip dieback, stem or branch splitting, and plant death. Cold injury can affect the entire plant or just certain plant or parts such as fruits, flowers, buds, leaves, trunks, stems, or roots. Many plant parts can adapt to tolerate cold, but flowers, fruits, and roots have little ability to adapt. Cold injury to roots of plants in containers is common but usually is not evident until higher temperatures occur.

4.6 City of Freeport

Freeport Community Mitigation Overview

Land area: 17.00 square miles/11909 acres
Incorporated Area Population: 1863
Planned Population: 5,000 additional dwelling units are in the development process at this time. Projected build-out is over the next 10-20 years, with an increase in population of approximately 12,500.
Land Parcels: 3429
Just Value: $ 220,440,631
Coastal High Hazard Area: 311 Acres
Storm Surge Area: 1955 Acres
High Fire Areas: 3099 Acres
Special Flood Hazard Area: 8640 Acres

Location: Centered just west of U.S. 331 and State Road 20 intersection in Central Walton County.

Natural Features: Freeport straddles Four Mile Creek and Lafayette Creek and touches the Choctawhatchee Bay in one small area.

National Flood Insurance Program (NFIP): Freeport is a participant in the NFIP. Historical natural occurring disasters/threatened disasters include high winds (hurricane and severe storms), tornadoes, drought/heat waves, winter storms/freezes and wildfires. Traffic evacuating from the Freeport area south of State Road 20 from south Walton County during hurricane events presents a major traffic management problem as well as human mass care needs (special needs, water, restrooms, refugees). Freeport High School is a fully approved Red Cross Shelter providing evacuation refuge to 1,600 evacuees and special needs persons.

Some of the traffic issues that previously faced Freeport for hurricane evacuation have been alleviated with the new bypass of U.S. 331. The 331 bypass was opened on January 24, 2008. Additional 4 laning of US 331 is currently underway, with expected completion south of US 20 by 2016 and north of US 20 in 2018.

Hurricane and Tropical Storm
The above tables indicate the vulnerability of most of Freeport's critical facilities to hurricane and storm damage Tornadoes spawned from hurricanes and storms can damage the structures and disrupt electrical and other utility service. Disruption of waste water treatment plants, and water supply systems can have a devastating impact on the community as well as endangering the populace. It is important that these facilities and the special needs evacuation shelter at Freeport High School be protected.

Flood and Land Erosion
According to the September 29, 2010, NFIP, Freeport has 8640 acres in the Flood Zone. During Hurricane Opal in 1995 and Ivan in 2004, certain low-lying areas along the Choctawhatchee Bay and connecting bayous experienced flooding. However, none of Freeport's critical facilities other than one bridge is threatened by flood or land erosion.

Coastal Flooding and Storm Surge
Freeport has one critical facility (bridge) in the Coastal High Hazard Zone.

Wildfire
The City of Freeport has 8079 acres within the city limits susceptible to wildfire. According to the critical facilities list, there are facilities located in this acreage. Therefore, the potential for disruption of essential facilities caused by wildfires are considered a significant risk. Per the Walton County Property Appraisers Office, Freeport has approximately 238.59 acres of timberland that could also be affected. The timberland is located north and south of Hwy 20 in the City of Freeport.

Extreme Temperatures
Heat waves, drought, freezes and winter storms can have a major effect on crops within the agriculture areas of the City of Freeport. The table below as shown from Property Appraiser's information provides that there is approximately 635 acres of cropland and improved agriculture within the City limits.

Jurisdiction	Property Appraiser Use Code	Property Appraiser Use Description	Number of Acres
FREEPORT	005000	IMPROVED A	471.342
FREEPORT	005200	CROPLAND C	67.5
FREEPORT	005300	CROPLAND C	96.98
FREEPORT	005400	TIMBERLAND	2399.934
FREEPORT	005500	TIMBERLAND	179.77
FREEPORT	005900	TIMBERLAND	58.82
FREEPORT	006100	PASTURELAN	47.6

Also according the 2010 census information below there are at least 359 elderly persons that may be affected by extreme temperatures.

	Total Population	55 to 59 years	60 to 64 years	65 to 74 years	75 to 84 years	85 years and over
Walton County Total Population	55,043	3967	3866	5,458	2,630	855
DeFuniak Springs City	5177	335	318	480	386	182
Freeport City	1,787	91	89	120	44	15
Paxton City	644	40	47	63	34	12
Unincorporated Walton County	47,435	3,501	3,412	4,795	2,166	646
Datafrom the Florida: 2010 Summary Population and Housing Characteristics 2010 Census of Population and Housing Issued October 2012 CPH-1-11 U.S. Department of Commerce Economics and Statistics Administration U.S. CENSUS BUREAU						
http://www.census.gov/prod/cen2010/cph-1-11.pdf						

Other Hazards
Other hazards identified as potential risks to critical facilities in Freeport include Sinkholes, Hazardous Materials, and Power Failure. The most likely of these would be a wide spread power failure that would affect essential facilities and the community as a whole. The Choctawhatchee Electric Company (CHELCO) has contingency plans to cope with this eventuality.

Other potential risks for such events or activities as terrorism, and domestic radiation and nuclear accidents are considered so remote or so highly unlikely to affect essential/critical facilities for which the City is responsible that they are not addressed.

4.7 Town of Paxton

Community Mitigation Overview
Land Area: 3.88 square miles/2,480 acres
Population: 825 *an increase from the 2009 estimate
Planned Population: 1502 in 2025
Land Parcels: 398

Just Value of land: $ 17,168,341
Just Value of buildings $14,570,172
Coastal High Hazard Area: 0
Storm Surge Area: 0
High Fire: 0 Acres
Special Flood Hazard Area: 2643 Acres
Location: North Walton County adjacent to the Alabama State Line and Covington County.

Natural Features: Paxton is located on the Alabama and Florida state jurisdictional lines. Paxton has the highest elevation point for any location in the state of Florida.

The Town of Paxton has one school and a County Sheriff's Office Substation, City Hall, EMS/Fire-station and is responsible for water and sewer within the City Limits.
National Flood Insurance Program (NFIP): The Town of Paxton is a participant in the NFIP.
Note: The City Hall of Paxton is currently under renovations through a HMGP grant for a wind retrofit.

Hurricane
The vulnerability tables above, indicates the vulnerability of most of Paxton's critical facilities to hazards. Tornadoes spawned from hurricanes and storms can damage structures and disrupt electrical and other utility service.

Other Hazards
Other hazards identified as potential risks to critical facilities in Town of Paxton include Sinkholes, Hazardous Materials, and Power Failure. The most likely of these would be a wide spread power failure that would affect essential facilities and the community as a whole.

Winter Storms/Heat Waves:
The Paxton City Hall, currently under construction for a wind retrofit, has multiple uses. Even though the building is not considered a shelter, it has been used as a community center for the elderly, and the building is opened for the elderly during winter months when the temperature reaches freezing or if there is an extreme heat wave.

Other potential risks for such events or activities such as storm surge, terrorism, and domestic radiation and nuclear accidents are considered so remote or so highly unlikely to affect essential/critical facilities for which the City is responsible that they are not addressed.

4.8 City of DeFuniak Springs

Community Mitigation Overview
Land Area: Approximately: 9098 acres/14 square miles

Population: 5487
Land Parcels: 3499
Just Land Value Estimate: $271,280,664
Building Value Estimate: $185,434,055
Coastal High Hazard Area: 0 Acres
Storm Surge Area: 0 Acres
High Fire Areas: 0 Acres, Medium Fire Area 5409 acres
100 Year Flood: 5214 acres
Location: North Central Walton County

Natural Features: The DeFuniak Springs area is characterized by Karst topography consisting of low rolling, sandy hills, with elevations in the 200-foot range, small natural and manmade lakes and sinks. There are numerous natural springs in the lower elevations**.**

Facilities consist of City Hall, Fire and Police stations, a 1.5 mgd wastewater treatment plant, five water wells, two elevated water storage tanks, and the Municipal Airport.

Essential Functions: The City is responsible for Fire and Rescue, Police, Water, Sewer and Administration. These are considered the essential services provided by the City.

National Flood Insurance Program (NFIP): The City of DeFuniak Springs is a participant in the NFIP.

Hurricane, Tropical Storm and Tornadoes

The City of DeFuniak Springs is susceptible to large amounts of rainfall, possibly causing some localized flooding for short durations of time and wind velocity up to and including tornadoes associated with hurricanes before and after landfall of a Category 2-5 hurricane. All essential/critical facilities for which the City is responsible are vulnerable to hurricanes and associated hazards. The City is susceptible to tornadoes associated with severe thunderstorms and hurricane events. Florida in general ranks third in the nation for tornado strikes.

However, in Florida, the odds of a tornado striking any given point are about once every 250 years. In all of Walton County, there have been 26 known tornadoes since 1960, mostly associated with hurricanes. All essential/critical facilities for which the City is responsible are vulnerable to tornado hazards.

Flood and Land Erosion

Other than rainfall events associated with hurricanes, which increase the risk of floods as described above, the City as a whole, during normal rainfall events is not susceptible to floods and does not have a history of flooding problems. While some areas of the City are located within flood zones as defined on the NFIP maps, no development is known to exist in these flood zones and none of the essential/critical facilities for which the City is responsible are known to be vulnerable to flood hazards.

