

Appendix F

Flood Mitigation Plan



Santa Rosa County, Florida Flood Mitigation Plan

*A Multi-Jurisdictional Mitigation Plan for:
The City of Gulf Breeze
The Town of Jay
The City of Milton and
Santa Rosa County, Florida*



Produced by the

Santa Rosa County Flood Mitigation Task Force

November 2009; updated by SRC November 2015

In cooperation with:
CRS Max Consultants, Inc.
The experts in CRS rate improvement
Coconut Creek, Florida

Santa Rosa County, Florida

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Santa Rosa County

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Section One

INTRODUCTION

Santa Rosa County, Florida is located along the Gulf of Mexico in the panhandle of Northwest Florida. It covers a total of 1,174 square miles; approximately 1,017 square miles of land and 157 square miles of water. The three incorporated communities in Santa Rosa County are Milton, which is the county seat, Gulf Breeze and Jay. Unincorporated communities in the County include Chumuckla, Midway, Navarre, Navarre Beach, Oriole Beach, Bagdad and Pace.

The County shares its western border with Escambia County, Florida across the Escambia River. Escambia County, Alabama borders on the north while Okaloosa County, Florida borders on the east. The southern border is the shoreline of the Gulf of Mexico. Santa Rosa County was established in 1842.

Industry in the county is located in the greater Milton area. Incorporated in 1844, Milton is among the oldest cities in Florida. At that time the Blackwater River provided transportation for the timber, brick and shipbuilding industries that supported the area. Milton's commercial opportunities were greatly expanded by the Arcadia mill and the L&N Railroad. As World War II approached, Milton was chosen as the site for NAS Whiting Field, and the community continues to embrace the service members and their families today. Milton is a progressive city that balances small town charm and modern urban life.

The terrain of Santa Rosa County is varied. The southern portion is characterized mostly by sand hills and pine flatwoods with swampy areas along the rivers. The northern portion is almost exclusively rolling, forested hills with elevations reaching 300 feet. Eglin Air Force Base, in the southeastern corner of the county, is composed mostly of sand hills with swamp along the Yellow River.

The five member Board of County Commissioners serves as the legislative and policy setting body for Santa Rosa County. As such, the Board enacts all legislation and authorizes programs and expenditures for the County. The Board appoints a professionally trained County Administrator, who is responsible for policy and budget development and implementation.

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Section Two

BACKGROUND AND PURPOSE

Flood mitigation plans form the foundation for a community's long-term strategy to reduce flood losses and break the cycle of flood damage, followed by reconstruction, and repeated damage. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future floods. Flood mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from flooding. Local governments are required to develop a flood mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.

Santa Rosa County has developed a Flood Mitigation Plan that provides a comprehensive set of strategies for flood mitigation and includes a list of activities that can further mitigation goals.

The purpose of this Flood Mitigation Plan is to:

- help reduce flood losses
- improve local flood hazard mitigation capability
- increase public and private sector awareness by educating about the hazards, loss reduction measures, and the natural and beneficial functions of floodplains
- address and protect cultural, economic and natural resources

This Flood Mitigation Plan (FMP) is intended to accomplish this purpose and to promote a sustainable and flood-resistant community.

The County's efforts have demonstrated a strong commitment to flood mitigation and have served to minimize the impacts of flooding. There is an ongoing commitment to improvement that is further demonstrated by this plan. This Flood Mitigation Plan is intended to provide direction and to identify the actions necessary to advance the numerous facets of Santa Rosa County's overall flood mitigation efforts.

This Flood Mitigation Plan has been purposefully developed to be consistent with:

- the *Santa Rosa County Local Mitigation Strategy 2005 – 2010 (LMS)*,
- the National Flood Insurance Program's Community Rating System Floodplain Management Planning Process, and
- the Disaster Mitigation Act of 2000

2.1 Consistency with the Santa Rosa County Local Mitigation Strategy

This Plan is consistent with the *Santa Rosa County Local Mitigation Strategy 2005 – 2010* (LMS), and is intended to become an appendix to the Santa Rosa County 2010-2015 LMS (as updated November 2015). Although the 2005 – 2010 LMS included a flood mitigation section, the County determined there was a need for strengthening this component of the strategy and incorporating increased public input as part of the plan development process.

2.2 Consistency with the Community Rating System Floodplain Management Planning Process

In addition to serving as a guide recommending mitigation solutions to flooding, this document has also been prepared to qualify as a “floodplain management plan” under the Community Rating System (CRS). The National Flood Insurance Program's (NFIP) CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. Under the CRS, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS:

1. Reduce flood losses,
2. Facilitate accurate insurance ratings, and
3. Promote the awareness of flood insurance

To obtain the necessary credit points to achieve lower CRS class ratings, communities implement a broad range of programs aimed at addressing these three goals of the CRS program. Generally these goals are accomplished through a mix of more stringent regulations, additional property acquisitions and relocations, floodproofing of flood prone buildings, preservation of natural resources such as open space, and other measures that protect natural resources.

On October 14, 1977 Santa Rosa County joined the National Flood Insurance Program. In October 1993, Santa Rosa County qualified for the CRS Program. Participating jurisdictions are classified in CRS *classes*. These classes range from Class 1, which requires the most credit points and provides the largest reduction in insurance premiums, to Class 10, which receives no reduction in insurance premiums.

Currently, Santa Rosa County has a CRS rating of Class 5, resulting in a 25% reduction in flood insurance premiums for citizens that purchase flood insurance in Special Flood Hazard Areas. This saves the citizens of Santa Rosa County \$1,097,231.00 annually on flood insurance premiums. This puts Santa Rosa County in an elite group of only 22 jurisdictions in the State of Florida that have achieved a Class 5 rating. As of October 2015, only one jurisdiction in Florida has exceeded the Class 5 rating. Marion County

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has the distinction of being a Class 3 which results in 35% reduction in flood insurance premiums.

Credit Points	CRS Class	Flood Insurance Premium Discount
4500 +	1	45%
4000 – 4499	2	40%
3500 – 3999	3	35%
3000 – 3499	4	30 %
2500 – 2999	5	25%
2000 – 2499	6	20%
1500 – 1999	7	15%
1000 – 1499	8	10%
500 – 999	9	5%
0 – 499	10	0

Because the County has over ten repetitive loss properties, it is required to have a CRS “Floodplain Management Plan” in order to continue its participation in the Community Rating System. This *Flood Mitigation Plan* will fulfill this requirement and will increase the points total for Santa Rosa County.

In conjunction with the development of this Flood Mitigation / Floodplain Management Plan, Santa Rosa County will continue to implement other activities that go beyond the minimum NFIP requirements. Through the CRS program, residents of the County have seen, and will continue to see a reduction in their flood insurance premiums, in addition to experiencing increased property and personal protection from the hazard of flooding. As a CRS program participant, the County actively pursues a broad range of mitigation and management activities, including:

- Many educational Outreach Projects, such as the *Santa Rosa County Disaster Guide*
- Mapping Information, including furnishing inquirers with flood zone information and using digitized maps which are available on the County’s website
- Regulations and Ordinances, such as requiring site specific erosion rate analysis for permits of structures seaward of the Florida Department of Environmental Protection’s (FDEP) Coastal Construction Control Line,

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enforcing regulations for stormwater management and prohibiting dumping in the drainage system

- Flood Protection Information displayed on the Santa Rosa County website and in the County's libraries
- Hazard Disclosure regulation requiring disclosure of flood hazards on all recorded final plats
- Designation as a Storm Ready Community by the National Weather Service

The CRS program has a total of fifteen activities by which communities can accumulate points toward their class ratings. These activities, designated in the *FEMA Community Rating System Coordinator's Manual* are:

- 310 – Elevation Certificates (162 points maximum)
- 320 – Map Information (140 points max)
- 330 – Outreach Projects (315 points max)
- 340 – Hazard Disclosure (81 points max)
- 350 – Flood Protection Information (66 points max)
- 360 – Flood Protection Assistance (71 points max)
- 410 – Additional Flood Data (1,373 points max)
- 420 – Open Space Preservation (900 points max)
- 430 – Higher Regulatory Standards (2,720 points max)
- 440 – Flood Data Maintenance (231 points max)
- 450 – Stormwater Management (670 points max)
- 510 – Floodplain Management Planning (359 points max)
- 520 – Acquisition and Relocation (3,200 points max)
- 530 – Flood Protection (2,800 points max)
- 540 – Drainage System Maintenance (330 points max)
- 610 – Flood Warning Program (225 points max)
- 620 – Levee Safety (900 points max)
- 630 – Dam Safety (175 points max)

Santa Rosa County will accumulate additional CRS credit by developing this Flood Mitigation/ Floodplain Management Plan. While the CRS program does not dictate exactly what details are to be in a Flood Mitigation / Floodplain Management Plan, it will credit this Plans with additional points consistent with the standard planning process outlined in the *FEMA CRS Coordinator's Manual*:

1. Organize to prepare the plan (10 points maximum)
2. Involve the public (85 points max)
3. Coordinate with other agencies (25 points max)
4. Assess the hazard (20 points max)
5. Assess the problem (35 points max)
6. Set goals (2 points max)
7. Review possible activities (30 points)
8. Draft an Action Plan (70 points max)

9. Adopt the Plan (2 points)
10. Implement, evaluate and revise (15 points)

This document is intended to be consistent with the FEMA guidelines and serves as Santa Rosa County's Flood Mitigation / Floodplain Management Plan for CRS credit under Activity 510.

2.3 Consistency with the Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 (DMA 2000) amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988. Among its main features, the DMA 2000 authorized the creation of a pre-disaster mitigation program that makes mitigation grants available to states, as well as to local and tribal governments, providing they have a FEMA approved hazard mitigation plan in effect prior to the time of the disaster. In accordance with the DMA 2000, Santa Rosa County has developed the LMS. This approved hazard mitigation plan has enabled the county to receive Hazard Mitigation Grant Program (HMGP) awards and a Flood Mitigation Assistance (FMA) Planning Grant, which was used to develop this Flood Mitigation Plan. The planning regulations for the DMA are consistent with the CRS process. This Plan has been designed and developed to fulfill both programs' requirements.

2.4 Flood Mitigation Assistance Program Grants

The Federal Emergency Management Agency's (FEMA's) Flood Mitigation Assistance Program (FMA) provides funding to states and communities for measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). The Program provides grants for mitigation planning, projects, and technical assistance, with a goal of reducing flood insurance claims under the NFIP.

FMA Project Grants are available to NFIP-participating communities to implement measures to reduce flood losses. Communities receiving FMA project funds must have FEMA-approved Flood Mitigation Plans (or multi-hazard plans which address flood hazards) in place prior to receiving FMA Project Grant funds. This plan is specifically intended to assist Santa Rosa County to comply with this requirement. The plan enables the County to quickly respond to state and federal funding opportunities for mitigation-related projects. The plan defines, justifies and prioritizes mitigation initiatives that have been formulated through a technically valid hazard analysis and vulnerability assessment process. When applying for grants, the County will be better prepared, using this plan, to quickly and more easily develop the necessary grant application materials for seeking state and federal funding.

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Section Three

THE PLANNING PROCESS

3.1 Organize to Prepare the Plan

The Local Mitigation Planning Task Force has been actively engaged in developing and updating the *Santa Rosa County Local Mitigation Strategy for 2016 – 2020 (LMS)*. Until the development of this Flood Mitigation Plan in 2009, the LMS also served as the community's floodplain management plan for FEMA's Community Rating System program. The County has been able to make significant progress using the flood mitigation section of that plan. In 2008 the County determined to develop this Flood Mitigation Plan in an effort to enhance the strategy and strengthen the flood mitigation component of the LMS, in addition to involving the public as an integral part of the plan development process. Through its application for a Flood Mitigation Planning Grant, the Commission set in motion a process that was intended to result in a Flood Mitigation Plan designed to function as a component of the LMS. The fulfillment of this plan has now been realized. The LMS process itself was also previously authorized by the Commission.

The planning process began with solicitation of input from numerous organizations, agencies and individuals, followed by the organization of the Flood Mitigation Plan Task Force. The Flood Mitigation Plan Task Force is comprised of several individuals who also participated in the development of other local strategies and plans that have an impact on this Flood Mitigation Plan, such as the *Santa Rosa County Local Mitigation Strategy 2016-2020*. The members imparted their first-hand knowledge of these other ongoing efforts to the Flood Mitigation team and are very familiar with a successful planning process.

The members of the Task Force were carefully chosen to incorporate not only knowledgeable County staff members representing the key departments that deal with flood mitigation issues, but also residents and key agencies representing state and local regions. In addition to incorporating technical engineering studies, such as the *Flood Insurance Study*, the planning work conducted to develop this document incorporates the expertise and first-hand authoritative input of the participating Task Force members. Several of the members have also had first-hand experience with flooding, thus adding a very important practical and personal dimension to the process. The combination of perspectives: local and regional, professional and personal, public and private, scientific and experiential, have all contributed to what this Task Force considers to be a strong and comprehensive Flood Mitigation Plan. The fact that the planning process was conducted through a committee composed of staff from those community departments that will be

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implementing the majority of the plan's recommendations promises to make the plan not merely comprehensive but also ~~practical~~ executable.

Santa Rosa County Flood Mitigation Plan Task Force:

Sheila Fitzgerald, MPA, Chair Special Projects and Grants Director	Staff
Stephen Furman, P.E. Public Works Director	Staff
Glenn Bailey, P.E. Public Works Assistant Director	Staff
Karen Thornhill, CFM Floodplain Manager/CRS Coordinator	Staff
Elizabeth Brumfield Santa Rosa County GIS	Staff
Shawn Ward, AICP Planning & Zoning Department Planner III	Staff
Daniel Hahn, MA, FPEM, CEM Emergency Management Plans Chief	Staff
Michael Schmidt, P.E. Engineering Department	Staff
Joy Tsubooka Public Information Officer	Staff
Earl Dean Santa Rosa County (south-end) resident Holley By the Sea HOA impacted by flooding	Resident
Ginny Cannon City of Milton resident, impacted by flooding	Resident
Jim Cox City of Gulf Breeze resident who has been impacted by flooding	Resident

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Curt Carver Deputy City Manager, City of Gulf Breeze, Impacted by flooding	Staff
Randy Jorgenson AICP Planning Manager, City of Milton, resident impacted by flooding	Staff/Resident
Tim Milstead Planning, City of Milton	Staff/Resident
Kyle Holley North End Tourism Development Council	Resident
Louis C. Greene Resident, Navarre, CERT	Resident
Courtney Winstead Resident Midway area, Ranchettes S/D, Impacted by flooding	Resident
Scott Kemp Resident, Navarre, QAQC Lockheed/Martin	Resident
Doug Lasater Resident, Milton, Bagdad Waterfronts	Resident
Trent Mathews USDA-NRCS/Blackwater SWCD	Outside Agency
Morrell Holland Florida Department of Environmental Protection	Outside Agency
Ken Cromer American Red Cross	Outside Agency
Cathi Schulz Resident and Insurance Agent, Bearman Insurance	Outside Agency
Dewayne Ashworth District Technician, United States Department of Agriculture and Natural Resource Conservation Services, Blackwater SWCD	Outside Agency

Don Richards

President, United Peninsula Association

Outside Agency

The Task Force provided invaluable input concerning problem identifications, goals and objectives, and mitigation actions and strategies for the plan. Members of the committee were able to supplement the flood data that was obtained for this report with their personal knowledge and experiences concerning flood hazard areas in the county and the causes of flood hazards.

The Task Force implemented a comprehensive planning approach, using a standard, step-by-step planning process, in accordance with requirements established by the Federal Emergency Management Agency (FEMA). The 10-step CRS process is consistent with FEMA's Multi-Hazard Planning Regulations that are specified in 44 *CFR* 201.6. The four phases of the mitigation planning requirements are:



Step 1: The Flood Mitigation Task Force focused on the resources needed for a successful mitigation planning process, including identifying and organizing interested members of the community as well as the technical expertise required during the planning process.

Step 2: Next, the Task Force identified the characteristics and potential consequences of the flood hazard. It is important to understand how much of the community could be affected by flooding and what the impacts could be on important community assets.

Step 3: Armed with an understanding of the risks posed by flooding, the Task Force determined what the priorities should be and considered potential activities to avoid or minimize the hazard. The result is a flood mitigation plan, including a strategy for implementation.

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Step 4: In order to be effective, the Flood Mitigation Plan must be implemented through an Action Plan that includes a variety of activities, ranging from implementing specific mitigation projects to advocating code requirements for developers. To ensure the success of the ongoing program, it is critical that the plan remains relevant. Thus, it is important to conduct periodic evaluations and make revisions as needed. The five year was conducted in conjunction with the LMS update and those meetings.

These key steps were broken into sections that were individually presented and discussed at the Task Force meetings. The breakdown of specific steps undertaken at each Task Force meeting is as follows.

Task Force Meeting Date	Key Planning Session	Individual Topics Covered
June 26, 2009	Organizational Meeting	<ul style="list-style-type: none"> Description of mitigation plan goals and process, and flooding and the CRS Program in the County
July 20, 2009	Assess the Hazard	<ul style="list-style-type: none"> Brief look at the process Effects of past flooding and locations were discussed Causes and magnitude of flooding
July 30, 2009	Community Meeting Assess the Hazard Assess the Problem	<ul style="list-style-type: none"> Continued assessment of the hazard Begin assessment of vulnerability Review different facets of mitigation Receive input from community
August 10, 2009	Assess the Hazard Assess the Problem	<ul style="list-style-type: none"> Complete assessment of the problem/vulnerability Review maps of repetitive loss properties Description of regulatory revisions and effect Description of capital improvements, past and future Critical facilities and natural hazards loss estimates (HAZUS)
August 24, 2009	Set Goals	<ul style="list-style-type: none"> Review of Steps 1 – 5 Introduction to the importance of setting goals Review of Comprehensive Plan goals as they pertain to flood mitigation Set goals and objectives
September 14, 2009	Set Goals Review Possible Activities	<ul style="list-style-type: none"> Complete goals and objectives Review possible activities <ul style="list-style-type: none"> Public Information Strategy (OPS)
September 28, 2009	Review Possible Activities Draft Action Plan	<ul style="list-style-type: none"> Review Possible Activities Finalize OPS Prioritization of activities Discuss Action Plan
October 12, 2009	Draft Action Plan	<ul style="list-style-type: none"> Discussion of Draft Action Plan Suggestions, additions, deletions and revisions Prioritization of activities
October 26, 2009	Draft Action Plan	<ul style="list-style-type: none"> Draft Action Plan

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		<ul style="list-style-type: none"> • Prioritization of activities • Implement, Evaluate and Revise
November 9, 2009	Presentation of Flood Mitigation Plan	<ul style="list-style-type: none"> • Presentation of Flood Mitigation Plan • Preliminary Approval
February 10, 2011	Public Meeting & Adoption	<ul style="list-style-type: none"> • Final Public Meeting / Adoption of Plan

The Task Force defined the goals that the planning process is attempting to achieve, as well as the specific objectives within each goal that will help to focus the planning efforts.

Conducting the needed analyses and then formulating proposed mitigation initiatives to avoid or minimize the vulnerability of the community to future flooding requires considerable time and effort. Accordingly, each session was structured in such a way as to focus on one or two specific steps and so maximize time management.

See Exhibit 1 for copies of the agendas, sign-in sheets and minutes from the Flood Mitigation Task Force meetings.

3.2 Involve the Public

The flood mitigation planning process is most effective when the citizens and stakeholders within the community are actively engaged. An extensive community involvement process was initiated in this Flood Mitigation Plan through use of a Flood Mitigation Planning Task Force, as well as public meetings.

Over half of the Flood Mitigation Task Force members were from the public, including residents and property owners in the known flood hazard areas. The remainder was composed of pertinent organizations and agencies and staff from the local government that will likely be responsible for implementing the plan. The Santa Rosa County residents included on the task force are as follows:

Earl Dean **Resident**
 Santa Rosa County (south-end) resident
 Holley By the Sea HOA
 impacted by flooding

Ginny Cannon **Resident**
 City of Milton resident, impacted by
 flooding

Jim Cox **Resident**
 City of Gulf Breeze resident who has been impacted
 by flooding

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Randy Jorgenson **Staff/Resident**
AICP Planning Manager, City of Milton, resident
impacted by flooding

Tim Milstead **Staff/Resident**
Planning, City of Milton

Kyle Holley **Resident**
North End Tourism Development Council

Louis C. Greene **Resident**
Resident, Navarre, CERT

Courtney Winstead **Resident**
Resident Midway area, Ranchettes S/D,
Impacted by flooding

Scott Kemp **Resident**
Resident, Navarre,
QAQC Lockheed/Martin

Doug Lasater **Resident**
Resident, Milton, Bagdad Waterfronts

The task force met and held a sufficient number of meetings that involved these resident members. Having citizens on the planning committee has the following advantages:

- ❑ The participants recognize that they are involved and will be more willing to commit themselves to the process
- ❑ The participants can do some of the work, especially data gathering, thereby reducing the overall cost
- ❑ A committee can be an effective forum for discussing alternatives, debating goals and objectives, and matching the technical requirements of a program to local situations
- ❑ It gives the participants a feeling of “ownership” of the plan and its recommendations, which helps build public support for it
- ❑ Committee members form a constituency that will have a stake in ensuring that the plan is implemented

3.3 Public Meetings in Affected Areas

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Throughout the development of this plan, opportunities were provided to the citizens of Santa Rosa County to participate in the planning process. Among those whose help was solicited were local neighborhood associations whose neighborhoods have been impacted by flooding or have a high probability of being flooded. They were invited to provide a representative to the Task Force, as were Parent/Teacher Organizations, Chambers of Commerce, businesses, and other organizations within the community. This direct representation and participation allowed the Task Force to gain insight into current and past neighborhood-specific flood issues and possible mitigation actions.

In 2009, the Flood Mitigation Task Force held two public meetings to obtain public input on the natural hazards, problems, and possible solutions to those problems. Additional meetings were held in April 2015 for the FMP update. The public meetings were held early in the process, each in a flood-affected area of the county, or in a venue that was close to several flood-affected areas, to encourage participation by making it more convenient for a wider group of citizens. Opportunities were provided at these meetings for the general public to speak with representatives from the County and with members of the Flood Mitigation Task Force regarding their comments, observations, questions and concerns. The meetings were held on the following dates:

- ❑ July 28, 2009 and April 28, 2015
(Specifically to address concerns of the area of the City of Gulf Breeze and neighboring flood prone areas in South Santa Rosa County)
- ❑ July 30, 2009 and April 30, 2015
(Specifically to address concern of affected areas in the City of Milton and inland sections of the County affected by flooding)

The notices of the meetings were distributed in the following ways (see Exhibit 2 for documentation):

- ❑ Advertised in the county's newspapers
 - ❑ *Santa Rosa's Gazette*
 - ❑ *Gulf Breeze News*
 - ❑ *Navarre Press*
 - ❑ *Pensacola News Journal*
- ❑ Announced in press releases that were placed on the County's website
- ❑ A flyer announcing the meetings was placed as a link on the homepage of the County's website.
- ❑ Announcement was included in the agenda of the County Commission Regular Meeting on April 23, 2015.
- ❑ Announced via a Santa Rosa County Public Information Office public service announcement to all media outlets
- ❑ A flyer was attached to an email sent to the Flood Mitigation Task Force and members of the public announcing the public meetings

Conducting these public meetings and requesting public input has the added benefit of meeting:

- ❑ Objective V.4 of The *Better Santa Rosa Plan*, “To be the model of excellence in government by fostering broader community and citizen involvement”, and
- ❑ Goal 1.2 of the *Santa Rosa County Comprehensive Plan*, “To encourage broad public participation with the administration of this Plan”.

3.4 Questionnaire Distributed to the Public

A questionnaire was developed and distributed to the public seeking input, comments, recommendations and information on their natural hazards, problems and possible solutions. The questionnaire is available via multiple links on the County’s website. It was distributed at all public flood mitigation information meetings. The questionnaire seeks the public’s input regarding any past flooding problems that personally affected them or their surrounding neighborhoods. The questionnaire requested information regarding:

- ❑ Location of home or business
- ❑ Flood history of the property (frequency and severity)
- ❑ Flood history of the street/neighborhood (frequency and severity)
- ❑ Concerns about natural hazards other than flooding
- ❑ Preparedness
- ❑ Use of flood insurance
- ❑ Respondent’s suggestions on how to eliminate or reduce flood problems, including personal actions taken to protect themselves and their property from flooding

This questionnaire also meets the Goal I.1.C of *The Better Santa Rosa Plan*, “Solicit Department Specific Surveys to Customers”.

See Appendix A, which includes a copy of the questionnaire, a map of locations of questionnaire responses, and a compilation of responses.

3.5 Comments and Recommendations Solicited From Local Stakeholders

In order to communicate and coordinate with the public and local stakeholders, letters were sent to a number of stakeholders in the affected areas seeking their input, comments and recommendations, and asking for their support of the County’s flood mitigation efforts. These included neighborhood advisory groups, homeowners’ associations, parent-teacher organizations, and the Chambers of Commerce. See Exhibit 3, which includes is a list of stakeholders that represents the public in the affected areas from which comments and recommendations were solicited, and a copy of the letter that they received.

In addition to the opportunity to respond to the letter, several local stakeholders also participated and provided input as members of the Task Force.

3.6 Explain the Planning Process to the Public

The Flood Mitigation Plan planning process was explained to Santa Rosa County staff at the first organizational meeting of the Flood Mitigation Task Force on June 26, 2009, and a handout showing the planning steps was distributed to all attendants. This process was also described at the July 20 meeting, as well as the public meeting on July 30, 2009. Information was included on the county's website, specifically outlining the ten steps of the Flood Mitigation / Floodplain Management Plan. See Exhibit 4, which includes documentation that shows how the planning process was explained and distributed to the public.

3.7 Other Information Activities to Encourage Public Input

In an effort to communicate and coordinate with the public and stakeholders, an effort was made to encourage input to the Flood Mitigation Task Force by advertisements in local newspapers, the County's website, by mail, through the Chamber of Commerce and utilizing other means. See Exhibit 5 for evidence of this important element of the planning process.

3.8 Solicitation of Input on the Draft Action Plan

A draft of the *Santa Rosa County Flood Mitigation Plan Action Plan* will be sent to appropriate agencies, organization and stakeholders, as well as to any members of the public that have shown an interest in flood mitigation planning, asking them to comment by a certain date. See Exhibit 6 for a copy of the correspondence and a list of all those that received a copy of the draft action plan.

On November 10, 2009 a public meeting was held to solicit input on the draft Action Plan from the public. The planning process was completed and a plan was recommended to be submitted to the community's governing body for its approval at a public meeting on February 10, 2011. In order to advise as many residents as possible of these public meetings, many different media were utilized, including the county's website and newspaper advertisements. Please see Exhibit 6 for documentation of the notices.

Santa Rosa County

Flood Mitigation Plan

Section Four

COORDINATION WITH OTHER AGENCIES

4.1 Needs, Goals and Plans

The primary purpose of hazard mitigation planning is to identify community policies, actions, and tools for implementation over the long term that will result in a reduction in the risk of and potential for future losses community-wide. It is most successful when it results in actions that also support other important community goals and objectives.

It is important that the development of a flood mitigation plan include involving and coordinating with government agencies and private organizations for two reasons:

1. Other agencies may be implementing, or planning to implement activities that can affect flood damage, the hazards, or other local interests and concerns. The Task Force needs to ensure to the greatest extent possible that its efforts and plans will not conflict with other essential government programs, or duplicate the efforts of other organizations.
2. Involvement of outside agencies and organizations may secure valued assistance. This assistance may be in the form of hazard data, technical information on various measures, guidance on regulatory requirements, advice in the planning effort, implementation of a recommended measure, and/or financial participation to help implement a recommended measure.

The Task Force has access to a wide variety of information. Members, local government offices, and other sources allow for the group to bring information together for planning purposes. This information has been combined to address mitigation issues and establish mitigation initiatives for incorporation into this Plan.

Community development and floodplain management and mitigation goals may be mutually supportive or they may conflict, but they must be acknowledged. Therefore, the development of this Plan has included a concerted effort to assure the Plan is in conformance with the County's other plans, studies and reports, many of which were used for reference or informational purposes. The plans, studies, reports and technical information from some state agencies and neighboring counties and municipalities were also reviewed in the planning process. All of these documents can be found in their entirety on the Internet. Following is a listing of the documents that have been examined during the development of this plan to glean helpful information and to assure conformance with their goals and objectives. A more thorough overview concerning how

Santa Rosa County Flood Mitigation Plan
Section Four, Coordination With Other Agencies

each document addresses flood mitigation planning in Santa Rosa County is included as Appendix 2:

- *Santa Rosa County Local Hazard Mitigation Strategy 2011-2016*
- *Santa Rosa County Board of County Commissioners Comprehensive Plan 2008-2025*
- *Report of the Santa Rosa County Stormwater Runoff Task Force*
- *Santa Rosa County Flood Information Guide 2013-2017*
- *The Better Santa Rosa Plan*
- *Evaluation and Appraisal Report (EAR) Based Amendments to Santa Rosa County's Comprehensive Plan*
- *Fiscal Year 2014/2015 Board of County Commissioners Annual Report to the Citizens of Santa Rosa County*
- *Santa Rosa County Division of Emergency Management Disaster Preparedness Guide*
- *The State of Florida Hazard Mitigation Plan*
- *The Town of Jay Comprehensive Plan*
- *City of Milton Comprehensive Plan*
- *Flood Insurance Study, Santa Rosa County, Florida and Incorporated Areas, December 19, 2006*
- *Santa Rosa County Land Development Code*
- *Local Land Development Code Review Project*
- *Santa Rosa County Ordinances*
- *Escambia County Local Mitigation Strategy, Revised January 2009*
- *Report by the Gulf Coastal Plain Ecosystem Partnership (GCPEP)*
- *Florida Department of Environmental Protection, Division of Water Resource Management, Pensacola Bay Water Quality Status Report*
- *Northwest Florida Water Management District Land Acquisition Work Plan*
- *Committee for a Sustainable Emerald Coast Final Report, December 31, 2007, Charting a Sustainable Course for the Region*
- *Florida Department of Community Affairs, August 31, 2006, Integration of the Local Mitigation Strategy into the Local Comprehensive Plan, Santa Rosa County Profile*

4.2 Solicitation of Input from Other Agencies and Organizations

In an effort to solicit support for the County's efforts, neighboring, local and regional agencies and organizations were invited by mail to participate in the planning process and to provide input. See Exhibit 7, which includes is a list of agencies and organizations from which comments and recommendations were solicited. A copy of the letter that they received is also included.