Coastal Flooding and Storm Surge

The City is not vulnerable to coastal flooding or storm surge.

Wildfire
While the City limits contains acreage that may be susceptible to wildfire, the potential for disruption to essential facilities caused by wildfire events is not considered a significant potential risk.

Winter Storms/Heat Waves
The City of DeFuniak is susceptible to winter storms and heat waves. Even though there is not much in the way of farm land within the municipality, there is danger of icy roads and bridges as well as power failure due to ice collection on trees and power lines. Possible freeze of waterlines and lift stations can be a significant issue within the city. The city is prepared to deal with these events through their public works and water department. There have been no reported issues with heat waves by the city.

Other Hazards
Other hazards identified as potential risks to essential/critical facilities for which the City is responsible include Sinkholes and Power Failure. The possibility of a sinkhole effecting critical facilities within the city is very low.

Sinkhole
Sinkholes are a common feature throughout the Florida landscape. Natural processes of erosion of underlying limestone can cause voids that when they collapse, cause sinkholes. Though the likelihood of sinkholes forming underneath any of the City's essential/critical facilities is low, a slight potential risk exists.

Hazardous Materials
A risk to essential/critical facilities known to exist would be from the spillage of chemicals being transported on either highways or railways proximate to those facilities and causing evacuation of personnel.
A possibility of a hazardous material from the CSX railway transportation system is always a possibility, yet no chemical incidents have taken place with the past 5 years.

There was one incident that totaled a vehicle but no chemical spill was reported:

> *DEFUNIAK SPRINGS, Jun 29, 2013; a car stalls on the tracks and is destroyed by the train, but not before everyone is able to escape.*
> *State Troopers say a 2011 Nissan Altima stalled about 5:20 Saturday morning on the railroad tracks at State Road 285 and Hwy 90 in DeFuniak Springs. Two people, whose identities are not available, heard the train coming and got out of the car safely. The conductor, a man of Pensacola, was notified about the car on the tracks, but not in enough time to stop the train.*
> *As you might expect, the car is listed as a total loss at $19,000.*
> *http://www.wjhg.com/home/headlines/Train-Locomotive-Smashes-Car-213700301.html*

Power Failure
A power failure is a potential risk to the operation of all City essential/critical facilities. The City has the ability to abate the risk of a short-term localized power failure and the ability to mitigate, on a limited basis, the risk of a longer term, more widespread power failure that might occur because of hurricane or tornado.

Other potential risks for such events or activities as storm surge, terrorism, and domestic radiation and nuclear accidents are considered so remote or so highly unlikely to affect essential/critical facilities for which the City is responsible that they are not addressed.

4.9 Walton County Unincorporated

Community Mitigation Overview
Land Area: 661088/1058 square miles
Population: 59807, per 2013
census estimate
Land Parcels: 69,844
Just Land Value Estimates: $14,502,676,431
Just Building Value Estimates: $5,697,685,999
Coastal High Hazard Area: 73,701 Acres
Storm Surge Area: 49,384 Acres
High Fire Area: 192390 Acres
100 Year Flood Plain: 175,318 Acres
Location: The unincorporated area of the County is located south of the City of Freeport, and between the City of Freeport and DeFuniak Springs, and North of DeFuniak Springs to the City Limits of Paxton.

National Flood Insurance Program (NFIP): Walton County is a participant in the NFIP.

Hurricanes/Storm Surge/Wind Damage
Walton County is most susceptible to Hurricanes & Coastal Storms. Based on planning records, tax records and GIS data, the structures most at risk are those located within the surge zones (Map M-I01, M-J08). Surge is the number one hazard for the unincorporated area of south Walton County. Surge can cause disastrous destruction of life and property in South Walton County. It is imperative that the County is able to evacuate the surge zone areas of the County when faced with a major hurricane.

Over the last twelve years, several strong storms — most notably Hurricanes Erin and Opal in1995, Hurricane George in 1998, Tropical Storm Isidore in 2002, Hurricane Ivan in 2004, and Hurricane Dennis and Katrina in 2005, all have impacted Walton County.

Thunder Storms/Lightning and Rain Events
In April of 2009, major rainfall amounts caused flooding damage in the flood prone areas of the unincorporated areas of the County. Many roads, bridges and residential properties were damaged from this event. In February of 2013, Walton County declares state of emergency caused by local flooding. Several bridges were closed during this rain event.

In late April of 2014, another significant flood event took place causing major road flooding including bridges, homes and other significant structures. Much of the above damage was located in the South Walton Area, (south of the Choctawahatchee Bay Bridge) and areas around the Shoal and Choctawatchee River.

Flood and Land Erosion

The Shoal River, Choctawhatchee River and their tributaries are all susceptible to flood and land erosion. The FEMA FIRM found in the (Map M-H01) provides the flood zone areas. For the past 2 declared flood events storm water flooding has become a major issue for the southern portion of the county. At least 10 homes outside of a flood plain reported flooding due to storm water. It appears that the majority of these homes are in older platted or non-platted areas that did not have an existing storm water plan, and other homes were built up surrounding their low lying lots. These homes have been placed upon our LMS Mitigation List, for storm water retrofit and/or elevation of the structure. Currently, the County's Public Works is in the process of reviewing all the storm water basins for south Walton County.

Basin	**Project**
Camp Creek	Seabreeze Circle
Holiday Shores	Miami St, Los Angeles St
Holiday Shores	Walton Way
Mack Bayou	Mack Bayou Road
Draper Lake	Porpoise St, Flounder St, Marlin St, Barracuda St
Draper Lake	Pines of Blue Mountain
Draper Lake	Mountain Top Dune Drive, White Dune Cove
Eastern Lake	Lakewood Drive
Eastern Lake	Brown Street
Eastern Lake	Beachside Condos
Stallworth Lake	Spotted Dolphin Road
Stallworth Lake	Baird Road
Western Lake Outlet	North Andalusia, San Juan, Montego, Wood Beach Drive, Chelsey Ln
Oyster Lake	Thomson Road
Oyster Lake	Golf Villas Drive
Oyster Lake	Courtyard Drive
Oyster Lake	Golf Club Drive
Oyster Lake	Allen Loop
Oyster Lake	Bunker Place Drive
Hogtown Bayou	Sandal Beach Town Homes
Hogtown Bayou	4th Street
North of the Bay	Trout Circle

North of the Bay	Bay Grove Road
Powell Lake	Wildwood Trail
Tucker Bayou	Carlos Ct, Apple Ct
McQuade Bayou	Cabbage Rose Ln
Summer Lake	Edgewater Condo
Summer Lake	Grand Dunes Condo
Summer Lake	Norwood Drive
Horeshoe Lake	Open Gulf Street
Horseshoe Lake	Beach Drive, Overlook Drive
Horseshoe Lake	Rue Caribe, Rue Martine
Horseshoe Lake	Sandtrap Road
Hewett Bayou	East Hewett, West Hewett, Peachtree Circle, Longleaf Circle
Sunrise Beach	Fox Lake Drive
Sunrise Beach	Mary Street, Gulf Dunes
Sunrise Beach	Gulf Place
Gulf of Mexico	Walton Magnolia Ln, Park Place
Redfish Lake	Sand Dunes Road

This is being done in conjunction with a revised storm water master plan for the southern portion of the County. A north Walton County evaluation will follow.
The master storm water plan is also a proposed mitigation project.

The Beaches of South Walton are in an immediate need of nourishing. This evaluation has been underway for the past several years, first evaluated by the U.S. Army Corp of Engineers. More recently refined is the Walton County Hurricane and Storm Damage Reduction Project (Federal Beach Nourishment Project). This project was presented on June 3, 2014, by Seahaven Consulting, Inc. to Walton County Board of County Commissioners. Through a contract that has been entered by the Walton Board of County Commissioners and Seahaven Consulting Inc, the project is underway and consists of 5 distinct areas.

According to the Division of Water Resource Management, Florida Department of Environmental Protection:

> *There are five critically eroded areas designated in Walton County (18.8 miles). Within these areas, 3.1 miles were added following Congressional authorization of the Walton County Hurricane and Storm Damage Reduction Project.*
>
> *The western 5.2 miles (R1-R23.6) is designated critically eroded. A 5.0-mile segment (R1R22.8) had erosion that threatened development, recreational interests, and the coastal road. This area has a beach*

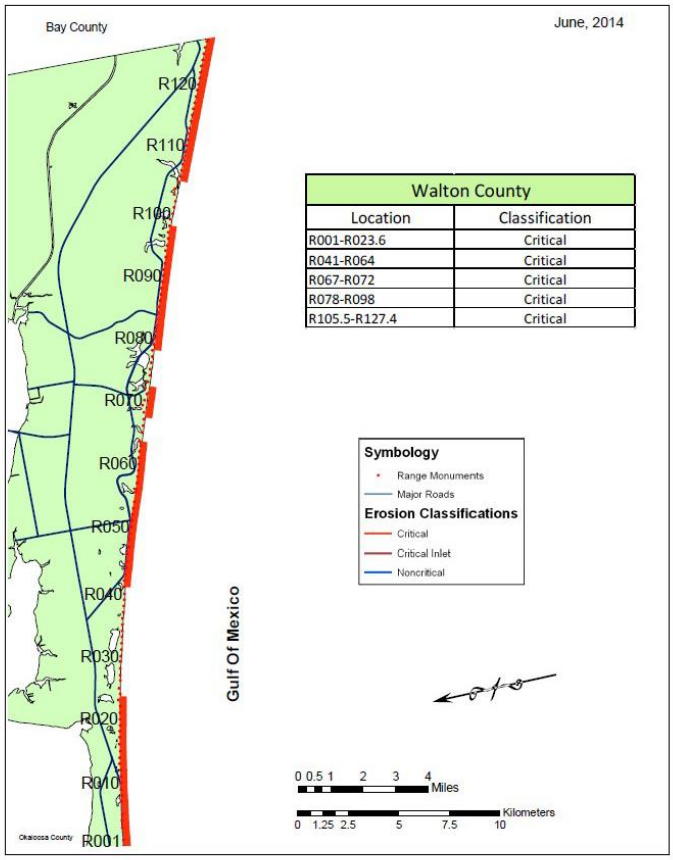
restoration project that was completed in 2007. An additional 800 feet has been added to the east for continuity of management of the coastal system following federal project authorization.