Various governmental and nongovernmental agencies were contacted at the beginning of the planning process to solicit their support and input into Santa Rosa County's Flood Mitigation Plan, and to inquire as to whether or not their activities may affect the

County's plan. See Exhibit 7, which includes is a list of agencies from which comments and recommendations were solicited. A copy of the letter that they received is also included.

4.3 Meetings with Other Agencies and Organizations

Correspondence was received from The Association of State Floodplain Managers (ASFPM), in reply to the Flood Mitigation Plan Task Force's request for support of the county's planning efforts. The ASFPM strongly support the county's efforts in the development of the document and stated that the organization does not have information or plans that would impact the county's flood hazard mitigation program.

Joy Giddens from the Florida Department of Transportation (FDOT) contacted the Task Force and provided some useful information about future FDOT projects that may have an impact on flooding and/or drainage matters.

A meeting was held with Mr. Kirkland Spraggins, Florida Department of Community Affairs, Emergency Management Division, in Tallahassee, Florida on July 27, 2009, at which time there was discussion concerning the flood mitigation plan process and expectations. Because the *Santa Rosa Flood Mitigation Plan* will be submitted to Mr. Spraggins' office for review and approval, this meeting provided helpful direction concerning the requirements of the State of Florida.

A meeting was held with Sherry Harper, the Insurance Services Office (ISO)/CRS Specialist overseeing Santa Rosa County, on July 30, 2009. The meeting entailed a discussion of requirements and recommendations for an effective floodplain management plan under FEMA's National Flood Insurance Program's CRS Program. Because the *Santa Rosa Flood Mitigation Plan* will be submitted to Ms. Harper for review and grading, this meeting provided helpful direction concerning the requirements of the ISO/CRS program.

To review common problems, development policies, mitigation strategies, inconsistencies and conflicts in policies, plans, programs and regulations, a questionnaire was distributed in an effort to coordinate with other agencies and organizations that may have an interest in flood mitigation in Santa Rosa County. Please see Exhibit 7, which includes a copy of the questionnaire.

This updated plan will be submitted to Ms. Sue Hopfensperger ISO/CRS Specialist for review and grading as required by the CRS program.

Santa Rosa County

Flood Mitigation Plan

Section Five

ASSESSMENT OF THE HAZARD

5.1 Types of Flooding

Flood problems in the county can be attributed to riverine, coastal surge, overland sheet flow and ponding.

5.1.1 Riverine Flooding

River flooding occurs as a result of both naturally occurring storm patterns and severe precipitation due to hurricanes and tropical storms. The condition of the watershed plays an important role in how local waterways react to storm events. Previously saturated areas or land covered by impervious materials, such as asphalt, will produce higher runoff rates, contributing a larger volume of water reaching the local waterways. The time of concentration of runoff for large basin rivers in northwestern Florida may be several days; consequently, peak flows do not, as a rule, coincide with hurricane tides at the coast. The smaller streams, however, have a shorter period for concentration of runoff; thus riverine floods occurring concurrently with storm surge is more likely. This greatly increases the likelihood of inundation of low-lying areas along the coast.

The County serves as the central drainage area for three major river systems in the region: The Yellow, Escambia, and Blackwater Rivers. The County's flood hazard comes from these and other sources:

Santa Rosa Sound
East Bay
East Bay River
Pond Creek
Escambia Bay

Pensacola Bay
Blackwater Bay
Coldwater Creek
Pace Mill Creek

There are numerous smaller and less significant creeks and streams that crisscross the county.

Flooding in the Blackwater River Basin is caused by either stream overbank flow or hurricane storm surges, or sometimes a combination of both. Riverine flooding occurs frequently and is prevalent throughout the reach of the river where the riverbanks are low and the floodplain is wide. The relatively flat slopes and the wide, heavily vegetated floodplains in Santa Rosa County aggravate the flood problem by preventing the rapid drainage of floodwaters.

Another major flooding source in the county is the East Bay River. It runs parallel to the coastline approximately two miles inland. However, because development is not intense along the river, there is minimal flooding in residential areas.

There are many problems associated with Pond Creek in the vicinity of Milton. The problems include erosion and sedimentation, debris buildup at stream crossings, and overtopping of roads along the stream. Pond Creek has a total drainage area of 94 square miles. The channel of Pond Creek is relatively clear and clean in the lower reaches where it is very wide, but is somewhat covered by vegetation from the banks in the middle and upper reaches. Residential development along the stream will increase the flood problem.

Pace Mill Creek has a total drainage area of 6.2 square miles at its confluence in Escambia Bay. The overbanks of the floodplain are consistently in heavy vegetative cover. Pace Mill Creek has a fairly straight but overgrown channel.

The Escambia River in western Santa Rosa County is not a major flooding concern for the county since 22,475 acres of the river's adjacent lands in the county are owned by the Northwest Florida Water Management District (NFWFMD) and serve as a potable watershed protection area for Santa Rosa and neighboring Escambia County. These lands are vacant in perpetuity. In addition, flooding is not a major concern for the immediate area adjacent to the Yellow River in the eastern portion of the county. Similar to the Escambia River, the NFWFMD owns roughly 5,763 acres of adjacent property. A map of the waterways of Santa Rosa County is attached in Appendix C.

Flood prone areas of the county include: portions of the City of Milton near various drainage system ditches and former wetlands now dredged and filled; some residents and locations along the Escambia River, especially near the Pace community; some businesses and residents along I-10 leading across the Escambia Bay, and other locations where localized flooding may occur along numerous wetlands, streams, or sinkhole lakes. The real hazard lies in those areas affected by both strong storm surge activity and high flood areas. These areas include virtually the entire area of Garcon Point, the City of Gulf Breeze, and the swamp areas located along the eastern bank of the Escambia River toward the southern outlet into the Escambia Bay.

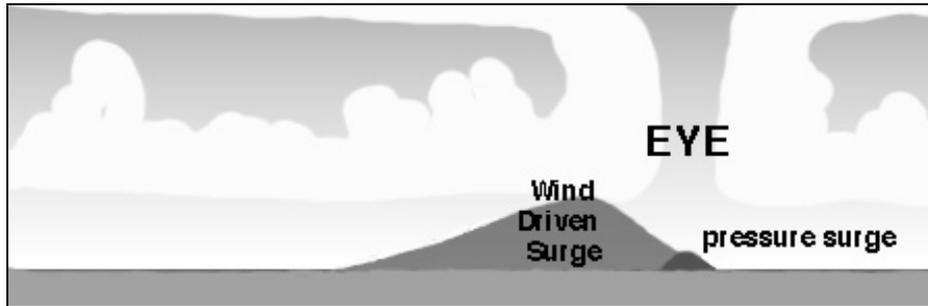
Storm surge creates upland riparian flooding conditions as river systems experience a stall in downriver flow and water essentially begins flowing upriver.

5.1.2 Coastal Surge

The coastal areas of Santa Rosa County are subject to widespread flooding from coastal surges resulting from storm surges that accompany hurricanes and other severe storms from one or more of the following flooding sources:

- The Gulf of Mexico
- East Bay
- Escambia Bay
- Pensacola Bay
- Blackwater Bay
- Santa Rosa Sound

Most of the storm surge (85%) is caused by winds pushing the ocean surface ahead of the storm on the right side of the storm track. Individual storm surges are dependent upon the coastal topography (depth of ocean bottom), angle of incidence of landfall, speed of tropical cyclone motion, as well as the wind strength.

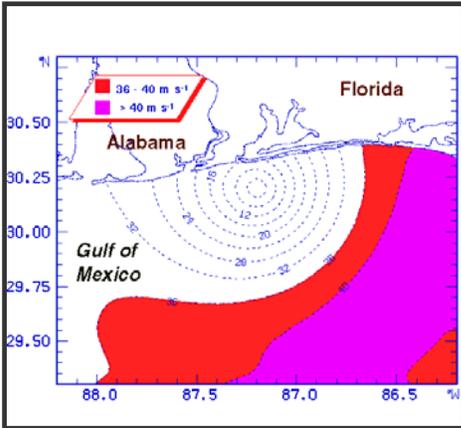


Storm surge from East, Escambia and Pensacola Bays being pushed from the south up the Escambia, Yellow, and Blackwater River valleys of the Pensacola Bay Area basin could combine with river flooding. By far, the largest area of the county susceptible to storm surge are those areas lying up-river from the Pensacola Bay Area Basin. Areas near the beach may be subject to wave action and high velocity surges that can cause erosion and property damage. The storm surge maps for Santa Rosa County can be viewed in Appendix D.

Storm surge is primarily forecast with the SLOSH computer model. SLOSH (Sea, Lake and Overland Surges from Hurricanes) is run by the National Hurricane Center (NHC) to estimate storm surge heights and winds resulting from historical, hypothetical, or predicted hurricanes by taking into account five factors: the winds, the central pressure, the size, the forward speed and the track direction of the hurricane. The calculations are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads and other physical features. If the model is being used to estimate storm surge from a predicted hurricane (as opposed to a

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Section Five, Assessment of the Hazard

hypothetical one), forecast data must be put in the model every six hours over a 72-hour period and updated as new forecasts become available.

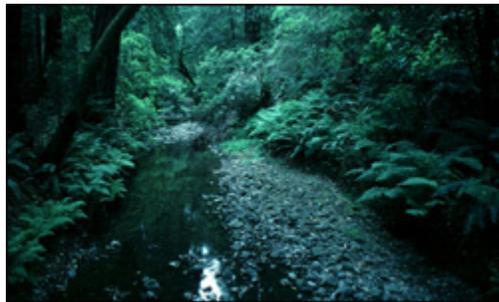


SLOSH Model winds for Hurricane Opal

The SLOSH model is generally accurate within +/- 20 percent. For example, if the model calculates a peak 10-foot storm surge for the event, you can expect the observed peak to range from 8 to 12 feet. The model accounts for astronomical tides (which can add significantly to the water height) by specifying an initial tide level, but does not include rainfall amounts, riverflow, or wind-driven waves. However, this information is combined with the SLOSH model results in the final analysis of at-risk areas.

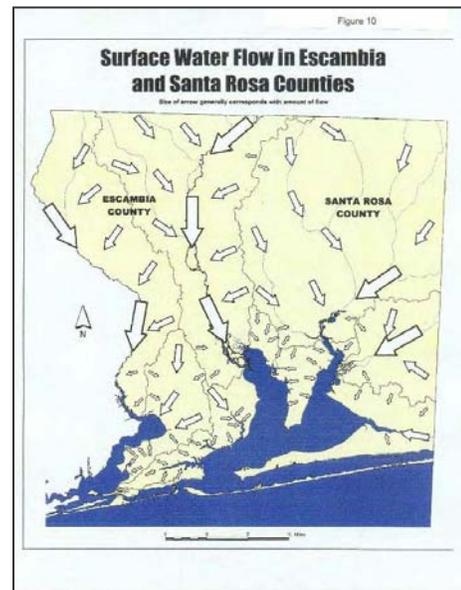
5.1.3 Overland Sheet Flow and Ponding

Overland flow is water that runs across the land after rainfall, either before it enters a watercourse, after it leaves a watercourse as floodwater, or after it rises to the surface naturally from underground. Water often flows overland because the soil beneath it has become saturated, that is, because the water table has come to the surface. Rock or other natural impermeable surfaces also increase the potential for overland sheet flow.



Another cause of flooding in the County is urban runoff. Water flowing over the ground surface toward a channel, upon reaching the channel, is called surface runoff. Runoff is the movement

of landwater to the oceans, chiefly in the form of rivers, lakes, and streams. Runoff consists of precipitation that neither evaporates, transpires nor penetrates the surface to become groundwater. Development over former wetlands in combination with stormwater runoff from homes, streets and commercial districts has caused devastation to homes and businesses in Santa Rosa County. Impervious surfaces (roads, parking lots and sidewalks) are constructed during land



development. During rain storms and other precipitation events, these surfaces (built from materials such as asphalt, cement, and concrete), along with rooftops, carry polluted stormwater to storm drains, instead of allowing the water to percolate and be filtered through soil, creating flood prone areas where they had not previously existed.

The city of Milton experiences significant impacts of urban runoff. Mitigation purchases of properties as well as ditch cleaning efforts have solved some of these problems, but some homes continue to experience flooding.

A map of stormwater problem areas in Santa Rosa County is included in Appendix D.

There are thousands of miles of dirt roads in Santa Rosa County. When properly maintained, many sections of these roads contribute very little to stormwater problems. However, the most serious stormwater problem associated with dirt roads in Santa Rosa County entails wetland road approaches. A wetland road approach is defined as a road that approaches creeks, rivers, or other wetland areas, with many of these approaches down slope. The erosion that occurs in these areas accounts for a high percentage of sedimentation and increases county road maintenance costs.

Flooding often occurs as a result of extended wet periods that create saturated soil conditions, after which additional rain causes surface ponding or overflows of canals and ponds. In flat areas, runoff collects, or ponds, in depressions and cannot drain out. Flood waters must seep slowly into the soil, evaporate, or be pumped out. Ponding is the condition produced by surface water collecting in shallow pockets in an area.

5.2 Flood Hazards

Flooding in Santa Rosa County often occurs as a result of rainfall from storms patterns and severe precipitation due to tropical cyclones and tropical storms.

5.2.1 Tropical Cyclones

Some of the most destructive floods in northwestern Florida were the result of high intensity rainfall during hurricanes. Maximum rainfall ordinarily occurs in the eastern half of the storm system. As the storm passes inland, its intensity decreases, but heavy rainfall often continues. Total precipitation of 12 inches recorded at a single station during a hurricane is not uncommon, and in northwestern Florida, rainfall has been as high as 24 inches for the duration of the storm.

All geographic locations within Santa Rosa County are vulnerable; however, damaging winds and storm surge effects can be expected to be most intense along the Southern coastal border including Gulf Breeze, Midway, and Navarre Beach. Such coastal settings

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are the most sought after properties, with the potential for increased populations, and thus are at higher risk of property and personal damage. Coastal surge can also be expected to push up the bays and river systems flooding homes and businesses along water features. Locations further inland may experience lesser wind fields, but may still see significant damage.

A tropical cyclone is a low-pressure system that forms over warm waters and has an organized circulation. It is characterized by a warm core, steep pressure gradient and strong cyclonic (counterclockwise in the northern hemisphere) flow near the earth's surface.

Tropical cyclones with a maximum sustained wind speed of less than 39 mph are called tropical depressions. When the maximum sustained wind speed ranges between 40-73 mph they are tropical storms and when the maximum sustained wind speed reaches 74 mph they are called hurricanes.

Hurricanes vary greatly in size, intensity, behavior and movement. Hurricanes are destructive because they produce damage due to high winds, large amounts of rainfall and storm surge. 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. An intense hurricane can send a dome of water more than 18 feet high ashore as the storm hits land.

The Florida Panhandle has a long history of exposure to tropical cyclones. Tropical waves are propagated through the Atlantic basin (i.e. the Atlantic Ocean, Gulf of Mexico and Caribbean Sea). Hurricanes tend to move toward the west-northwest after they form in the tropical and subtropical latitudes. In the Atlantic, such a motion often brings the hurricane into the vicinity of the U.S. east and Gulf of Mexico coast.

Along the U.S. east coast the Gulf Stream provides a source of warm (> 80° F) waters to help maintain the hurricane. Tropical cyclones can be thought of as engines that require warm, moist air as fuel. This warm, moist air cools as it rises in convective clouds (thunderstorms) in the rainbands and eyewall of the hurricane. The tropical cyclogenesis, or a low-pressure, tropical cyclone formation can take place in the Atlantic Ocean or in the Gulf of Mexico. In either case, Santa Rosa County may be threatened and since the County is located on the Gulf of Mexico, it is especially vulnerable.

Officially, hurricane season runs from June 1 through November 30, with the peak of the season in the month of September. However, there have been recorded tropical storms as late as the month of February (1952).

With the migration of people relocating to Florida coastal communities in general, and Santa Rosa County in particular, the risk of exposure to the hazards of hurricanes and tropical storms continues to increase, as does the dollar amount of damages each time a

tropical cyclone makes landfall. As a coastal community, Santa Rosa County is highly susceptible to storm surge from a hurricane.

All hurricanes are dangerous, but some are more dangerous than others. The way storm surge, wind and other factors combine determine the hurricane's destructive power. To make comparisons easier and to make the predicted hazards of approaching hurricanes clearer, the National Oceanic and Atmospheric Administration's hurricane forecasters use a disaster-potential scale that assigns storms to five categories. This can be used to give an estimate of the potential property damage and flooding expected along the coast with a hurricane.

The scale was formulated in 1969 by Herbert Saffir, a structural consulting engineer, and Dr. Bob Simpson, director of the National Hurricane Center. The World Meteorological Organization was preparing a report on structural damage to dwellings due to windstorms, and Dr. Simpson added information about storm surge heights that accompany hurricanes in each category.

The Saffir/Simpson Hurricane Scale

The Saffir-Simpson Hurricane Scale is a 1 to 5 rating based on the hurricane's present intensity. This is used to give an estimate of the potential property damage and flooding expected from a hurricane. Wind speed is the determining factor in the scale, as storm surge values are highly dependent on the slope of the continental shelf and the shape of the coastline in the landfall region. A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water in close proximity to the shoreline, tends to produce a lower surge but higher and more powerful storm waves.

Category 1 Winds 74-95 mph. Storm surge generally 4 to 5 feet above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also some coastal road flooding and minor pier damage.

Category 2 Winds 96-110 mph. Storm surge generally 6-8 feet above normal. Some roofing material, door and window damage of buildings. Considerable damage to shrubbery and trees blown down. Considerable damage to mobile homes, poorly constructed signs, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane center. Small crafts in unprotected anchorages break moorings.

Category 3 Winds 111-130 mph. Storm surge generally 9 to 12 feet above normal. Some structural damage to small residences and utility buildings with a minor amount of curtain wall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are

cut by rising water 3-5 hours before arrival of the center of the hurricane. Flooding near the coast destroys smaller structures with larger structures damaged by battering from floating debris. Terrain lower than 5 feet above mean sea level may be flooded inland 8 miles or more. Evacuation of low-lying residences within several blocks of the shoreline may be required.

Category 4 Winds 131-155 mph. Storm surge generally 13-18 feet above normal. More extensive curtain wall failures with some complete roof structure failure on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3 to 5 hours before arrival of the center of the hurricane. Major damage to lower floors of structures near the shore. Terrain lower than 10 feet above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles.

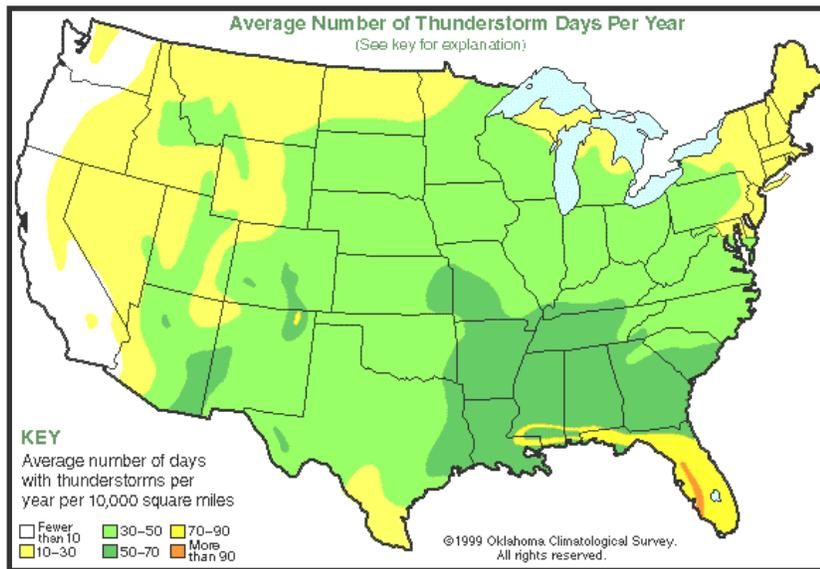
Category 5 Winds greater than 155 mph. Storm surge generally greater than 18 feet above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3 to 5 hours before arrival of the center of the hurricane. Major damage to lower floors of all structures located less than 15 feet above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles of the shoreline may be required. Only three Category 5 Hurricanes have made landfall in the United States since records began.

SAFFIR-SIMPSON HURRICANE DAMAGE POTENTIAL SCALE

Category	Central Pressure (inches)	Winds (mph)	Surge (ft.)	Damage
1	>28.94	74-95	4-5	Minimal
2	28.50-28.91	96-110	6-8	Moderate
3	27.91-28.47	111-130	9-12	Extensive
4	27.17-27.88	131-155	13-18	Extreme
5	<27.17	>155	>18	Catastrophic

5.2.2 Thunderstorms

Santa Rosa County experiences thunderstorms year-round with an estimated frequency of 70-90 occurrences per year. Consistent with averages from around the State of Florida, this frequency is among the highest in the nation. The majority of these storms occur from May to September, but thunderstorms may occur during any month of the year. Severe thunderstorms have the potential to cause widespread flooding by dropping significant quantities of rain in a short period of time. The Southeast’s humid subtropical climate lends itself to very rainy periods (including rains from tropical systems, air mass thunderstorms, and frontal systems).



5.2.3 Probability of Future Events

Based on information provided to the State of Florida in the *Santa Rosa County Local Mitigation Strategy*, the *State of Florida Enhanced Hazard Mitigation Plan* has ranked the flood hazards in the County as follows:

	Flooding	Hurricanes	Severe Storms
Probability	High	High	High

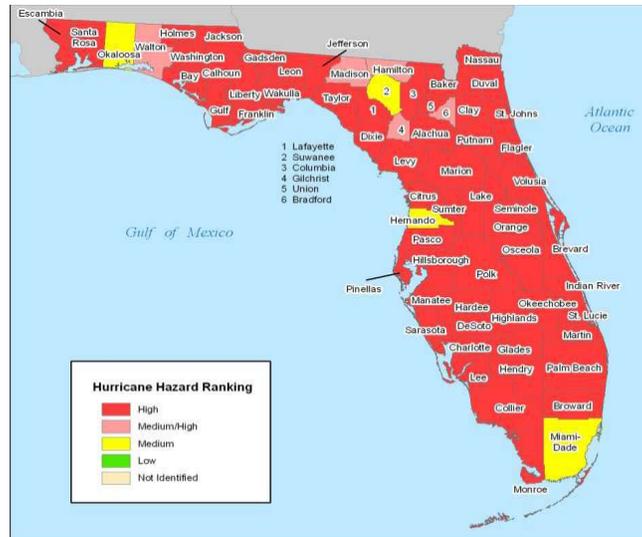
The National Oceanic and Atmospheric Administration (NOAA) does not make seasonal hurricane landfall predictions. Hurricane landfalls are largely determined by the weather patterns in place as the hurricane approaches, and thus are only predictable when the storm is within several days of making landfall. A combination of climate factors indicates a 70% chance of a below-normal hurricane season for 2015, and a 20% chance

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of a near-normal season. An above-normal season is not likely (10%), according to NOAA predictions. The NOAA website, www.NOAA.gov, offers many helpful predicting and forecasting tools.

For the 2015 hurricane season, NOAA predicted that along the Atlantic, there would be a 70 percent likelihood of 6 to 11 named storms (winds of 39 mph or higher), of which between three and six could become hurricanes (winds of 74 mph or higher). At most, two of those were expected to become major hurricanes, defined as Category 3, 4 or 5, characterized by winds of 111 mph or higher.

Florida East Coast and Gulf Coast residents are under a hurricane threat each and every season regardless of the seasonal outlook.

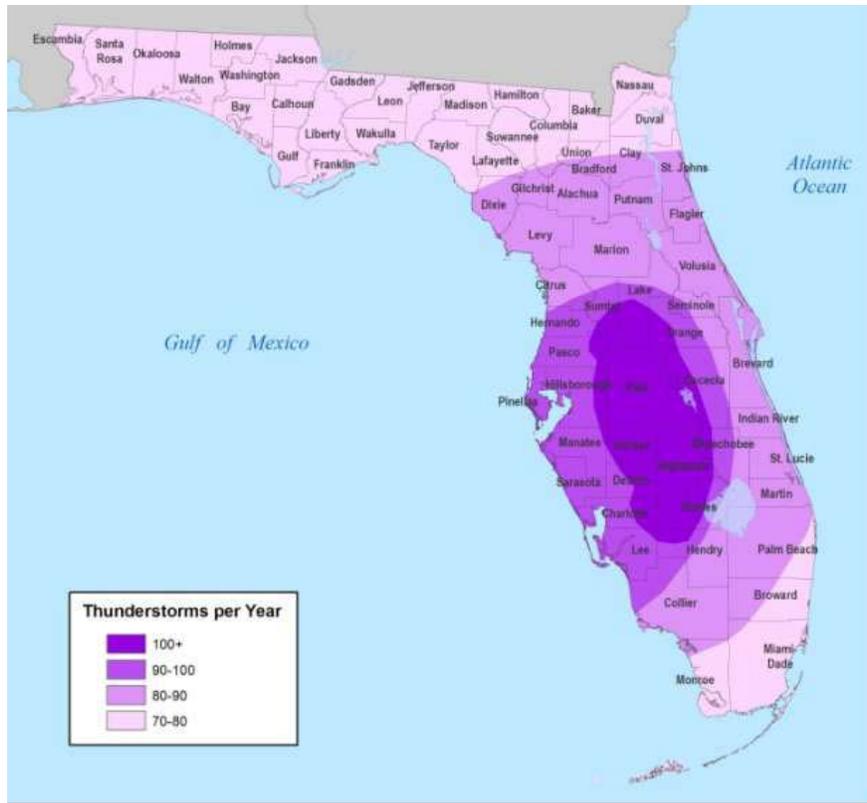


Hurricane Hazard Ranking by County

The U.S. Geological Survey considers flooding in Florida to be a high probability, and has established a system of monitoring stations to retrieve data about stream flow conditions. This system works in real time for flood warnings and for short-term trends. The system is accessible at the following Web site: <http://waterdata.usgs.gov/fl/nwis/rt>.

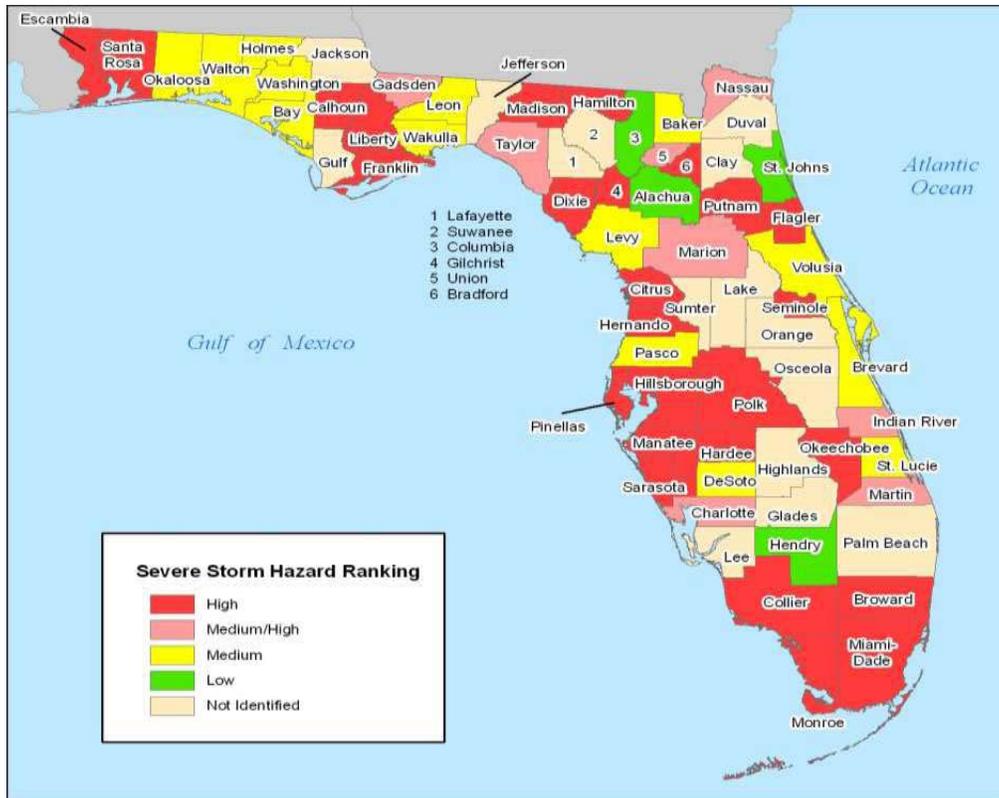
The National Weather Service Southeast River Forecast Center is an excellent source to view river conditions and precipitation forecasts for our area. The website address is www.srh.noaa.gov/serfc/.

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Thunderstorm occurrences per year

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A geographic assessment of the inland flooding hazard can be obtained using the FEMA



digital floodplain data. This data is available for vulnerable counties and it outlines the areas in the 100-year and the 500-year floodplains, with 1% annual probability and 0.2% annual probability of floods, respectively. The floodplain data for the 2015 risk assessment includes results derived from the digital floodplain data and applicable updates for Santa Rosa County.

5.2.4 Mitigative Techniques Employed to Reduce Vulnerabilities to Flood Hazards

Current grading requirements and the finished floor elevation requirements that the county enforces help to reduce flood damage to structures in the county.

Substantial mitigation efforts, including buyouts of property, have been ongoing in the County since 1995. However, some residential dwellings remain vulnerable to flooding because they were not eligible for buyouts or chose not to participate in voluntary FEMA buyout programs.

The reduction of 311 mitigated properties from the Repetitive Flood Loss list is a prime example of how Santa Rosa County's proactive flood mitigation practices have decreased the exposure of its citizens to the flood hazard, reduced the number of repetitive loss properties, and minimized reliance on post-disaster assistance provided by the federal government and the nation's taxpayers.