A 4.5-mile critically eroded segment at Dune Allen and Blue Mountain Beach (R41-R64) threatens development, Fort Panic Road, and County Road 30A. The segment between R54.5 and R58 is designated critical for the design integrity of the county's proposed beach restoration project. The east end of this segment, between R63 and R64, is designated critical for the construction of a dune taper for the design integrity of the beach restoration project.

Moving east, a 1.0-mile segment (R67-R72) is designated critically eroded. Erosion of a 0.2mile segment of Gulf Trace (R67.3-R68.3) and a 0.1-mile segment of Grayton Beach (R70.95R71.4) threatens development. An additional 1,900-foot gap between the threatened areas, which contains undeveloped park lands, has been added for continuity of management of the coastal system following federal project authorization. Additionally, two segments (300 feet to the west and 500 feet to the east), where no development exists seaward of the Coastal Construction Control Line (CCCL), has been added for continuity of management of the coastal system following federal project authorization.

A 3.9-mile segment (R78-R98) is designated critically eroded. Critical erosion along 3.1-miles of Seagrove Beach (R82-R98) threatens development. Along the western 4,000 feet, the developments of Water Color, with all of its development behind the CCCL, and Seaside, with most of its development behind the CCCL, have been added to the Seagrove Beach segment for continuity of management of the coastal system following federal project authorization.

The eastern 4.2 miles of Walton County (R105.5-R127.4) is designated critically eroded. Along Seacrest Beach is a 1.8-mile segment (R105.5-R114.7) where development is threatened by erosion of the bluff. To the east at Inlet Beach a 1.0-mile segment (R122-R127) was previously designated critically eroded. The portion between R122 and R124 was designated critical due to its post-storm vulnerability threatening development interests. The portion between R124 and R127 was designated critical for the design integrity of the beach restoration project. Between R114.7 and R122 is a 1.4-mile gap between threatened areas where nearly all of the development is completely landward of the CCCL. This area and a 400-foot segment at the east end where there is currently no development seaward of the CCCL were added for continuity of management of the coastal system following federal project authorization.

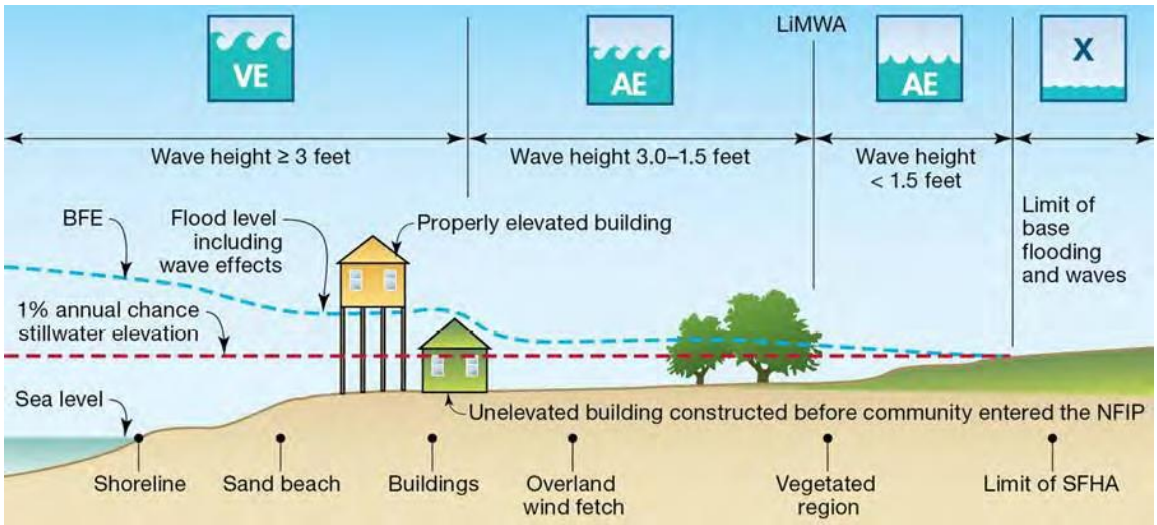


The previously shown Vulnerable Structures and Critical Facilities Tables provide the replacement cost for vulnerable and critical structures within these hazard areas; additionally, farmlands and areas that are not overlain with vegetation are also susceptible to erosion. The beach erosion and soil/erosion maps in the (M-F01, M-F02) feature the area's most vulnerable to erosion. As previously discussed, erosion is more of a potential hazard to the Choctawhatchee Bay because of sedimentation than to structures because there is low densities along the erosion areas of the rivers.

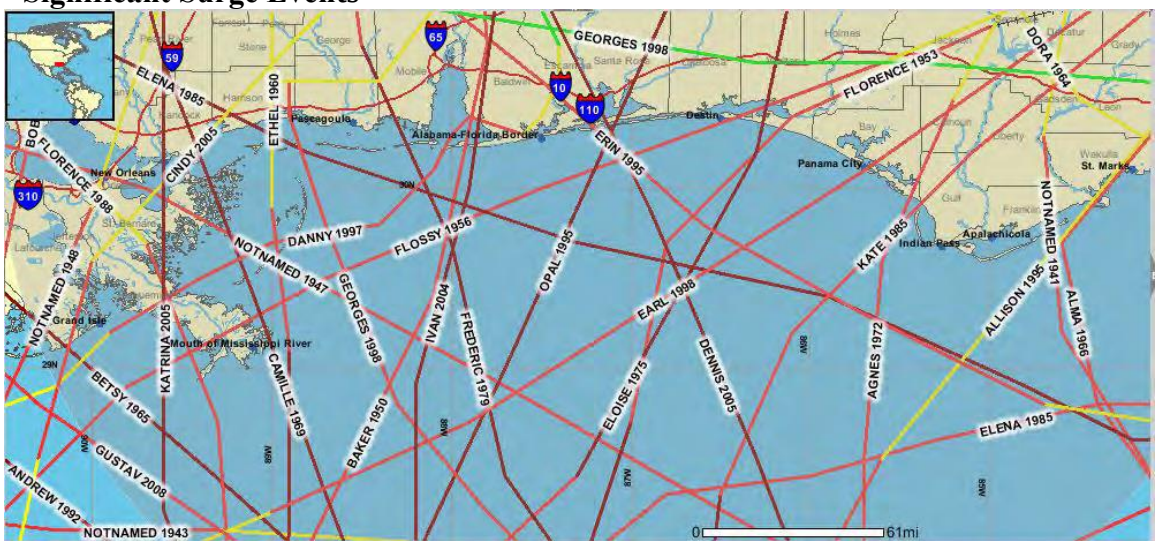
Coastal Flooding and Storm Surge

South Walton County is highly susceptible to coastal flooding and storm surge as depicted by the maps and tables located in the (Map M-I01, M-J08). Walton County has adopted stricter land use requirements for developments within coastal surge areas, flood zones areas and within the coastal high hazard area. Further discussion of these mitigations efforts are found in the Development Trends Section of this plan.

Per *The NWFWMD Flood Engineering Review Meeting (Storm Surge Update and Analysis) for Walton and Okaloosa Counties, May 6, 2014*.



• **Significant Surge Events**



Surge Results – Walton County

Surge Results –Walton County
• 1% Annual Chance Stillwater Elevation (SWEL) Comparisons
– Generally around 7 feet within Choctawhatchee Bay
– Approximately 9.5 feet along the Gulf of Mexico– Along the Gulf of Mexico, heights are between 11 and 12 feet– Relative to the effective SWEL, the differences are generally +/- 1 foot.
(Appendix E9).

Wildfire

According to "Southern Wildfire Risk Assessment Summary Report" 2014 for Walton County, burn probability for Walton County ranges 8-1 with one being the lowest

probability. Walton County does not have any 9 or 10 ranges which are the highest probabilities. The majority of the County's acreage is in the 5 ranking, which consist of 236,607 acres. Eglin Air force Base has the highest burn probability at an 8 ranking. Most of the South Walton Area is a 5 ranking with small patches ranging as high as 6. All new development in Walton County is required to undergo a fire review and must have approval to get a local development order. The Walton County Comprehensive Plan has specific requirements under Objective L-1.18: Wildfire Mitigation (http://fl-waltoncounty2.civicplus.com/index.aspx?NID=68) page 78 & 79.