Methods of mitigation have included:

- Demolition of the flood prone properties
- Elevation of structures
- Moving structures outside of the floodplain

5.3 Flood Insurance Rate Map

In order to help determine the areas prone to flooding, the Federal Emergency Management Agency publishes Flood Insurance Rate Maps (FIRM). FIRM maps are based on elevations, historical occurrences, and other such data and are the basis for determining flood insurance rates based on the corresponding flood zone. The Santa Rosa County Building Inspection Office maintains these maps for Santa Rosa County. The effective date of the current Santa Rosa FIRM is December 19, 2006 and includes Navarre Beach.

Unincorporated Santa Rosa County has five primary flood zone types that lie within its borders. The FIRM predicts the Special Flood Hazard Areas (SFHA) inundated by the 100-year storm and the 500-year storm. The FIRMs for Santa Rosa County are included in Appendix E. The various FEMA flood zones are indicated on the map and are color-coded for identification. Each zone is defined as follows:

Special Flood Hazard Areas (SFHAs)

- A SFHAs for which Base Flood Elevations (BFE) have not been determined.** Areas with a 1% annual chance of flooding and a 26%

chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.

- AE SFHA for which Base Flood Elevations (BFEs) have been determined.** Areas subject to inundation by the 1% chance flood event determined by detailed methods. Mandatory flood insurance purchase requirements and floodplain management standards apply.

- VE SFHA in high-risk coastal area.** Coastal areas with a 1% or greater annual chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. BFEs derived from detailed hydraulic analyses are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.

Areas Determined to be Outside the SFHA

- X Areas determined to be outside the 500-year flood plain.** Also called Zone X (unshaded), these are considered areas of minimal risk of flooding. These areas have less than a 0.2% chance of flooding in any given year.

5.3.1 Flood Insurance Rate Map Modernization Program

The Federal Emergency Management Agency's (FEMA) flood hazard maps are one of the essential tools for flood mitigation in the United States. Unfortunately, many of these maps have become outdated, especially in high growth and development areas, including Santa Rosa County. FEMA has established a broad goal of modernizing flood hazard maps nationwide. To achieve this goal, FEMA has acknowledged that collaborative partnerships with state, regional and local/organizations will be necessary.

In December 2002, the Northwest Florida Water Management District (NFWFMD) was designated by FEMA as a Cooperating Technical Partner (CTP) for the State of Florida in northwest Florida. As a CTP, the NFWFMD has agreed to work collaboratively with FEMA to create and maintain accurate, up-to-date flood hazard data for the communities served in northwest Florida, including Santa Rosa County. As part of this work, the NFWFMD has embarked in an endeavor to remap and convert flood insurance rate maps into a digital format covering all of the 16-county area. This may include the collection of new, accurate elevation data and new flood studies. It will also result in updated digital flood insurance rate map panels (DFIRM) meeting FEMA's latest multi-hazard flood map modernization standards.

The NFWFMD vision for the Map Modernization initiative is to provide more accurate and complete flood hazard information for counties and communities within the District. This information will result in better decisions concerning flood risk and sustainable development alternatives for flood hazard areas throughout the District.

The NFWFMD Map Modernization Program will provide local communities with the tools and resources for managing, assessing, and planning for development and construction in flood prone areas to save lives and protect property. Mutually beneficial partnerships will be fostered that will achieve shared outcomes through the communication of flood risk and other hazard information and improve the systems that support them.

The NFWFMD plans to provide all counties and communities within the District area with new DFIRM flood maps by 2016. The new maps will depict revised flood hazard data.

5.4 Previous Flooding

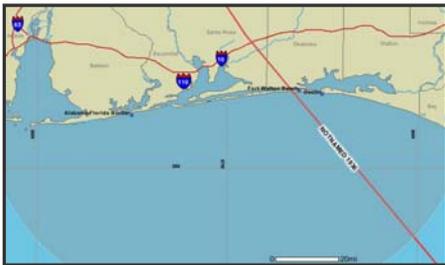
The following events are the significant storms affecting the Florida Panhandle within the past 100 years. Damage figures are those determined for values at the time of the storm, and no attempt has been made to adjust these figures to present day values.

1917 No Name (September 21 – September 29)



This storm made landfall near Fort Walton Beach with damages estimated at \$270,000. Tide levels of 7.8 feet mean sea level (msl) were recorded at Fort Barrancas, Florida.

1936 No Name (July 26 – August 1)



The center of this storm passed over Fort Walton Beach and Valparaiso. Damage was estimated at \$150,000. Tide levels of 7 to 8 feet msl were recorded at Destin. A high water mark of 8.4 feet msl was reported at Fort Walton Beach.

1950 Hurricane Baker (August 20 – September 1)



The center of this storm entered the coast between Pensacola, Florida, and Mobile, Alabama, with damage estimated at \$550,000. Tide levels recorded during the passage of this storm include: 4.5 feet msl at Pensacola and Carrabelle; 5 feet msl at Panama City; and 6.8 feet msl at Apalachicola.

1953 Hurricane Florence (September 23 – September 28)



This storm made landfall between Panama City and Fort Walton Beach with damage estimated at \$150,000.

1956 Hurricane Flossy (September 21 – September 30)



This major hurricane caused extensive damage along the Louisiana, Mississippi and Alabama coasts. Total damage was estimated at \$25 million. Tide levels of 5.5 feet were recorded at Fort Walton Beach.

1972 Hurricane Agnes (June 14 – June 22)



This storm hit the shoreline near Panama City. Tide levels of 8 to 9 feet msl were recorded at several points from St. George Island to Panacea, Florida.

1975 Hurricane Eloise (September 23)



Eloise became a threat when it regained hurricane strength in the central Gulf of Mexico about 350 miles south of New Orleans, Louisiana. It continued to strengthen until it made landfall approximately 40

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miles west of Panama City, Florida early on September 23. Winds were estimated at about 100 mph with storm tides of 12 – 16 feet above normal just east of Fort Walton Beach to Panama City. Damage to shorefront residential structures was extensive. Over \$1.08 billion of damage occurred along the 25-mile wide Panama City beach strip, mostly the result of the high tides undermining beachfront structures.

1979 Hurricane Frederic (September 13)



Frederic gained tropical storm intensity on September 9 near western Cuba. Frederic then turned to the north-northwest with increasing forward speed for the next 60 hours. The eye passed over Dauphin Island, Alabama on the 13th. The highest winds recorded on Dauphin Island were 120 mph with gusts to 145 mph. Tides of 8 – 12 feet above normal were reported in the hurricane warning area from Pascagoula, Mississippi to western Santa Rosa Island, Alabama. Frederic remained a hurricane until nearly 200 miles inland and retained tropical characteristics all the way to Pennsylvania and dumped more than 6 inches of rain into New England and even Canada. Amid the largest evacuation in Gulf Coast history to that time, some 500,000 people evacuated from the threatened area. All three states, Louisiana, Alabama and Florida, received disaster declarations and FEMA spent over \$225 million helping them recover, with \$4 million of that going to Florida. FEMA followed those dollars with more federal funds aimed at reducing the impact of future disasters with \$1.5 million to Florida. This storm resulted in damage to shorelines along Mississippi, Alabama and Florida. Over \$3.5 billion in damage to residential and commercial property were claimed as a result of this storm. There were four repetitive loss flood claims filed as a result of damage from this storm in unincorporated Santa Rosa County.

1985 Hurricane Elena (August 29 – September 2)



Elena originated off the African coast on August 23rd and was named when it became a tropical storm on the 28th near Cuba. Elena intensified to hurricane strength on the 29th over the open water of the southeast Gulf of Mexico. Steering currents (upper winds that move the storm) over the hurricane collapsed and a frontal trough turned Elena toward east-northeast on August 30 posing threats to the west coast of Florida. As it moved near to Florida's west coast, steering currents again collapsed and Elena looped in the Gulf of Mexico and headed west-northwest making landfall near Biloxi, Mississippi on September 2nd. Nearly one million people were evacuated from low-lying coastal areas in the warning area, from Louisiana to Florida's west coast, with a large section of the middle Gulf coast being asked to evacuate twice within a three-day period. This is the largest number of people ever evacuated up to that time, and may account for the fact that there were no deaths directly attributed to Elena in

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the area of landfall. This storm resulted in damages to residential and commercial property in Louisiana, Mississippi, Alabama and portions of the western panhandle of Florida. Due to the storm track running parallel to the Florida shoreline, significant damage to shorefront structures was sustained between Apalachicola and Pensacola Beach, Florida. Nearly \$1.4 billion in damage to residential and commercial property were claimed as a result of this storm. There were no repetitive loss flood claims filed in Santa Rosa County.

1985 Hurricane Kate (November 15)



The second hurricane of 1985 to affect the Florida panhandle was a Category 2 hurricane that made landfall near the City of Port St. Joe, Florida. With sustained winds approaching 100 mph, this storm resulted in damage to shoreline residential and commercial structures. Storm related damage was reported along eastern portions of the Florida panhandle, as well as in the City of Tallahassee,

Florida and northward. Over 300 million dollars in damage to residential and commercial property were claimed as a result of this storm.

1994 Tropical Storm Alberto (June 30 - July 7)



Tropical Storm Alberto formed in the southeast Gulf of Mexico on July 1 and moved north at 10 mph. The center crossed the Florida panhandle near Pensacola Beach, Florida. River flooding in Georgia, with up to 27 inches of rain recorded, and Alabama spread into the Florida panhandle, along with 6 to 14 inches of additional rain in Florida from the remnants of Alberto causing even more extensive flooding. Flood crests exceeded 100-year events on the Apalachicola and Chipola Rivers. Damage to buildings, roads, water systems and other public property was estimated at \$500 million. Insured losses to buildings and vehicles were

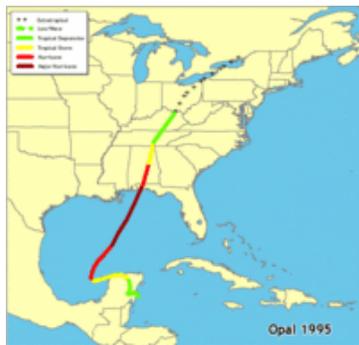
estimated at \$15 million. Agricultural losses were estimated at \$25 million, including up to 50% of the peanut, cotton, soybean and corn crops. Animal losses included 300,000 chickens, 125 steers and hogs, and 90% of the oysters in Apalachicola Bay. The tourist industry is estimated to have lost several million dollars in potential revenue. There were 8 repetitive loss flood insurance claims filed in unincorporated Santa Rosa County as a result of damage from this storm.

1995 Hurricane Erin (July 31 – August 6)



This storm made its second Florida landfall as a weak Category 2 storm, near Fort Walton Beach, Florida on August 3rd. Moderate beach erosion was sustained between Navarre Beach and Pensacola Beach. Storm surges varied from 3 feet in Pensacola Beach to 7 feet in Navarre Beach. Damage to residential and commercial structures resulting from hurricane force winds affected over 200 structures within portions of the cities of Pensacola and Mary Esther, as well as Pensacola Beach and Navarre Beach. Storm related damages to residential and commercial property, within the State of Florida, approached \$350 million. There were three repetitive loss flood insurance claims filed in unincorporated Santa Rosa County as a result of damage from this storm.

1995 Hurricane Opal (September 27 – October 5)



After briefly reaching Category 4 intensity in the Gulf of Mexico, Hurricane Opal made landfall as a Category 3 hurricane near Pensacola Beach, Florida on October 4th. Hurricane force winds were reported between Pensacola Beach and Cape San Blas, with sustained winds exceeding 100 mph in an area between the cities of Destin and Panama City Beach. Beaches and dune systems, already weakened by Hurricane Erin, sustained extensive erosion and wash over as a result of the storm. Storm surges varied between 5 and 14 feet depending on location. Breaking waves in some areas added approximately 10 feet to the reported storm surge. High water marks above mean sea level varied from 10 feet in Pensacola Beach, to 18 feet in Panama City Beach, to over 21 feet in Walton County. Beach and dune erosion, as well as damage to commercial and residential structures, was reported to be extensive for shoreline areas of the Gulf of Mexico, as well as portions of shoreline areas of Pensacola Bay, Santa Rosa Sound, and Choctawhatchee Bay. Storm related damages to residential and commercial property exceeded \$3 billion. There were 350 repetitive loss flood insurance claims filed in unincorporated Santa Rosa County as a result of this storm.

1998 Hurricane Georges (September 25)



Heavy rains from slow moving Hurricane Georges caused widespread flooding across Santa Rosa County with rainfall estimates of between 15 and 25 inches across the county. Most of the roads in the county had some form of flood damage. Many roads were closed for several days because of the heavy rains. Schools were closed for two to three days because of the many washed out secondary roads. The Big

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Coldwater Creek at Milton reached a reading of 19.86 feet on September 29th. The Blackwater River at Baker reached a reading of 25.57 feet, which was near the record of 25.61 feet in June of 1970. Areas and communities hardest hit by river flooding were Milton and vicinity, Paradise Island, Harold and Ward Basin. Total damages from Hurricane Georges were \$2.4 billion. There were 77 repetitive loss flood insurance claims filed in unincorporated Santa Rosa County as a result of this event

2000 Tropical Storm Helene (September 21 – 22)



Tropical Storm Helene made landfall near Fort Walton Beach on the morning of September 22nd before weakening to a tropical depression as it accelerated northeastward into southeast Alabama. The highest sustained winds of 24 knots were reported at Destin. Peak wind gusts were 46 knots at Destin and 38 knots on Pensacola Beach. No major flooding was reported, primarily due to the fact that the region had been in a

drought throughout most of the summer. Even so, nine counties, including neighboring Escambia and Okaloosa, were designated eligible for federal funds after the state was declared a major disaster area because of damage to public property from heavy rains, high winds, tornadoes and flooding spawned by Helene. Estimated maximum storm surge was around 1 foot, which resulted in minor coastal flooding near Fort Pickens on Pensacola Beach. Only minor beach erosion occurred elsewhere along the Northwest Florida coast. There were no repetitive loss flood insurance claims filed in unincorporated Santa Rosa County.

2004 Hurricane Ivan (September 13-16)



In September 2004, the eye wall of Hurricane Ivan impacted and devastated all areas of Santa Rosa County. The eye made landfall just west of Gulf Shores, Alabama. The right quadrant of the storm (the strong side) came across the County with Category 3 force winds. Hurricane force winds extended from coastal communities at Navarre Beach, Gulf Breeze, and Navarre, and extended inland through Milton and Pace north to Jay and the Alabama state line. Storm surge heights of fifteen feet and higher were recorded along the Gulf of Mexico, Santa Rosa Sound, Escambia, East, and Blackwater Bays. The impact of the storm surge in

Gulf Breeze, the Fair Point Peninsula, Navarre, Navarre Beach, Milton, Pace, and surrounding coastal and bayfront communities was massive. As of June 2006, almost two years after the storm, more than 1,000 families were still living in FEMA-provided trailers in the Pensacola area. Hurricane Ivan demonstrated the power of storm surge and the vulnerability of the County. Hurricane Ivan was the strongest southern hurricane on

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record while traversing the Atlantic and Caribbean, reaching Category 5 strength with sustained winds near 160 mph. The storm, with its 60-mile-wide eye and 10-15 foot surge, caused \$14.2 billion in damage nationwide. The figure makes Ivan the sixth costliest hurricane on record in the U.S. There were 672 repetitive loss flood insurance claims filed in unincorporated Santa Rosa County as a result of this event.

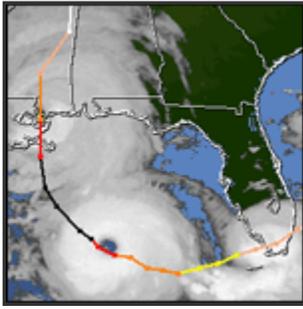
The Santa Rosa County Public Information Office's (PIO) publication, *Santa Rosa County Storm Facts 2004-2005*, provides statistics about this storm. The PIO also published *Fact Sheet #15* on September 16, 2009, entitled *Hurricane Ivan Retrospect – Five Years Later*, that explains the many lessons learned since Hurricane Ivan struck. See Appendix F, which includes these publications.

2005 Hurricane Dennis (July 9-10)



For the second time in less than a week, and the third time in two months, the area was threatened by a tropical event. Hurricane Dennis was an early-forming major hurricane in the Caribbean and Gulf of Mexico during the 2005 Atlantic hurricane season. Dennis made landfall on the Florida Panhandle with a very small eye near Navarre Beach as a Category 3 storm less than a year after Hurricane Ivan did so. Dennis then moved northwest across Santa Rosa County. The NOAA weather buoy offshore from Panama City measured wave heights to 34.8 feet. Dennis caused \$2.23 billion in damages to the United States. Much of the damage looked like a giant tornado, except that the trees were all facing in the same general direction. The damage was not as high as originally expected, mainly because Dennis was more compact and moved more quickly than initially forecast. Dennis made landfall approximately 30 miles to the east of where Hurricane Ivan had made landfall 10 months before, but did not cause as much damage as Ivan. Dennis moved about 7 mph faster than Ivan at landfall, and had hurricane-force winds that only extended 40 miles from its center, compared to Ivan's 105 miles. Wind reports on July 10th in Navarre were a peak gust of 105 knots and in Pace, a peak gust of 92 knots. The highest storm tides from Dennis occurred at Santa Rosa Sound at 5 feet, Navarre Beach at 6.5 feet and Pace at 3.5 feet. Since the eye of Dennis was very small, the highest surge values were near and just to the right of the eye of the storm. Major flash flooding occurred east of the center of Dennis. Almost every structure located on Navarre Beach suffered some kind of damage. All of the structures that were located on the beachfront suffered damage. The Air Force bases at Eglin and Hurlburt reported over a half billion dollars in damage from Dennis. There were three deaths indirectly attributed to Dennis related to the improper use of emergency generators. There were 430 NFIP repetitive loss flood insurance claims filed in unincorporated Santa Rosa County as a result of this event. See Appendix F for statistical information about this storm.

2005 Hurricane Katrina (August 29)



Heavy rains from Hurricane Katrina caused flooding across most of the county. Several streets had to be closed, off and on throughout the day. Radar estimated that 5-7 inches of rain fell across the county with the heaviest being across the western half of the county. There were 61 repetitive loss flood insurance claims filed as a result of this event in unincorporated Santa Rosa County.

2007 Thunderstorms (October 19)

Many streets in the south end of the county had to be closed for several hours due to high water. The flooded streets were generally along and south of Interstate 10. Slow moving thunderstorms produced two-day total rainfall amounts of 15 to 20 inches with isolated higher amounts along the coastal sections of the county. There were six NFIP repetitive loss claims filed for this event in unincorporated Santa Rosa County.

2008 Rainfall (April 5)

Heavy rain fell across the area on April 5th. The rains caused several roads to close due to high water. Some of the inside lanes of U.S. Highway 90 near Pace had to be closed until the water drained. Rainfall totals of four to ten inches fell across the area. Some of the rivers in the area also approached flood stage because of the heavy rains. No major river flooding occurred.

2008 Tropical Storm Fay (August 23)



Tropical Storm Fay impacted Santa Rosa County with heavy rain. Extreme flooding was reported in many counties in central Florida and the Florida panhandle. Tropical Storm Fay made a record four landfalls in Florida.

2008 Hurricane Gustav (September 1)

As Hurricane Gustav moved south and west of the northwest Florida coast, higher than normal tides caused beach erosion on Santa Rosa Sound. The storm tide height was estimated at 3-4 feet across the area with the surge height estimated at 2.5 to 3.5 feet. Damage estimates from the surge were \$250K.



2008 Hurricane Ike (September 11)

Hurricane Ike passed well south of the area; however extremely high tide and surge from Ike brought high storm tides to the area. The storm tide was higher with Ike than with Gustav in many locations. Navarre Beach took a pounding from waves.



2009 Thunderstorm (March 28 – March 31)

On March 28th, thunderstorms moved across the Florida Panhandle producing flooding along with wind damage and large hail. Winds estimated at 58 mph downed trees and power lines near Highway 87 and Highway 4 near Berrydale. On March 31st, winds estimated at 60 mph caused damage to buildings in Munson. Thunderstorms moved across the Florida panhandle and produced wind damage and funnel clouds. By March 31st, officials reported rainfall in the central area of Santa Rosa County to be 13 inches while five to six inches fell south of Milton. Overall an estimated 17 inches of rain fell in Santa Rosa County. Santa Rosa County Emergency Management Officials reported on March 30th that the Blackwater River in Milton was 4.5 feet and falling after cresting at 8 feet earlier and that the Coldwater Creek on Munson Highway was at 11.3 feet. The flood stage for Coldwater Creek is 11 feet. A State of Emergency was issued for the County on April 3rd by the Governor of the State of Florida and more than \$3 million in federal disaster aid was provided to help people recover from losses caused by these severe storms in the 14 counties that were designated disaster areas. Nearly \$5.4 million in Federal Public Assistance funds were approved to help repair and rebuild infrastructure in the wake of the severe storms in 22 north Florida counties eligible for Public Assistance funds. Appendix G depicts a before and after the flooding view of the Blackwater River.

2009 Thunderstorm (May 5)

Several thunderstorms produced damaging winds and flash flooding in portions of the western Florida panhandle already devastated from the severe storms in March of 2009. FEMA received more than 1378 applications for some form of disaster assistance for uninsured or underinsured losses related to March 6th through May 5th storms and

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flooding. In Santa Rosa County there were 54 applications for disaster funds for a total of \$83,779, of which \$76,300 was for housing and \$7,478 was for other needs as a result of the spring storms and flooding.

2014 Spring Flooding (Apr 29 & 30)

The summer floods of 2005 demonstrated the potential for flooding in Santa Rosa County. The series of heavy rain events occurred on already saturated soils. These rain events were further complicated by the presence of leftover hurricane debris in local waterways, and demonstrate the continuing threat of flooding. The series of large rain events caused widespread flooding to communities and roadways in Santa Rosa County. Spring flooding in 2014 again exemplified the potential damage excessive amounts of rainfall can have in developed communities, when parts of Santa Rosa and Escambia Counties received over 24 inches of rain in a 26 hour period.

Santa Rosa County

Flood Mitigation Plan

Section Six

ASSESSMENT OF THE PROBLEM

A flood hazard *area* may or may not have flood *problems*. Flooding is viewed as a natural and even beneficial occurrence. A floodplain is only a problem if human development gets in the way of, or exacerbates, the natural flooding.

Section Five of this Flood Mitigation Plan reviewed the types of flooding that impact Santa Rosa County. If a flood struck vacant land, there would not be much cause for concern, but because the County has over 159,785 residents and thousands of homes, businesses and critical facilities, the potential for damage can be high. Some of the developed areas of Santa Rosa County that are the most vulnerable to flooding include locations along the Escambia River, especially near the Town of Pace, areas along Interstate 10 near the Escambia Bay, and areas in close proximity to the County's wetlands, streams, or sinkhole lakes. There are developed areas affected by both strong storm surge activity as well as riverine and overland flooding. These areas include all of Garcon Point, the City of Gulf Breeze, and the swamp areas located along the eastern bank of the Escambia River toward the southern outlet into the Escambia Bay.

The flood prone areas are scattered throughout the county. The topography plays a part, as there are some areas that are extremely flat. There are somewhat silty soils, sand, clay and some areas with an iron rock layer seven feet below the surface that limits water percolation. The combination of gently sloping land and impervious soils makes runoff slow, resulting in surface flooding. It is sometimes ineffective to dig deeper ditches to convey the water away from flood prone areas because of the high groundwater table, or because there is nowhere to discharge the water. The older structures tend to be especially vulnerable because they were not built in accordance with the current grading requirements or the current finished floor elevation requirements that the county now enforces.

Santa Rosa County has over 81 miles of rivers and streams, numerous lakes and ponds and 100 miles of tidally effected shoreline. As stated in the *Santa Rosa County Local Mitigation Strategy 2015-2020*, flooding is the primary emergency concern along the Escambia River, Yellow River, Blackwater River and associated tributaries, sloughs, river oxbow lakes, sinkhole/sand hill lakes and isolated swamps (locally called "bays").

Substantial mitigation efforts, including buyouts of property, have been ongoing in the County since 1995. However, some residential dwellings remain vulnerable to flooding because they were not eligible for buyouts or chose not to participate in voluntary FEMA buyout programs.

This section reviews the vulnerability of Santa Rosa County to property damage, to public health and safety threats, and to adverse economic impacts resulting from the potential of flooding.

6.1 Vulnerability Assessment – City of Gulf Breeze

The City of Gulf Breeze, located at the western terminus of the Fairpoint Peninsula, is Santa Rosa County’s largest coastal urban area. This peninsula is approximately one mile from the Gulf of Mexico and is separated from the Gulf by Santa Rosa Island (a coastal barrier island) and the unincorporated community of Pensacola Beach in Escambia County. The Santa Rosa Sound, a saltwater body, lies to the south, and Pensacola Bay lies to the west and north of the city. Gulf Breeze is extensively developed with residential, commercial, institutional (government, schools and hospital), and some light industrial development.

Flooding is a concern near Deer Point, along CR 399 near the Bob Sikes Bridge, threatening businesses along U.S. 98 at the southern entrance/end of the “Three Mile Bridge” crossing to Pensacola, and homes that line the shoreline around much of the Fairpoint Peninsula.

National Flood Insurance Program (NFIP) maps indicate “VE” (velocity) zones along many coastal areas of the city. (An explanation of the types of flood zones can be found in Section 5 of this document.) “VE” zones extend from the western tip of the Fairpoint Peninsula southeast to Deer Point and eastward along Santa Rosa Sound to the city limits in the Naval Live Oaks Area of Gulf Islands National Seashore. All “VE” zones are located within immediate proximity to Pensacola Bay or Santa Rosa Sound. Most land south of Shoreline Drive (an east-west local corridor within the City) is within the “VE” zone. This includes all of Deer Point.

“AE” zones extend around all coastal perimeter areas of the City of Gulf Breeze. These areas are just inland of all “VE” zones. On the north shore of the City, Town Point and several bayou shorelines are within the “AE” zone. Most notable is an “AE” zone at the terminus of the Pensacola Bay Bridge (U.S. 98) on the north shore of the City. A copy of the flood zone map can be viewed in Appendix E.

Although much of the City of Gulf Breeze is within the storm surge zone of hurricanes, only immediate coastal areas are most vulnerable. In most cases, Category 1 and Category 2 hurricane storm surge zones correlate well with the AE and VE flood zones in the city. Once Category 4 and 5 (major) hurricane strength is reached, a more extensive coverage includes virtually all of the sparsely developed Naval Live Oaks Area of Gulf Islands National Seashore, and a substantial portion of the urbanized neighborhoods and some commercial locations in the developed portions of Gulf Breeze. The City of Gulf Breeze has all five primary storm surge categories that impact structures within its borders.

6.2 Vulnerability Assessment – Town of Jay

The Town of Jay is located in the northwestern corner of Santa Rosa County's and is its smallest incorporated urban area. The town has a small but active central business district, residential areas, schools, a hospital, town hall, parks, community center, fire department, library, and a number of agricultural support industries and outlets including farm supply stores, a livestock auction market and two cotton gins. Much of the Town's land is in agricultural production, and the Town is surrounded by thousands of acres of land planted in cotton, soybean, and peanut production, and to some extent silvicultural/timber operations. Jay also supports a number of active oil wells.

The Town of Jay experiences only small pockets of localized flooding, due to the level terrain and drainage problems, usually caused by excessive rainfall and not from rising water of river floodplains. Thirty-two properties are affected by flooding, and four roadways are vulnerable to flooding.

The town has two flood zones that lie within its borders. They are the "X" flood zone, which is not considered a Special Flood Hazard Area (SFHA), and the "A" flood zone, which is in the SFHA. The town is not affected by storm surge.

6.3 Vulnerability Assessment – City of Milton

The City of Milton is located at the center of Santa Rosa County, and is the commercial and governmental center of the County. Milton is Santa Rosa County's largest urban area and the County seat. The city is comprised of extensive residential neighborhoods, commercial districts, a viable and historic downtown central business district, the county courthouse and administrative complex, a hospital, schools, and light industries.

An extensive floodplain exists in the City. Milton is located near the bottom of the Blackwater River watershed. The river enters from the north and east of the City, while a second creek (Pond Creek) terminates near Bagdad, just south of Milton. Smaller creeks such as Collins Mill Creek can also cause some flooding, especially when the Blackwater River is at flood stage.

The city's floodplain includes all of downtown and neighborhoods to the west of downtown, along the CSX railway, and along the Blackwater River. The wastewater plant, the garage warehouse facility, and the city's fire department are located within this floodplain. Major thoroughfare U.S. 90 (Caroline Street) and surrounding streets can become completely submerged during times of flooding, causing traffic to have to be rerouted south to Interstate 10. Such flooding can be caused by hurricanes or tropical systems (including storm surge backup from Blackwater Bay to the south), or heavy and extended periods of rain within the Blackwater River watershed.

The City of Milton has three flood zone types that lie within its borders. They are the "X", the "X500" and the "AE" zones. Only the "AE" zone is considered to be within the SFHA. The City of Milton has all five primary storm surge categories within its borders.

6.4 Repetitive Loss Properties

A repetitive loss property is a property for which the National Flood Insurance Program (NFIP) has paid two or more flood insurance claims of more than \$1,000 within any 10-year period since 1978. The NFIP is one of the mechanisms with which FEMA manages flood disasters. The goal of the NFIP is to minimize flood-related property losses by making flood insurance available to people living in floodplains while encouraging floodplain management efforts to mitigate future flood hazards.

In the United States, repetitive-loss properties comprise approximately one percent of currently insured properties but are expected to account for 30 to 40 percent of claims' losses. The vast majority of the repetitive loss properties were built before local community implementation of floodplain management standards under the program and are eligible for subsidized flood insurance. Mitigation of repetitive loss properties through buyouts, elevations, relocations, or flood proofing will produce savings for policyholders under the program and for Federal taxpayers through reduced flood insurance losses and reduced Federal disaster assistance.

FEMA has implemented a strategy of making mitigation offers aimed at high-priority repetitive loss properties. This strategy shifts more of the burden of recovery costs to property owners who choose to remain vulnerable to repetitive flood damage. In so doing, it encourages property owners to take appropriate actions that reduce loss of life and property damage, while benefiting the financial soundness of the program. Reducing the insurance claims and aid paid for these repetitive loss properties will benefit all owners of flood insurance policies, because premiums will tend to rise at a slower rate.