Walton County shall protect life, property, and the economy by eliminating or minimizing Walton County's vulnerability to wildfire hazards.

Other Hazards
Other hazards identified as potential risks to essential/critical facilities for which the County is responsible include Sinkholes, Hazardous Materials, and Power Failure.

Sinkholes
Sinkholes are a common feature throughout the Florida landscape. Natural processes of erosion of underlying limestone can cause voids that when they collapse, cause sinkholes. Though the likelihood of sinkholes forming underneath any of the County's essential/critical facilities is low, a slight potential risk exists.

Hazardous Materials
A risk to essential/critical facilities known to exist would be from the spillage of chemicals being transported on either highways or railways proximate to those facilities and causing evacuation of personnel. In addition to the transportation of such chemicals, The Deepwater Horizon Oil Spill Incident that took place 55 miles off the coast of Louisiana reminded Floridians that they are not precluded from the effects of such man-made disasters. Five years later, Walton County is still recovering from the economic and environmental after effects of a very costly disaster. Walton County is a participant in the Restore ACT. Gulf Coast Ecosystem Restoration Council has an initial comprehensive plan as of August 2013, which establishes the Council's Goals for the region and provides for a process to fund restoration projects and programs as funds become available.
(Appendix E10)

Power Failure
A power failure is a potential risk to the over all operation of Walton County essential/critical facilities in the event of a hurricane or tornado. Power failure is inevitable and will occur. The most significant cause is usually lighting strikes, however usually happens during short durations, the exception is if a hurricane or tornado takes out necessary power lines effects the overall County and takes longer to repair. The County is prepared to keep the most critical facilities and shelters functioning during such events.

4.10 Mapping

The Walton County GIS Department with information provided from the Property Appraiser's Office, has done a complete mapping series for each of the jurisdictions by the following hazards. ***Note that wind speed is part of the hurricane mapping, as well as the SLOSH and CHHA mapping* (M-J03, M-J04, M-J05, M-J06, M-J07, M-J08, M-J09, M-J10, M-K01, M-L01,and M-M01). *The loss potential methodology provided in the critical and vulnerable structure tables were based on a 100% loss in a worse case scenario.***

- Hurricanes and Coastal Storms
- Severe Thunderstorms
- Tornadoes
- Coastal & Riverine Erosion
- Sinkholes
- Flooding
- Wildfires
- Dam/Levee Failure
- Drought/Heat Wave
- Winter Storms/Freezes.

The hazards from the previous section, Hurricane and Tropical Storm, Flood and Land Erosion, Coastal Flooding and Storm Surge, Wildfire, and Other Hazards, were provided to the planning departments and the three County municipalities and to the County planning staff for the unincorporated portion of the County. Each was requested to identify the critical facilities in their jurisdiction and assess the vulnerability of these facilities to the hazards.

Additionally, the County GIS Department, by means of using Global Position System (GPS) technologies equipment located and mapped each of the critical facilities for the jurisdictions and the unincorporated areas of the County (M-C01). The data is continuously updated and was recently reviewed by Walton County's Emergency Services.

4.11 Major Disaster Declarations

Since 1953, FEMA has listed 67 major disaster declarations, 12 emergency declarations and 57 Fire Management Assist Declarations (Prior to 2003: Fire Suppression Authorizations), for the State of Florida. Combined hurricanes and tropical storms accounted for 38 of these disasters. A complete list provided from FEMA is in (Appendix E11).

4.12 Assessing Vulnerability: Analyzing Land Use and Development Trends

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

Walton County consists of 1238 square miles, which includes 180 square miles of water, primarily Choctawhatchee Bay. Twenty percent of the County's land area is part of Eglin Air Force Base. It is bordered by the Gulf of Mexico to the south, Okaloosa County to the west, Covington and Geneva Counties in Alabama to the north. Bay, Washington, and Holmes Counties neighbor Walton County to the east, with the Choctawhatchee River largely defining Walton County's central and southeastern boundary.

The County is divided by the Choctawhatchee Bay and the Intracoastal Waterway into North Walton County and South Walton County. The Comprehensive Plan divides the County's land uses into 3 separate categories. North, South and North and South Walton land uses. (M-A03). North Walton County covers approximately 669,600 acres (including the Bay) while South Walton County covers approximately 53,000 acres.

North Walton County is rural. The dominant land use categories are agriculturally oriented. Agricultural land use categories cover 425,081 acres, or 63%, of the north. Eglin AFB covers approximately 154,066 acres (M-A03). The Northwest Florida Water Management District owns more than 50,000 acres of floodplains along the Choctawhatchee River – 21,853 acres in Walton County. North Walton County's three municipalities offer central utilities, and can accommodate future growth at relatively greater densities and intensities than their rural surroundings. The same can be said about the areas adjacent to North Walton County in its neighboring jurisdictions in that they consist of rural, agricultural, silvicultural, and government owned land.

The area south of Choctawhatchee Bay was once as rural as the north end of the County; however, over the past three decades it has become more urban. This area covers approximately 53,000 acres. In the early 1990's, the state acquired approximately 43 percent of South Walton through a funding source that does not allow development on acquired lands. Therefore, the development of South Walton County is taking place on the remaining 57% of the privately owned land. The state land is mainly located centrally in South Walton County – most of it inland. The privately owned land is oriented more along the waters of the Gulf, Choctawhatchee Bay, and the Intracoastal Waterway.

According to the US Census, Walton County's permanent population exceeded 46% between 1990 and 2000, from 27,759 to 40,601; making it one of only ten counties in Florida that exceeded 40% during this period. Most of this growth occurred in the southern portion of the unincorporated County. Such growth is expected to continue in much the same manner – moderately paced growth at low densities north of Choctawhatchee Bay, concentrated more around municipalities offering utilities, and more rapid growth at higher densities south of Choctawhatchee Bay, particularly in areas closer to the water.

According to A Population and Economic Forecast done by Florida State University, Department of Urban and Regional Planning in 2013; there are 4 key findings concerning a population forecast of Walton County:

1. Walton County has experienced significant population growth since 1970, but not at the magnitude of its neighboring counties that are included in metropolitan statistical areas (MSA).
2. Past growth is predominantly found in South Walton, especially surrounding New Urbanism communities that draw tourists, retirees, and new residents to the area.
3. Conservation land restricts development to certain areas of Walton County, limiting its ability to grow.
4. Heavy reliance on tourism-based industries as the economic base signifies the need for further development of additional industries.

(Census information and Population and Economic Forecast are located in (Appendix A2).

As mentioned in previous sections, Walton County is continuing the process of amending its comprehensive plan, land development code, and future land use map. Much research has been done on the future build out of Walton County. Predictions include current land use verses future land use. (Appendix E12).

Currently Walton County has areas that are proposed at higher densities than in fact, are allowed. Part of South Walton County is in a Coastal High Hazard area as shown on the Coastal High Hazard Area Map (M-B01). The Walton County Comprehensive Plan prohibits future development within this area.

Objective C-2.2: To protect, enhance and restore the Coastal High Hazard Area. It is the County's objective to protect the county's population from the effects of hurricane storm damage by limiting development within the Coastal High-Hazard Area (CHHA). Without this limitation, hurricane evacuation times, as well as the health and safety of that population allowed to develop within the CHHA would be of concern to the County. Therefore, the County shall limit public expenditures that subsidize new development in the CHHA and the County shall direct future populations to areas outside the Coastal High-Hazard Area. One amendment to the Comprehensive Plan on the Coastal High Hazard Area is stated:

Policy C-2.2.4: The creation of new lots or parcels (through platting, lot splits, or other methods) that lie entirely within the CHHA is prohibited. The creation of new lots contiguous to or partially within the CHHA shall be prohibited unless the newly created lot contains sufficient buildable area outside of the CHHA for the intended use. The extent of the CHHA on any property proposed for development may be determined by a Florida licensed surveyor in accordance with the following criteria:

1. The CHHA shall be consistent with the definition of the CHHA in §163.3178(2) (h) F.S.;
2. The location of the CHHA shall be consistent with the Category 1 hurricane surge area as depicted in the Florida Statewide Regional Evacuation Study Program, 2010;

An exception to development within the CHHA is parcels vested within a Development of Regional Impact that has vested property rights.
Considering many of the DRI properties are overlaid as Coastal Center which allows density up to 8 units per acre, in truth the DRI's are subjected to the maximum build out allowed by their FL Statute 380 development orders. In the 2010 LMS Plan, the County proposed doing special area plans (SAPs) to be placed in the County's comprehensive plan that would relate directly to the DRI's 380 Development Orders for density and intensity. The proposed future land use map would overlay the DRIs providing location. The SAPs would have amended the comprehensive plan text and provide the amount of build out per the DRI Development Order. This would have shown an expected decrease in population projection in these areas which have previously been shown at a higher build out prediction. However, we were not able to accomplish this in our last EAR based amendments. This will be proposed and reviewed again during our next EAR.

The County has researched prohibiting redevelopment of vested properties within the Coastal High Hazard Area. At this time, the County is limited by the Bert J. Harris Act (Chapter 70, F.S.) because the County would be required to compensate the vested property owners for the loss of their property rights (Walton County EAR 2011).

Additionally, there are also Infill areas in the southern portion of the County where much of the vulnerability to storm surge and wildfire probabilities exists. These areas also allow density up to 8 units per acre. However, many areas have previously been developed at 4 units or less per acre, and could be changed to the residential preservation category during the next EAR, allowing one unit per platted lot. In addition, the Infill category of land use requires compatibility analysis that also limits density to be compatible with the surrounding area.