To participate in the Community Rating System (CRS), a community with repetitive flood loss properties must take certain actions that address those properties. Every year, FEMA provides a list of all properties that have filed a flood insurance claim in the previous year to communities that participate in the CRS.

A *severe* repetitive loss property, as defined by Congress in the Flood Insurance Reform Act of 2004, is a property that has had four or more claims of more than \$5,000, or two to three claims that cumulatively exceed the building's value. As of 4/9/2015 there are 59 Severe Repetitive Loss (SRL) properties in unincorporated Santa Rosa County. Seven property owners from the SRL list have had a grant application submitted for either elevation or acquisition. Of the 59 SRL properties, 15 structures are currently compliant. When a property is added to the SRL list, the flood insurance rates for that property are increased dramatically. Until the designation of a property as a SRL property, all flood insurance premiums are subsidized.

A repetitive loss *area* is a portion of a community that includes buildings on FEMA's list of repetitive losses and any nearby properties that are subject to the same or similar flooding conditions. It is important to note that the only reason a property is placed on FEMA's list is because the structure has had flood insurance and has received two or more

claims of at least \$1,000 during any given 10-year period. These properties are merely representative of the community's overall repetitive flooding problem. Other structures located near the structures listed by FEMA may have been uninsured during the floods, may have had only single flood insurance claims, or may be at comparable risk of flooding, despite not having the designation as repetitive loss properties.

6.4.1 Repetitive Loss Claims

Some information on repetitive loss properties is subject to the Federal Privacy Act of 1974. Information such as the names of people and addresses of properties that have received repetitive flood insurance claims payments or the amounts of the claims may not be released to the public and therefore are not included in this public document. However, the Santa Rosa County Floodplain Manager has the detailed data and can review them with the owners. Generic information, such as total claim payments for an area or data not connected to a particular property may be made public.

Once areas are designated as locations with costly repetitive losses, local officials can prioritize resources, such as money and educational material, to benefit and minimize losses in high priority areas. Mitigation measures such as relocation, elevation and buyouts can also be targeted to areas receiving multiple claim payouts through state and federal programs, such as the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA).

6.4.2 Flood Insurance Claim History and Repetitive Loss Properties in Unincorporated Santa Rosa County

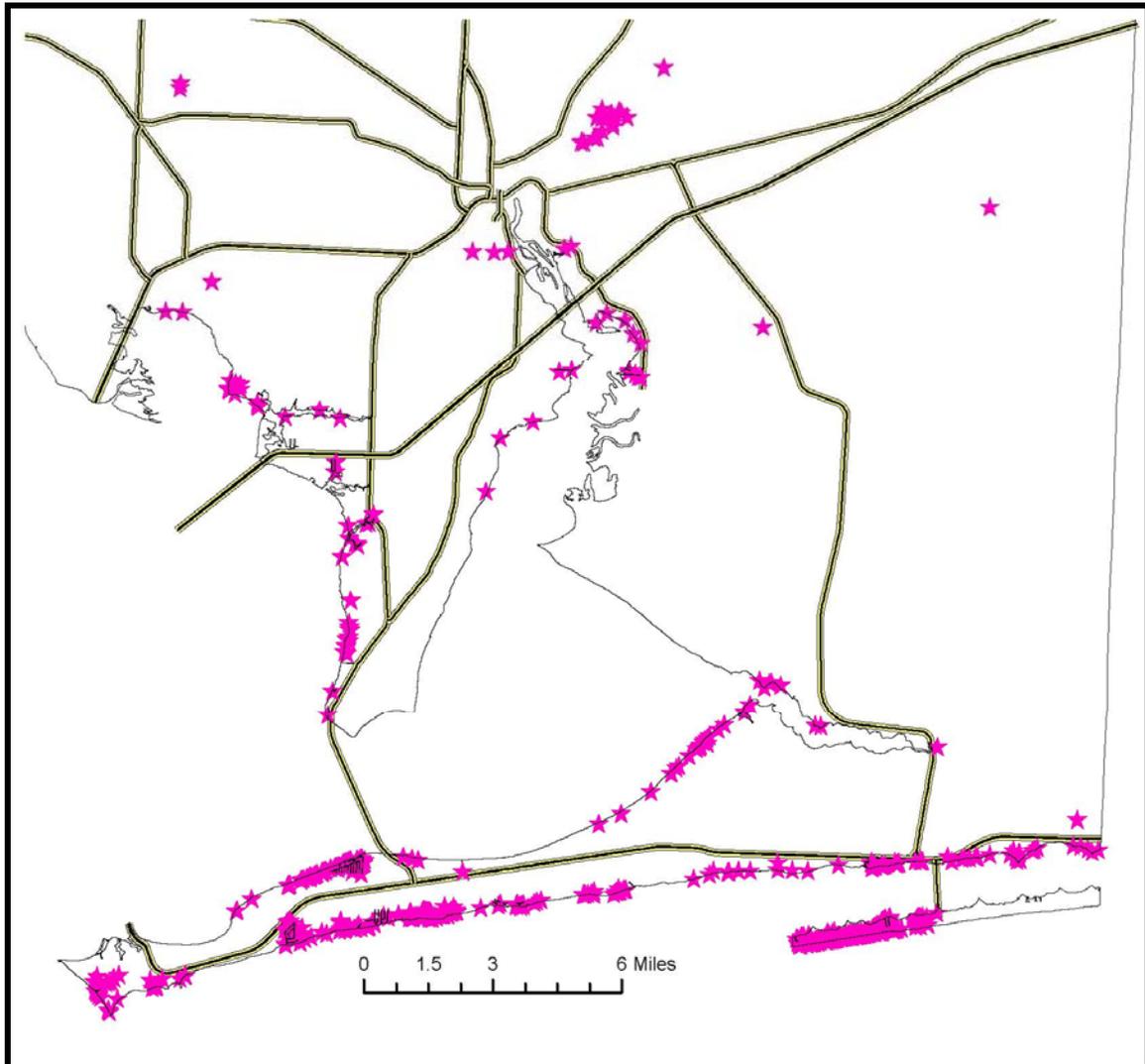
According to the 2014 Repetitive Loss Report from FEMA, which includes the years 1978 through 2014, in unincorporated Santa Rosa County the number of repetitive loss properties is 1,015. This number is expected to rise in the 2015 report.

- 311 of the 1015 RL properties have been mitigated and thus have been removed from the list, leaving 704 properties:
 - The value of these 704 structures is over \$305 million
 - The total dollar amount of flood claims paid for building damage is over \$129 million
 - The total dollar amount of flood claims paid for contents damage is over \$18.3 million
- Eight of the structures are in the process of being mitigated in one of the following ways:
 - The structure has been demolished and the county is waiting for the contractor to finalize the permit
 - A new structure is in the process of being built with a new foundation
 - The property is in the process of being elevated, or
 - The property is in the process of being moved
- 204 of the properties meet the County's current elevation requirement and are compliant with FEMA's building requirements. Until the flood insurance rate

maps change and the elevations on the maps change, there is nothing the county can do to help the owners with mitigation, such as securing a mitigation grant.

- 500 on the list could be mitigated, such as being elevated, moved, demolished or rebuilt, but the owners are not interested in that type of mitigation at this time, possibly because of the high cost. Of these 500 properties, 75% are especially vulnerable to flooding, as they are located on or near the beach.

Clusters of Repetitive Loss Properties in Unincorporated Santa Rosa County as of September 2015



The reduction of 311 mitigated properties from the RL list is a prime example of how Santa Rosa County's proactive flood mitigation practices have decreased the exposure of its citizens to the flood hazard, reduced the number of repetitive loss properties, and

minimized reliance on post-disaster assistance provided by the federal government and the nation's taxpayers.

6.4.3 Repetitive Loss Areas in Unincorporated Santa Rosa County

A repetitive loss area is a portion of a community that includes buildings on FEMA's list of repetitive losses (RL) and also any nearby properties that are subject to the same or similar flooding conditions. The areas include properties not on FEMA's RL list that are at the same elevation or otherwise exposed to the same flooding that damaged the properties on FEMA's list. There are flood prone areas in Santa Rosa County that are not yet documented on FEMA or U.S. Army Corps of Engineers' maps. Twelve repetitive loss areas that encompass the RL properties have been identified in unincorporated Santa Rosa County:

- | | |
|-----------------|-----------------------|
| 1. Northeast | 7. Villa Venyce |
| 2. East Central | 8. Polynesian Islands |
| 3. Northwest | 9. Tiger Point |
| 4. West Central | 10. Soundside |
| 5. Avalon | 11. Navarre |
| 6. East Bay | 12. Navarre Beach |

There are 14 additional RL properties that have received flood insurance payments in the amount of \$1.3 million that are not in these thirteen named areas, but are in outlying areas throughout the County. This Flood Mitigation Plan's recommended actions are intended to benefit all floodprone properties in Santa Rosa County, including those in the twelve areas. Included in Appendix H is the repetitive loss information received from FEMA that has been compiled for analysis into spreadsheet form, and a map of the County with the repetitive loss areas delineated.

The Northeast

The northeast repetitive loss area is located north of Highway 90 and southeast of Munson Highway, just southeast of the Blackwater River. It includes River Road and North Airport Road. In the 1970s and 1980s the County had more frequent flooding problems in this area because the science and information available at the time of development did not accurately project flood heights that could occur from rainfall events typical for the region. Development therefore occurred in areas needed for stormwater conveyance with insufficient levels of flood protection. Riverine flooding is significant in this area, as attested by the fact that many RL properties are located near the Blackwater River and its tributaries. Most of this area is located in the X Flood zone, with moderate to low risk of flooding. Much of the area is designated AE Flood zone. Many of the flooding problems in this area have been mitigated. However, the March 2009 flood, which particularly impacted the Blackwater River basin, demonstrated this area's continued vulnerability to riverine floods. Based on information supplied annually by FEMA, for the time period of 1978 – 2014 there are 19 RL properties in this area that have received flood insurance claim payments totaling \$1,090,627.

The East Central

This repetitive loss area includes Peterson Point, Ward Basin Road and Bain Drive, on the shores of the Blackwater Bay. Properties in this area are in both the AE and VE flood zones. Although extensive mitigation efforts have taken place, and participation in the National Flood Insurance Program has raised floor elevations, flood damage still occurs to older structures and infrastructure (roads, bridges, etc.). Most of the flood insurance claims in this area are a result of storm surge and general flooding due to heavy rains. There are 15 RL properties in this area that have received flood insurance claim payments totaling \$1.9 million, based on information received from FEMA for the time period of 1978 – 2014.

The Northwest

This area is located just north of Berryhill Road and east of Woodbine Road in the community of Pace. It is in the X Flood zone, considered to have moderate to low risk of flooding.

The Saddle Club subdivision is in this area. This subdivision was built in the bottom of a large bowl on approximately 158 acres in the 1980s. The contour maps that were in existence at that time erroneously omitted a 10' contour line that would have designated this area as a bowl that was 15' to 18' deep. This error made it appear as if stormwater would flow to Pond Creek, but when heavy rains occurred in the late 1980s, it became evident that this subdivision was built in a bowl and there was nowhere for the water to flow. The houses flooded in the bottom of the bowl. Based on the results of a benefit/cost analysis, it was determined that it was not economically feasible to breach the ridge and cut through the bowl so that the water would drain into Pond Creek, which is one of the County's major watersheds. However, the County did some other types of mitigation, including acquiring properties, building retention ponds, and later enlarging the retention ponds. Even so, during heavy rains a few years later the few houses that were still there had deeper flooding than before the mitigation work was performed.

To help prevent continued reoccurrence of this and other repetitive flooding, the County adopted the 100-year storm design, and also implemented a closed-basin design standard. Another success of the closed-basin design regulation is the North Spencer Field Road and West Spencer Field Road intersection that was previously subject to frequent flooding, sometimes up to two feet deep. Because of new subdivisions and a new church built upstream to the new standards, this intersection no longer floods during heavy rains.

The effect has also been very noticeable in the reduction of downstream flooding in the Guernsey Road area, which previously flooded frequently, but does not flood now. Once again the subdivisions that are upstream are designing to the restricted basin design.

There are also flooding problems in this area due to a subdivision development project going bankrupt. This is an area that has been clear cut, leaving vacant land with no trees or vegetation. The sediment runs into the streams and clogs stormwater systems. Some of the houses in this area flooded during the heavy rains in the spring of 2014. There are two

properties that remain on the RL list; together they have had flood insurance claims paid in the amount of \$289,852 in the time period of 1978 – 2015.

One of those properties is currently undergoing a mitigation effort to elevate the structure.

Two major mitigation projects are planned for this area in the near future. They are:

- **Pace Lane/Patterson Lane Stormwater Improvement/Drainage Project**
The project area includes segments of Patterson Lane, Pace Lane and Faircloth Street in the Pea Ridge community located in the Pea Ridge/Pace community. The general slope of this area is from north to south, but there are isolated low areas within this gently sloping area. One of these isolated low areas is present along Patterson Lane, from the intersection of Pace Lane and Patterson Lane, eastward for approximately 800 feet. Another troublesome area lies along Faircloth Street. Flat topography and lack of drainage infrastructure prevent the flow of stormwater runoff away from the roadway and nearby homes. The project area has experienced severe and extensive flooding following moderate to severe storm events. The existing stormwater management system serving this area consists of limited ditches and pipes that direct excess water southerly to an existing County stormwater retention pond that is located on Overlook Circle. Septic systems were also inundated, resulting in septic system failures. Specifically, the proposed drainage improvements will encompass the installation of storm sewer systems (inlets and pipes), in combination with french drains, to properly convey stormwater runoff and manage groundwater baseflow to an existing retention pond on Overlook Circle, as well as three (3) proposed stormwater ponds. In addition, the proposed improvements include enhancements to the current ditch systems in order to convey stormwater to the new piping systems. This project will be phased to allow an engineering study, construction plans preparation, permitting and bidding for Phase I, and construction and construction management services under Phase II. Phase I is expected to begin in January 2016. Maps and details of this project can be viewed in Appendix I.
- **Chipper/Maranatha Stormwater Improvement/Drainage Project**
The project area includes West Spencer Field Road, Twelve Oaks subdivision, and a portion of the Thomastown Estates subdivision in Pace. Wetlands and ponds are present on the west side of West Spencer Field Road. These saturated areas create excessive runoff during periods of normal and above normal rainfall that contribute to road, yard and structural flooding in the area. Even though the general topography of this area tends to slope from west to east, toward a positive outfall into Pond Creek, the runoff accumulates within the Maranatha Way and Chipper Lane area and causes flooding conditions. The Thomastown Estates subdivision area (Maranatha Way & Chipper Lane) has experienced repetitive and extensive roadway and structural flooding since its construction in the early 1970s. Septic tank failures have also been reported. Santa Rosa County envisions that the implementation of the proposed drainage improvements will minimize or eliminate future structural damage while protecting the residents from harms way during and following future flood events. Specifically, the proposed drainage improvements

will encompass the acquisition of an existing retention pond (land acquisition and construction), and the construction of strategically located inlets and storm sewer systems to properly capture and convey the stormwater runoff away from the drainage problem areas. This project will be phased to allow an engineering study, construction plans preparation, permitting and bidding for Phase I, and construction and construction management services under Phase II. Phase I is expected to begin in January 2016. Maps and details of this project can be viewed in Appendix I.