Other land uses such as Village Mixed Use, which allows up to 12 units an acre, is also limited by compatibility.

One area that is currently expanding in commercial development is the Mossy Head area located west of US Hwy 90. This area already furnished by water through Mossy Head Water Works. A new industrial park in the Mossy Head area also brings sewer capabilities to this area. This will increase the growth pattern in the west section of the County where land use densities range from two units per acre to one unit per 40 acres. Also, the new industrial park has brought jobs with developments like The Loves Truck Stop, which opened in 2014.

Other development activity in the Mossy Head area is The Blackstone Development previously a development of regional impact (DRI) approved for 1300 plus units, downgraded to a Planned Unit development with a maximum of 749 units.

Development within the County and municipalities has slowed considerably since 2007 after a serious boom throughout the County and specifically in the southern portion of the County. (Appendix E13), provides a list of approved developments for the unincorporated areas of the County since 2010. Additionally, developments since 2010

have been mapped to show the location and type of development that are vulnerable to hazards such as surge zones, flood plain areas, and wind loads (M-A01). Many of these projects are still pending due to the decline of the economy, and many have applied for extensions, yet some are complete or near completion.

Since the fall of the 2004/2007 boom in development, development slowed for a couple of years but is presently on the rise for all jurisdictions.

According to A Population and Economic Forecast done by Florida State University, Department of Urban and Regional Planning in 2013, Walton County is expected to have a population of 65,475 residents in 2020 and approximately 80,554 in 2030 and approximately 97,422 in 2040.

Section 5 Mitigation Strategy

5.1 Local Mitigation Goals

- **Goal 1** Provide the communities with the programs and the administration to protect life and property;
- **Goal 2** Provide standards that will control developments in areas that are susceptible to damage by flooding and /or high winds;
- **Goal 3** Protect the environment and natural resources of the areas by controlling development activities that would damage or destroy watersheds, wetlands, coastal resources, and other natural areas which serve as natural buffers and prevent extensive infrastructure damage;
- **Goal 4** Provide land use regulations to limit damage to developments;
- **Goal 5** Provide post disaster planning and programs to mitigate loss of life and property.

5.2 Guiding Principles

The LMS Working Group, working with the County, Municipalities, and the public, developed guiding principles for hazard mitigation including reducing the loss of life and property, protecting public assets, ensuring building safety, and encouraging responsible growth.

5.2.1 Mission Statement

Mission Statement: It will be the general policy of Walton County and its participating municipalities to establish a working group which shall seek structural and non-structural methods, policies, and procedures to reduce or eliminate the risk from a variety of hazards to life, property, and critical infrastructure. More specifically, the working group shall identify, refine, and promote and encourage policies, programs, and projects, which will assist in accomplishing the mission statement. These policies, programs and projects shall include the following recommendations:

5.2.2 Recommendations-policies changes that meet the mission statement requirements:

1. Policies that limit public expenditures in areas identified as subject to repetitive damage from disasters.

2. Policies to ensure the protection of critical facilities such as prohibitions on constructing critical facilities in high hazard areas.

3. Policies on removal and relocation of damaged and vulnerable infrastructure.

4. Policies to eliminate development in hazard prone areas.

5. Policies to regulate non-conforming land uses, particularly in areas subject to damage from disasters.

6. Policies that regulate land use, beach and dune alteration, floodplains, non-point source stormwater run-off, and the design and location of sanitary sewer and septic tanks in hazard prone areas.

7. Policies that prioritize the use of coastal areas for water-dependent uses such as public access and selective aquaculture.

8. Policies that encourage the removal of septic tanks and technologically-hazardous sites (such as chemical manufacturing plants) from high hazard areas.

9. Policies that regulate watershed alteration (such as channelization, damming, etc.) and wetland fill and development. Also policies that address restoration or enhancement of disturbed or degraded natural resources that can mitigate hazards (such as beach and dune systems and wetlands).

10. Policies that designate and prioritize properties for acquisition.

11. Policies and procedures for post-storm reconstruction, such as building moratoria or special emergency permitting procedures.

12. Policies on the adopted local government building code and any areas associated with additional development restrictions, including coast construction jurisdiction, coastal building zones, and local land development practices as they relate to hazard mitigation.

13. Policies and procedures related to the community's ongoing National Flood Insurance Program participation and to request limited revised Flood Insurance Rate Maps (FIRM) studies or FIRM re-studies from the Federal Emergency Management Agency, or to conduct these studies with other funding sources.

In keeping with the mission statement, the Working Group has defined the following more specific guiding principles. All mitigation initiatives shall be categorized under one of the following established principles:

Principle 1 – Non- Structural Mitigation
Provide the communities with the programs and the administration to protect life and property.

- Develop a stormwater management plan that will mitigate drainage problems.
- Participate in the National Flood Insurance Program created by FEMA and

enforce the base flood elevation requirements.

- Develop a coordination agreement on stormwater and flooding issues when there is a development contiguous to another municipality to provide some joint review.
- Provide funding sources to address the mitigation strategies that have been stated.
- Utilize the Working Group to develop new and improved mitigation programs, policies, and ordinances to mitigate losses and to protect the public health and to provide safety welfare for their citizens.
- Develop and utilize an educational program for the citizens and for the employees of the county and municipalities.

Principle 2 -- Reduce Future Expenses

To reduce the future expenses of the County, the municipalities, and their citizens by providing standards that will control developments in areas that are susceptible to damage by flooding and/or high winds.

- Construct public utilities to minimize or prevent flood damage and encourage the private utilities to follow a similar policy.
- Adopt building standards to limit damage to private property by flooding or wind.
- Develop a program that sets up a process to review repetitive loss property and flood prone lands for acquisition to mitigate the damage of the structures.
- Review critical facilities after an event to determine if additional protection is warranted.

Principle 3 -- Environmental Issues

Protect the environment and natural resources of the area by controlling development activities that would damage or destroy watersheds, wetlands, coastal resources, or other natural areas which serve as natural buffers and help prevent extensive infrastructure damage.

- Adopt stormwater management plans that mitigate the additional runoff by development.
- Protect the potable water aquifer, even though there is no recharge area in the County, by protecting the wellheads to prevent the possibility of contamination getting to the water supply by the way of the well casing.
- Promote the natural functions of wetlands and require that an impact on wetlands due to development be appropriately addressed or mitigated in kind.
- Protect watershed by restricting development that alters the capacity of the watershed.
- Control hazardous materials to prevent the contamination of environmentally sensitive areas.

Principle 4 -- Land Use Mitigation
The County and Municipalities shall provide land use regulations to limit damage to developments.

- Restrict development in hazard prone areas to eliminate the potential of damage to structures and natural resources and adopt building codes that limit damage caused by the local disasters such as wind loads and flood elevation.
- Regulate development in hazard prone areas to provide an orderly development, thereby protecting structures and natural resources.
- Develop a post-disaster redevelopment plan to allow an orderly procedure of rebuilding and reconstruction and to have an approved policy that will help mitigate future disaster damages.

5.3 Identification and Analysis of Mitigation Actions

Requirement §201.6 (c) (3) (ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

5.3.1 Mitigation Project List

The STAPLEE method criterion was used to rank each project. A STAPLEE method form was sent via email to all working group members, as indicated in Appendix C-5. Many projects were submitted and many made the list.

Based on the review of the mitigation actions and projects by the LMSWG, the mitigation project list was revised to show all new, deferred, completed and deleted projects. Due to the relevance of the most current storm water flooding issue, the LMSWG re-prioritized the mitigation list with the focus of a master storm water plan for the South Walton Area including the specific areas of the most structural damage and health related issues such as septic tank spills and well issues that were prevalent during the most recent declared disastrous events.

The mitigation project list was updated and approved by the LMS working group, and is changing and being updated as further incidents are reported. The most current mitigation project list is located in (Appendix F1).

The prioritized list of potential mitigation initiatives developed by Walton County in agreement with the guiding principles described in this section is summarized in the following tables. Following this table is a detailed discussion of each type of mitigation project that Walton County is evaluating to address the problem. At the end of each discussion, there is a list of the most likely funding sources that could be used for that initiative.

5.3.2 Walton County List of Prioritized Mitigation Initiatives

Figure 5.3.2 Walton County List of Prioritized Mitigation Initiatives		
OVERALL PRIORITY	**SPECIFIC PRIORITY**	**DESCRIPTION**
1. Protection of Life	**Shelters**	**Schools, Churches, Family Facilities, Emergency**
	Vulnerable Structures	**Family Services, Mobile Home Trailer Parks**
	Emergency Management	**EMS Operations, Fire, Police, Hospital, Health Department, Communications**
2. Evacuation Routes	**Roads**	**Roadways, Traffic Signals, Generators**
	Bridges Culverts	**(same)**
3. Utility Infrastructure	**Electrical Distribution**	**Substations, Transformers, Power Lines, Generators**
	Water Treatment	**Wastewater Treatment Plants, Sewage Lift Stations**
	Water Supply	**Well Heads, Water Storage Tanks**
4. Repetitive Loss	**Repetitive Loss Properties**	**Property Acquisition Building Elevation**
	Historically Flooded Properties	**Property Acquisition Building Elevation Master Storm Water Plan Individual lot storm water plans**

5.3.3 PRIORITY 1 Protection of Life

The top Category of projects for hazard mitigation includes those that have the highest potential for protection of life. These mitigation projects include:

- The creation and hardening of storm shelters;
- The early evaluation of vulnerable structures (mobile homes and trailer parks),
- The maintenance of emergency management functions,
- Public health concerning infectious diseases.

Note: Hurricane Ivan and Dennis evacuation problems have put higher emphasis on moving citizens and tourist out of areas of immediate flood hazard and moving them into shelters.

(A) Shelters

Schools

Schools can and do provide safe shelters from most natural hazards because they are generally constructed using concrete block rather than wood framing and therefore can withstand higher wind loads. It is recommended that all the schools in Walton County be equipped with window and door storm shutters so they can be better protected from wind damage and flying debris.

The usefulness of any shelter facility is determined by its ability to withstand damage from both wind and floods. The following schools cannot be used as shelters due to their location and jeopardy to storm surge.

- Seaside Neighborhood
- Van R. Butler Elementary
- Bay Early Education

Note: South Walton High School is to be used only as a last resort due to its location and isolation if the Clyde Wells, 331 Bridge, is closed.

Funding for storm shutters for schools may be attainable from the HMGP Program.

Note: Per the state's Walton County profile, Walton County has a deficit regarding shelters. Prior to an interlocal agreement between the Walton County School Board and Walton County Board of Commissioners, the developers of Blackstone DRI, located in Mossy Head, Florida (unincorporated county) volunteered a 40-acre site for a new school. The new school was built and opened in the fall of 2008. The Mossy Head School, located on U.S. Highway 90 West is a new facility that was designed and built to use as a shelter.

Additionally, in the City of DeFuniak Springs, the Walton High School is located on Walton Road just off County Road 83 North. The Walton High School was also designed and built as a shelter.

Churches

Churches can also provide safe shelters from most natural hazards because churches are generally well constructed and able to withstand higher wind loads. Many churches are located in areas that are vulnerable to flooding from tropical storms and hurricanes as low as a Category 1. Churches that are susceptible to flooding and high winds should not be used as shelters from tropical storms or hurricanes.

Churches that are available for shelters should have the doors and windows retrofitted with storm shutters. Funding for these activities possibly is acquirable from PA, HMGP, and EMPA.

(B) Vulnerable Structures

Family Service facilities provide shelter for the elderly and physically handicapped residents during times of emergency. Presently, those facilities are vulnerable to wind and flooding damage from Category 3 and higher storms. It is essential that these facility directors are notified as to the nature of the hazards to which they are susceptible so facilities management personnel are notified to evacuate these facilities early. Providing these facilities with adequate information can allow them to plan accordingly and implement mitigation strategies in order to avoid storm damages. Funding available to these facilities for hazard mitigation purposes include PA, HMGP, and EMPA.

Trailer parks and mobile homes were designated by the LMS working group as non-critical facilities; however, they are included in the vulnerable structures tables and mapped for the purpose of early evacuation. It was decided by the LMS working group that special attention needs to be directed at them by support organizations to be sure that these facilities be evacuated early. In addition, public awareness programs need to be aimed at the education of visitors to Walton County and those who use various recreational facilities such as campgrounds and RV parks. While many local residents are aware of the dangers presented by tropical storms and hurricanes, many tourists are not. For this reason, it is recommended that resorts and campgrounds along those areas subject to storm damage provide proper information to the tourist division and chamber of commerce as to evacuation procedures and storm safety measures they have implemented to ensure the safety of the public. Those areas having campsites need to include said campsites in any hazard mitigation planning undertaken by the proprietors. The Critical Facilities Tables lists those recreational and resort facilities susceptible to storm damage. Sources of funding for emergency planning and hazard mitigation for these facilities include PA, HMGP, and EMPA.

(C) Emergency Response Functions

EMS stations are extremely important in providing medical services in times of need. The three EMS facilities are all susceptible to high wind damage and flooding from Category 3 and higher hurricanes which would hinder the EMS facilities in providing much needed medical services to the public during these times. Recommended mitigation strategies to alleviate the possibilities of damage from these storms are upgrading of existing structures to more permanent, reinforced structures, as well as relocation to higher ground areas, which would require the acquisition of land. Possible sources of funding include HMGP, EMPA Trust Fund and PA.

Communications facilities are vital tools in times of emergency. Loss of communications during these times can create difficulties in the organization of emergency response procedures. The communication facilities are susceptible to flooding and wind damage from Category 3 and higher storms. In order to mitigate damage to these facilities it is suggested that five-foot protective berms

be established around these facilities to prevent flooding. Structural analysis should also be conducted to ensure the facilities are stable enough to resist wind speeds at or above 140 mph. Possible sources for funding these improvements include PA, EMPA, and HMGP.

Fire department facilities are essential in providing protection to both life and property during times of emergency. Damage to these facilities can create lapses in emergency response and community safety. The facilities are vulnerable to wind and/or water damage from Category 4 and higher storms. Suggested mitigation strategies include ensuring these facilities building speculations are within flood codes, and that they are structurally sound in regards to high wind speeds. Notification of the South Walton Fire Department regarding the nature of the hazards facing these facilities is essential in coordinating proper mitigation strategies. Possible sources for funding improvements include PA, EMPA, and HMGP..

Police stations are critical in providing operational and safety organization for local communities during times of emergency. Damage to these facilities would negatively impact public safety in a number of ways. The DeFuniak Springs Police Department is susceptible to wind and water damage. Mitigation strategies include upgrading such facilities to meet building code requirements for flood and high wind damage prevention. Potential funding may be found through PA, HMGP, and EMPA.

5.3.4 PRIORITY 2 Evacuation Routes

The second major Category of projects for hazard mitigation includes those that can improve the evacuation route infrastructure. These mitigation projects include:

- Evacuation route highways and roads maintenance, repair and upgrade;
- Bridge elevation and armoring and
- Culvert expansion and armoring.

Again, the re-occurring hurricane evacuation problems have put greater emphasis on quickly moving citizens and tourists out of the County.

(A) Roads

Road security is essential in maintaining adequate emergency response procedures in times of need. Roads subject to flooding damage create safety hazards and exacerbate already difficult evacuation procedures. Certain roads are subject to flooding from Category 1 and higher storms, creating washouts and other damages. Mitigation strategies to alleviate these problems must first start with coordination between local and county agencies and the Florida Department of Transportation (FDOT) to determine the best possible strategy for mitigation. One of the highest hazard mitigation priorities identified by the LMS working group is to widen U.S. 331 to four lanes to enhance hurricane

evacuations (currently in progress). Mitigation strategies may involve hydrologic engineering, and transportation studies, as well as reinforcement and reconstruction of structures prone to damages. Construction of bridges and culverts to alleviate flooding where necessary may also provide adequate hazard mitigation. Possible sources of funding for these projects may come from FDOT, FDEP, PA, HMGP, EMPA, EDA, and CDBG.

(B) Bridges

Structurally sound bridges are essential in maintaining proper emergency responses to hazards. Many bridges in Walton County and in its municipalities are prone to flooding damage from Category 2 and higher storms (Critical Facilities Table). To maintain adequate emergency response and evacuation, it is imperative that the integrity of these bridges sustain during storm events. This would first begin with coordination between local agencies and the FDOT. Mitigation strategies would include hydrologic, engineering, and transportation studies, as well as restructuring and/or reinforcement (i.e. headwalls or retaining walls) of present bridges and the re-evaluation of present evacuation routes. Funding sources for these projects can be provided through FDOT, FDEP, PA, HMGP, EMPA, EDA, and CDBG.

Culverts provide much needed drainage for areas during storms, allowing the stormwater runoff to circumvent roads and bridges, thereby preventing flooding of roadways and bridges. The usefulness of culverts in regards to flood prevention is determined by the culvert's ability to direct the flow of large amounts of storm water. All the culverts are prone to overloading during storm events of Category 1 and higher, or reside in the 100 Year Flood Zone, as determined by FEMA. Mitigation strategies, in coordination with FDOT, county governments, and local municipalities, may include various scientific studies, as well as the construction of elevated bridges and roadways to alleviate the possibility of overloading. Probable funding sources include FDOT, FDEP, PA, HMGP, and EMPA.

5.3.5 PRIORITY 3 Utility Infrastructure

The third major category of projects for hazard mitigation includes those that can reduce the potential for property loss associated with Walton County and its municipalities existing utility infrastructure. These mitigation projects include armoring, flood proofing and providing backup generators, pumps, and support equipment for the following:

- Water treatment facilities
- Water supply facilities
- Electrical distribution
- Hazardous material sites

Utility infrastructure such as wastewater treatment facilities, water supply facilities, and electrical substations provide much needed services during times

of emergency. As with earlier analyses of mitigation strategies for other facilities and structures, the following mitigation analysis is based on the aforementioned utility classifications rather than on individual instances of occurrence.

(A) Waste Water Treatment Facilities

The protection of water treatment facilities including wastewater treatment plants and sewage lift stations is critical in maintaining water quality, public health, and services to the community during times of emergency. Damaged sewer lines can release raw sewage into the environment and have negative impacts on public health, safety, and emergency response. Appendix C lists the treatment plants and lift stations prone to flooding. Mitigation strategies for these facilities include the construction of protective berms around the plants, relocating sewer lines underground below the water table, and re-evaluating sewage spill procedures. Another hazard associated with treatment plants is chlorine tanks, which are used for water purification. These tanks should be elevated to prevent flood damage. Lift stations could be protected by the elevation of electrical boxes to a height at or above three feet, and subsequent flood proofing by construction of concrete walls. Funding for these projects may be acquired from FDEP, PA, HMGP, EDA, HMTA, and EMPA.

(B) Water Supply Facilities

Protection of water supply facilities including water tanks and well-heads from storm damage is essential for maintaining public health and safety. Flooded well-heads and water tanks can become polluted by a variety of contaminants, affecting water quality and public health. Interruption of the water supply can hinder emergency response and medical services. Well heads and water tanks vulnerable to wind and flood damage are listed in the Mitigation strategies for water supplies includes well head elevation, armoring against floodwater intrusion, elevating electrical connections, supplying backup power generators, relocating water lines underground below the water table, and requiring the construction of protective berms for flood prevention. Funding sources include FDEP, PA, HMGP, and EMPA.

Although not listed as “critical facilities” fire hydrants are obvious necessities in hazard mitigation, providing needed water to combat fires, both naturally occurring and man-made. When flooding occurs it is difficult to locate fire hydrants that are submerged Mitigation of this problem includes the establishment of markers that would be visible above possible floodwaters. However, a mitigation strategy recommendation was made that all fire hydrants subject to flooding should have a five foot pole affixed to them that would be visible above flood waters. Funding for this program may be provided by PA and HMGP.

(C) Electrical Substations

The protection of electrical substations is critical in maintaining the electricity that powers the other utility infrastructure, residences, government services, etc. in

the county. Damage to the power grid can have wide ranging impacts on the ability of the county to quickly implement post disaster recovery operations. The Villa Tasso, Eastern Lake, and Blue Mountain Beach substations are all vulnerable to flooding and should be the first facilities addressed by the responsible utility company. Funding for these projects may be acquired from FDEP, PA, HMGP, EDA, HMTA, and EMPA.

(D) Hazardous Materials Sites

Hazardous materials sites pose special problems in that not only are they susceptible to natural hazards, but also once damaged they can pose significant environmental and public man-made hazards. A number of the utility structures discussed above (well heads, wastewater treatment) also contain hazardous materials that need to be addressed during approaching storm events. The Critical Facilities Tables show the number of hazardous materials sites that are vulnerable to storm damage. The facilities are mapped but not used for the purpose of this document. These facilities must be notified of the nature of the hazards to which they are susceptible, so that they can take proper mitigation steps. Possible strategies include elevation of hazardous materials, the evaluation of emergency spill and recovery plans, and public awareness to facilitate evacuation procedures. Sources of funding available to these facilities include FDEP, PA, HMGP.

5.3.6 PRIORITY 4 Repetitive Loss Properties and Historically Flooded Properties

The fourth major Category of projects for hazard mitigation includes those that deal with reducing the costs associated with repetitive loss and historically flooded areas. These losses are a drain on the funds available to support hazard mitigation, but they do not directly affect protection of life, evacuation, or the destruction of critical infrastructure support facilities. As previously addressed in Section 4, mitigations efforts have been and are underway to help prevent occurrences of repetitive loss properties.

Much of the repetitive property loss is simultaneous to the years of hurricane hits within the county, because of the torrential rains and winds associated with tropical storms and hurricanes. Additionally, seasonal spring rains, and thunderstorms are also a cause of localized flooding around the Shoal River, Choctawhatchee River, Bunker, Steel Field and Black Creek Areas. The County has the repetitive properties mapped for the purpose of alleviating repetitive loss, but did not include the maps in this document to protect the privacy of the individuals located in these areas.

Strategies to alleviate repetitive loss properties are to either buy-out the properties that are repetitively damaged, or elevate the structure associated with the property if it does not meet the specifications of FEMA's guidelines for construction and NFIP compliance. All structures are required to be rebuilt to

FEMA's CRF 44 construction guidelines and NFIP compliance as well as meet the Florida Building Code for specific wind loads.

Building regulations, land development codes, and comprehensive plans for the County and the participating jurisdictions must be strictly adhered to for all structures within a 100-year, 500-year flood zone and Coastal High Hazard Areas and Surge Zones. Sources of funding available for repetitive loss properties are HMGP and FMA.

5.4 Completed Mitigation Projects

As part of the re-evaluation of the mitigation project list, it was determined that a database was necessary to complete an analysis and run reports from the Mitigation Project list to include completed, deferred, deleted projects. Projects that are in progress are list as completed with notes that provide progress (Appendix F1).

Projects that were not completed from the 2009 yearly update, have been deferred to the current list of projects yet to be completed. The 2 numbering system has been updated to 2014. A complete evaluation and re-ranking of the projects has taken place during the past 2 years The new list reflects this years scoring of the projects and each project has been ranked according to the STAPLEE method follows:

Criteria 1: Social
Criteria 2: Technical
Criteria 3: Administration
Criteria 4: Political
Criteria 5: Legal
Criteria 6: Economic
Criteria 7: Environmental

The working group used the staple score and did a normalization numeral of 10 (staplee score x 10) to get the cost benefit on the projects that did not already have a previous estimated cost benefit, the exception being the repetitive loss list in which we used the cost of replacing the homes as an average of 200,000.00 then added additional values for Life and Safety. Then we divided the benefit by the total cost to get the Cost Benefit Ratio (CBR).

Each Criteria listed above requires that a series of questions be answered to complete the method of scoring on each individual project. Complete lists of each criterion questions are found on the Walton County LMS Evaluation Forms that were completed by LMS working group members from each jurisdiction as well as the County's Public Works Department and GIS Department (Appendix C3).

Section 6 Identification and Analysis of Mitigation Action: NFIP Compliance. §201.6(C) (3) (ii)

Each jurisdiction and Walton County complies with NFIP regulations.

6.1 Building Review

Walton County and the participating Jurisdictions City of DeFuniak Springs, City of Freeport, and Town of Paxton each have adopted their own flood zone language (as previously shown in Section 4.2) in accordance with CFR 44 Section 60.3 FEMA Regulations. Through planning and building review, residential and non-residential structures are built in accordance with NFIP regulations.

By interlocal agreement as of May 11, 2009, the Walton County Building Department reviews and inspects all plans for the City of DeFuniak Springs. The City Planner for the City of DeFuniak Springs reviews all building permits for compliance with the City's land use regulations and Walton County's Building Official ensures compliance with construction standards including CFR 44, Section 60.3. The actual permitting is being done through the City.

Currently, the Walton County Building Department permits, reviews and inspects all plans for the City of Freeport and the Town of Paxton and the unincorporated County. The City Planner for the City of Freeport reviews all building permits for Freeport and Paxton for compliance with land use regulations and Walton County's Building Official ensures compliance with construction standards including CFR 44, Section 60.3.

In addition, after each hazardous event, the initial damage assessment is conducted by the Building Official and Building Department for building safety within impacted areas for structural viability. Flood insurance claims are reviewed at the time of proposed repair for substantial improvement and damage.

Based on the adopted ordinances for land development and construction for structures within a flood zone area it is evident that the County and jurisdictions are obligated participants in the NFIP. Additionally, Walton County, as of April 28, 2005, began requiring three elevation certificates for all new construction in zones that are considered to be at greatest risk for flood damage: An initial certificate with proposed elevations, a second certificate when the foundation is complete and a final, "as built" certificate before a certification of completion will be received from the building department (Appendix G1).

6.2 Development Review

All development review for the County and the jurisdictions are done in compliance with NFIP requirements. Each development is required to go through a Technical Review Process that includes: Planning, Emergency

Services, Environmental, Fire Department (jurisdiction), and Engineering. Other reviewers are: Environmental Health, 911 Addressing, School District, and Eglin Air-force base.

6.3 Prior Actions:

Projects that have been mitigated, by means of the HMGP and FMA grants programs have previously been listed in Section 4.

As previously mentioned, each jurisdiction has adopted a Flood Plain Ordinance that is strictly adhered to.

A LIDAR Layer, SLOSH Layer, and NFIP Map Layer is now available and used by the County's GIS Department, Planning Department, Environmental Department and Engineering Department to help mitigate future development within hazard areas.

Elevation Certificates are being required in three stages to ensure that development is done according to FEMA, and CFR 44, Section 60.3.

6.4 Past Actions:

Walton County and their jurisdictions had the following goals in 2009:

1. To decrease repetitive loss.
2. To limit development in hazard areas to the extent allowable;
3. To participate in the CRS program;
4. Adopt a Post Disaster Redevelopment Plan;
5. To re-write existing codes and plans to incorporate the Local Mitigation Plan in all sections as applicable.

All of the above goals have been met.

6.5 Future Actions:

1. Work closer with the community to educate on local mitigation efforts.
2. Continue to decrease repetitive loss.
3. Continue to limit development in hazard areas to the extent allowable.
4. Continue to update existing codes and plans to incorporate the Local Mitigation Strategy and Post Disaster Redevelopment Plan when feasible.

6.6 National Flood Insurance Program (NFIP) Compliance

All jurisdictions are active participants in the NFIP. In an effort to ensure continued compliance with the NFIP, each participating community will:

1. Continue to enforce their adopted Floodplain Management Ordinance requirements, which include regulating all new

development and substantial improvements in Special Flood Hazard Areas (SFHA).

2. Continue to maintain all records pertaining to floodplain development, which shall be available for public inspection, such as elevation certificates.
3. Continue to notify the public when there are proposed changes to the floodplain ordinance or Flood Insurance Rate Maps.
4. Maintain the map and Letter of Map Change repositories.
5. Continue to promote Flood Insurance for all properties.
6. Continue their Community Rating System outreach programs.

Section 7 Plan Maintenance Process

Monitoring, Evaluating, and Updating the LMS Plan: 201.6 (c) (4) (ii)

7.1 Plan Maintenance

According to the Administrative Rule 9G-22, the LMS working group shall meet the following requirements:

1. No later than the last working weekday of each January, the Chairperson of the Board of County Commissioners shall submit to the Florida State Division of Emergency Management, a list of the members of the Local Mitigation Strategy Working Group and its designated chairperson and vice-chairperson.

2. The Working Group shall include, at a minimum, representatives from various agencies of the County government, representatives from all interested municipalities in the County, and representatives from interested private and civic organizations, Native American tribes organizations, trade and commercial support groups, property owners associations, water management districts, regional planning councils, independent special districts, and non-profit groups.

3. The County shall submit documentation that indicates that, within the preceding year, it has issued a written invitation to each group as specified above in #2.

4. The Local Mitigation Strategy Working Group shall be charged with the responsibilities of designating a Chairperson and Vice-Chairperson; developing and revising the Local Mitigation Strategy as necessary; coordinating all mitigation activities within the County; update to the Florida State Division of Emergency Management by the last working weekday in January of each year. The update shall include changes to the hazard assessment, project priority list, critical facilities list, repetitive loss list, and revisions to all maps.

5. The Local Mitigation Strategy Working Group shall be charged with the responsibility of doing each 5-year update. All changes within local and state laws will be addressed in the next 5-year plan. The LMS Working Group method will be to review the state, regional and local plans for revisions, annually and compile a list to be addressed in the 2020 update. A revised schedule to accomplish the next 5-year update is not yet complete; however, will be addressed at the upcoming LMS Working Group Meetings. Tentatively, the new schedule shall be much like the current schedule as follows:

   A. Final Draft 2020 LMS Plan to State Emergency Management (FEMA) by November 1, 2020, begin revising by March 2019.
   B. Send to State EM for review on November 1, 2019.

C. State reviews by January 29, 2020 and if any corrections are to be made within 30 days;
D. State sends approval letter once all correction are made.
E. New LMS Plan Adoption within one year by all participating jurisdictions, by May 1, 2021.

Walton County and its municipalities have developed a method to ensure that an annual review and update of the Hazard Mitigation Plan occurs, although FEMA regulations only require an update every five years. The Local Hazard Mitigation Working Group and its members from local agencies and other concerned parties, including elected officials, City and County Planners, Emergency Services, County Sheriffs Office, County Grants Division, County's Public Works Division, County's Planning Division, County's GIS Department and Choctawhatchee Electrical Cooperative (CHELCO). The County Planning Department (LMS Chairperson) is responsible for scheduling quarterly meeting and contacting committee members. The meetings are scheduled as follows:

LOCAL MITIGATION STRATEGY
2015 MEETING SCHEDULE

DATE:	**TIME:**	**LOCATION**:
February 11, 2015	9:00 a.m.	City of Freeport Conference Room
May 13, 2015	9:00 a.m.	City of Freeport Conference Room
August 12, 2015	9:00 a.m.	City of Freeport Conference Room
November 18, 2015	9:00 a.m.	City of Freeport Conference Room

The LMS working group will be responsible for monitoring and updating the plan.
The LMS working group will review each goal and objective to determine their relevance to changing situations in the County, as well as changes in State or Federal policy, and to ensure that they are addressing current and expected conditions. The working group will also review the risk assessment portion of the plan to determine if this information should be updated or modified. The parties responsible for the various implementation actions will report on the status of their projects and will include which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

The LMS working group will then have three months to update and make changes to the plan before submitting it to the State Hazard Mitigation Officer. If no changes are necessary, the State Hazard Mitigation Officer will be given a justification for this determination. Comments and recommendations offered by Working Group members and the State Hazard Mitigation Officer will be incorporated into the plan.

7.2 Incorporation into Existing Planning Mechanisms

Walton County and its municipalities have other plans that will be reviewed and integrated into the Hazard Mitigation Plan as they undergo their regular updates. As previously mentioned, the Walton County Comprehensive Plan has been amended per the approved EAR. According to the planners of the City of Freeport and City of DeFuniak Springs, they have updated their comprehensive plans as well. The following is a list of plans and codes that have and will continue to be integrated into the Walton County Hazard Mitigation Plan.

- Walton County Comprehensive Plan
- Walton County Land Development Code
- City of DeFuniak Springs Comprehensive Plan
- City of Freeport Comprehensive Plan
- City of Paxton Land Development Code

The Hazard Mitigation Plan will take into account any changes in these plans and incorporate the information accordingly in its next update.

The LMS Working Group contacted the Planners for City of DeFuniak Springs, City of Freeport, Town of Paxton and Unincorporated Walton County as to if whether any changes had taken place within their planning mechanisms that would relate to the Local Mitigation Strategy. The municipalities provided the updates to their Land Development Codes as found in (Appendix H1).

Walton County has adopted many ordinances during the previous 5-year update cycle, which has incorporated the LMS Strategy into their planning mechanisms. The list is as follows:

1. Ordinance 2005-24, June 28, 2005, Amending the Walton County Land Development Code, White Sand Protection Zone;
2. Ordinance 2005-27, October 11, 2005, Amending the Walton County Land Development Code, Protection of Flood-Prone Areas;
3. Ordinance 2005-32, November 25, 2005, Amending the Walton County Land Development, Protection of Flood-Prone Areas;
4. Ordinance 2006-06, June 13, 2006, Code of Ordinances, Open Burning Without a Permit;
5. Ordinance 2006-09, June 27, 2006, Code of Ordinances, Prohibiting Fireworks;
6. Ordinance 2006-16, August 8, 2006, Code of Ordinances, Repeal Open Burning Permit;
7. Ordinance 2007-05, May 22, 2007, Code of Ordinances, Prohibiting Open Burning Without a Permit;
8. Ordinance 2007-06, July 10, 2007, Land Development Code, Restriction on Development (Wetlands);
9. Ordinance 2007-18, Code of Ordinances, Repealing Open Burning Without a Permit;

10. Ordinance 2007-22, August 28, 2007, Amending the Walton County Land Development, Protection of Flood-Prone Areas;
11. Ordinance 2007-43, October 23, 2007 Code of Ordinances, Adopt by reference, Wind Borne Debris Regions and Basic Wind Speeds Map.
12. Ordinance 2007-44, October 23, 2007, Code of Ordinances, Create a Category of Specialty Contractor for Hurricane Shutter Installation;
13. Ordinance 2007-53, December 11, 2007, Modifying the Walton County Land Development Code Providing a Provision for Engineering Interpolation Between the Basic Wind Speed Lines of the Walton County Wind-Borne Regions and Basic Wind Speeds Map; Re-defining the Walton County Coastal Building Zone and Requiring Engineer Design and Certification for Structural Construction in That Zone;
14. Ordinance 2008-02, January 8, 2008, Walton County Comprehensive Plan, Updated Table of Capital Improvements to Include Preliminary Engineering Design of Construction of the Mossy Head Wastewater Treatment Facility;
15. Ordinance 2008-06, January 22, 2008, Walton County Land Development Code, Detection and Elimination of Inappropriate Discharge into the Stormwater System;
16. Ordinance 2008-07, March 11, 2008, Walton County Comprehensive Plan, Flood Prone Areas, Special Flood Hazard Areas;
17. Ordinance 2008-09, March 25, 2008, Walton County Land Development Code, Xeriscaping;
18. Ordinance 2009-01, January 13, 2009, Requiring the Certification or Registration of Persons Engaged in or Desiring to Engage in the Business of Construction Contracting.

Since 2010, Walton County has adopted the following ordinances which incorporate the Local Mitigation Strategy into our planning mechanisms:

1. Ordinance 2010-08, Protection of Flood Prone Areas (Flood Plain) May 10, 2010.
2. Ordinance 2010-12, Local Mitigation Strategy Working Group, June 22, 2010.
3. Ordinance 2010-13, Water Supply Facilities Work Plan, July 13, 2010.
4. Ordinance 2010-14, New Mining Ordinance July 27, 2010.
5. Ordinance 2010-15, Walton County Updated Flood Map Ordinance November 9, 2010.
6. Ordinance 2011-03, Comprehensive Plan Elements, March 1, 2011
7. Ordinance 2011-04, Amending the Walton County Comp. Plan for the Unincorporated Areas - Map Series March 1, 2011
8. Ordinance 2014-05, Floodplain Management, January 28, 2014.
9. Ordinance 2014-11, Land Clearing Activities within Coastal Dune Lake Protection Zone, May 13, 2014.

7.3 Continued Public Involvement

The LMS working group will continue to solicit members to join the working group, by means of sending letters, email invitations, internet advertising and advertised meetings as an outreach to private and public businesses, organizations and associations.