The West Central

This area includes Andrew Jackson Road and Bay Point, and is a gently sloping area in the VE and AE zones on the shores of Escambia Bay and X Zone in the northern portions of this area. The flooding problems in this area are primarily a result of storm surge. Sheet flow and surface flooding caused by heavy rains are also contributing factors.

In 1995, as a result of damages from Hurricanes Erin and Opal, the County received a federal grant that was used to complete a drainage project in the Pace area in the Floridatown community. This was the number one project on the County's Local Mitigation Strategy project list. This community had shallow ditches and bad soil. There was water reportedly up to six inches deep running between houses. The four-year \$4.5 million drainage project has proven to be very effective. There have been no complaints of flooding problems during heavy rains since completion of this project. The 14 RL properties in this area have received flood insurance claim payments totaling \$2.2 million in the time period of 1978 – 2014, according to information received annually from FEMA.

Avalon

One of the County's largest subdivisions is Avalon Beach on the east coast side of the Garcon Point Peninsula, which was platted in the 1920s, 30s, and 40s. This is a major flooding problem area in the county. Most of the repetitive loss properties are along Dolphin Road and Trout Bayou. A portion of Avalon Beach is sawgrass swamp. There were lots platted in the swamp and out into the water. The County cannot condemn these platted legal lots of record. If the owners can get appropriate wetland permits the County cannot deny them building permits on the lots. Fortunately, most of these lots are not developed. It is anticipated that the owners will stop paying the property taxes and the property will sell for the tax deed.

This large subdivision was developed with no consideration for stormwater runoff or control. Adding to the flooding problem are other factors such as poor soil type, high groundwater levels, and slightly sloping property.

The Avalon Beach repetitive loss area is situated in AE and VE flood zones. There are 29 RL properties in this area. The dollar amount of flood insurance claims paid to the 29 properties is \$3.9 million.

East Bay

The East Bay area is located in southern Santa Rosa County on the shores of the East Bay. This area is in the AE flood zone and the VE flood zone. Storm surge, coupled with general flooding during heavy rains, causes most of flooding in this area.

Flood insurance claim payments in the amount of \$3.4 million have been made to the 22 RL properties in this area.

Villa Venyce

The Villa Venyce Subdivision is located in the Gulf Breeze area in an unincorporated region of Santa Rosa County. It is located south of U.S. Highway 98, to the east of Gulf Islands National Seashore Park, and extends to the Santa Rosa Sound. Most of the RL properties in this area are on Edgewater Drive. Villa Venyce is a large, older subdivision with a series of canals that was platted in the early 1970s. There are no retention ponds or drainage features in the subdivision. The Villa Venyce area is subject to home flooding, to roadway flooding and to nuisance, or yard flooding. This problem is attributed not only to storm surge but also to the drainage problems following heavy rains. Based on information received annually from FEMA for the time period of 1978 – 2015, there are 65 RL properties in this area, and they have received flood insurance claim payments totaling \$6.9 million.

Three major mitigation projects were implemented since the last Flood Mitigation Plan approval. They are:

- **Villa Venyce Stormwater Improvement/Drainage Project**
This stormwater/drainage project was completed to minimize recurring flooding and reduce the repetitive flood loss count to 260 structures in this area. The project was designed and constructed to protect against the 100-year storm event. The runoff was routed across Bay Street, which is owned, operated, and maintained by the County, through a series of open swales, culverts, and treatment facilities as appropriate, through the subdivision and past the homes that flood. The enhanced drainage system was also designed to lower the elevation of the water table in select locations, thus enhancing the soil's ability to absorb additional runoff and assimilate pollutants associated with residential runoff. This project was completed in 2011. Maps and details of this project can be viewed in Appendix I.
- **Ramblewood Stormwater Improvement Drainage Project**
Ramblewood Drive is located in the Gulf Breeze area, south of U.S. Highway 98 and west of Oriole Beach Road. This stormwater/drainage project was completed to minimize recurring flooding and reduce the repetitive flood loss count to 57 structures. The project was designed and constructed to protect against the 100-year storm event. Construction included construction of a flood control pond, storm drain pipe, concrete ditch with ditch bottom inlets and manhole structures to collect and convey stormwater runoff from the flood prone areas. The stormwater holding pond required the acquisition of two residential properties. The pond was constructed to attenuate runoff, where water quality criteria is met, before slowly

discharging into a storm drainpipe toward Pine Street, which is the first north-to-south street to the east, and then into a concrete ditch. The water then flows south into the Santa Rosa Sound. The existing residential pond was routed into the same concrete ditch via a concrete weir. This project was completed in 2014. Maps and details of this project can be viewed in Appendix I.

- **Harrison Avenue Stormwater System Drainage Project**

This project is in the Gulf Breeze area of unincorporated Santa Rosa County, south of U.S. Highway 98, east of Oriole Beach Road and west of Redwood Lane extending south to the Santa Rosa Sound. There is a hill along Highway 98 and the area at the bottom of the hill to the south is very flat, with no slope toward Santa Rosa Sound, and with a high ground water table. It is an unplatted area built in the 1950s with inadequate drainage features. This stormwater/drainage project was completed to minimize recurring flooding and reduce the repetitive flood loss count to 210 structures in this area and provides protection against a 100-year storm event. The project removed inadequate drainage facilities along Harrison Avenue, Oriole Beach Road, Pins Lane, Oriole Drive and Laurel Drive. These facilities were replaced with a comprehensive and coordinated drainage network capable of handling existing and future growth in the area. The network includes pipes and open ditches that run through the Calvary Chapel Church property, to protect residences along Redwood Lane from environmental contamination. This project was completed in 2012. Maps and details of this project can be viewed in Appendix I.

Two major mitigation projects are planned for this area in the near future. They are:

- **Settlers Colony Stormwater Improvement/Drainage Project**

The Settlers Colony subdivision is southeast of the intersection of Gulf Breeze Parkway and Gondolier Boulevard, within the City of Gulf Breeze, Florida. The main corridors are composed of Settlers Colony Boulevard and Venetian Way and the arterial roadways include Settlers Landing and Settlers Way. The Phase 1 study of this project determined modifications are needed to improve and upgrade the existing drainage system. Phase 1 funded the designing, permitting and the geotechnical surveying for this project. Phase 2 provides funding for a construction project that will minimize recurring flooding and reduce the repetitive flood loss count to 260 structures in this area. This project will also protect against the 100-year storm event. Specifically, the proposed drainage improvements consist of the concrete lining of an open FDOT ditch, the removal and replacement of a 30-inch pipe system with 48-inch culverts, and the installation of additional pipe systems (i.e., inlets and pipes) along Settlers Colony Boulevard designed to effectively convey excess waters into a man-made canal with a direct hydraulic connection to the Santa Rosa Sound. A drainage easement will be required to implement the proposed improvements. Construction is expected to begin in 2016. Maps and details of this project can be viewed in Appendix I.

- **Venetian Way Stormwater Improvement/Drainage Project**

The project area includes properties located on Coronado Ct, Venetian Way, Napoli Way, Via Roma Ct, Villa Venyce Ct, Venetian Ct, Venetian Garden, Lido Garden, and Lido Blvd. The proposed drainage improvements will encompass the installation of a new storm sewer system (pipes and inlets) along Lido Boulevard, in the immediate vicinity of the intersection with Venetian Way, as well as a valley gutter strategically located on Coronado Drive. This system will prevent/minimize current house, yard, and street flooding on Venetian Way, Villa Venyce Court, Lido Boulevard, and Venetian Court. This project will be phased to allow an engineering study, construction plans preparation, permitting and bidding for Phase I, and construction and construction management services under Phase II. Phase I is expected to begin in 2016. Maps and details of this project can be viewed in Appendix I.

Polynesian Islands

This area is in the AE flood zone and further inland, the X flood zone. It is located near the City of Gulf Breeze in unincorporated Santa Rosa County, north of U.S. Highway 98 and west of Avalon Boulevard, bordered on the north by the Escambia Bay. This area was hit hard by flooding in the heavy rainfall of March and April 2005. In Polynesian Islands, every RL property is compliant, including meeting the County's current freeboard requirement, and as a result, the County cannot help these property owners with mitigation until the flood map changes. According to information received annually from FEMA, there are 71 RL properties in this area. In the time period of 1978 – 2014, these 71 properties have received flood insurance claim payments totaling \$9.8 million.

One major mitigation project was implemented since the last Flood Mitigation Plan approval:

- **Greenbriar Stormwater Improvement Drainage Project**

This project is located north of U.S. Highway 98, east of College Parkway and west of Avalon Boulevard, extending 2000 feet north and parallel to U.S. Highway 98. This stormwater/drainage project was completed to minimize recurring flooding and reduce the repetitive flood loss count to 469 structures against a 100-year storm event. This project consisted of replacing the existing system to meet current and future needs. The drainage now provides an extra outfall at Duke Drive north into the Santa Rosa Bay Bridge wetland mitigation area to relieve pressure on the system. This wetland area was created when the Garcon Point Bridge was built. A proprietary stormwater treatment facility was added to the outfall at Duke Drive to treat stormwater, which previously diverted from the existing treatment system. The existing ditches were improved from earthen ditches to appropriate sized concrete bottom ditches. All inlets installed were standard FDOT type inlets and the existing pipe under Stanford Road was replaced with a larger pipe, and an outflow was created at Duke Drive and Stanford Road. This project provided the benefits of keeping a wetland area hydrated, providing extra treatment for the water before it discharges into the bays, and alleviated flooding. This project was completed in 2011. Maps and details of this project can be viewed in Appendix I.

A major mitigation project in this repetitive loss area is planned for this area in the near future:

- **Ranchettes Stormwater Improvement/Drainage Project**

The project area extends throughout the Ranchettes community, including the Northridge subdivision and the Ranchettes subdivision as well as through portions of the Whisper Bay subdivision. The proposed improvements are located north of Rosa del Villa Drive and North Whisper Oaks Drive, south of the Pensacola Bay, east of Nestling Drive and west of Harvard Drive, within the City of Gulf Breeze, Florida. Specifically, the proposed drainage improvements will encompass the acquisition of drainage easements, the land acquisition and construction of a stormwater pond in addition to the construction of conveyance swales, concrete ditches and the installation of strategically located storm sewer pipes. In addition, two (2) existing downstream outfall systems will be upgraded to properly convey the flood waters to Pensacola Bay. These drainage improvements will facilitate a drainage avenue from the affected properties to a safe outfall into the Pensacola Bay. A drainage easement and a parcel acquisition will be required to implement the proposed improvements. This project will be phased to allow an engineering study, construction plans preparation, permitting and bidding for Phase I, and construction and construction management services under Phase II. Phase I is expected to begin in January 2016. Maps and details of this project can be viewed in Appendix I.

Tiger Point

The Tiger Point subdivision is located in the Gulf Breeze area in unincorporated Santa Rosa County, bordered on the south by the Santa Rosa Sound. This subdivision was permitted in the 1980s. There are 53 RL properties in this area. According to information received annually from FEMA, these 53 RL properties have received flood insurance claim payments totaling \$14.1 million for the time period of 1978 – 2014.

There are currently two stormwater pumping stations in unincorporated Santa Rosa County, used only as a last resort due to the high cost of electricity to run the pumps. There is a pumping station in this area, positioned adjacent to Santa Rosa Sound in Tiger Point due south of the golf course to pump the water off of the road during normal tides. The elevation of Madura Road in Tiger Point is approximately 2 ½ feet mean sea level. The normal tide level is approximately 1 foot above sea level, consequently when a strong southerly wind and a slightly elevated tide due to heavy rain occur simultaneously, Madura Road is inundated with floodwaters. The water on the road is often more than one-foot deep, and is causing severe degradation of the roadway and extreme inconvenience to residents. The water is pumped off the roadway into the Santa Rosa Sound, but when the water reaches a certain level at high tide, the pumps are only circulating the water and the County must stop the pumping until the tide goes out. The County would prefer to do a gravity feed because during periods of heavy rainfall the County has spent up to \$8,000 in one month on electricity to run this pumping station.

There currently are two major flood mitigation projects planned for this area, to begin construction in early 2010. The water from both the Sabretooth Project area and the Madura/Ganges Project area drains into golf course lakes. These lakes and the outfall structures have been modified over the years, and that has created and/or compounded the problem of routing the water from the problem areas through the golf course lakes and out to the Santa Rosa Sound. Both of the projects work together to increase the capacity of the golf course lakes, and to modify the outfall structure so that the water can flow out. The projects include work on public streets to enhance the drainage, using additional inlets and piping to drain the water to the golf course lakes. The difference in the two projects is that drainage in Sabretooth is gravity flow and that is not the case in the Ganges/Madura Trail area.

Two major mitigation projects were implemented since the last Flood Mitigation Plan approval:

- **Sabretooth Circle Drainage Project**

Sabretooth Circle is within the Tiger Point Subdivision located in the Gulf Breeze area of an unincorporated region of Santa Rosa County. Sabretooth Circle lies south of Tiger Point Boulevard and east of Ceylon Drive, bounded east and south by golf course lakes that discharge into Santa Rosa Sound. This stormwater/drainage project was completed to minimize recurring flooding and reduce the repetitive flood loss count to 48 residential properties and provide protection against a 100-year storm event. This project eliminated the use of the existing ineffective shallow-swailes to transport runoff to the golf course lakes. The major element of this project was the use of a Roadway Profile design. This approach lowers the roadbeds sufficiently to allow for curbing and guttering throughout the project area with the addition of curb inlets strategically placed that collect runoff more efficiently and transports the stormwater to three discharge points. This project was completed in 2011. Maps and details of this project can be viewed in Appendix I.

- **Ganges-Madura Trail Stormwater Project**

Ganges-Madura Trail Road is in the Tiger Point subdivision, in the Gulf Breeze area of unincorporated Santa Rosa County. It is south of Tiger Point Boulevard and east of Ceylon Drive. Ganges Trail runs north and south intersecting Madura Road on the southernmost end. Madura Roads runs east and west from the intersection with Ganges Trail ending in cul-de-sacs at both ends. This stormwater/drainage project was completed to minimize recurring flooding and reduce the repetitive flood loss count to 49 properties and provide protection against a 100-year storm event. The existing inadequate drainage facilities along the Ganges-Madura Road segment of this project were upgraded with a comprehensive and coordinated drainage network utilizing a third pumping station for the County to pump the surface water from the road and also to lower the groundwater table next to the road, private ponds and swales capable of handling expected runoff from the area and from the contributing offsite basin. A series of pipes, inlet structures, swales and under-drains were installed along with the existing drainage easements,

and right-of-ways to minimize cost and impacts to private properties. This project was completed in 2012. Maps and details of this project can be viewed in Appendix I.

Soundside

This area is located in unincorporated Santa Rosa County, south of U.S. Highway 98 and east of Tiger Point on the Santa Rosa Sound. This area, which includes VE, AE and X flood zones, is subject to storm surge flooding and drainage problems during heavy rains.

Based on information received annually from FEMA, there are 33 RL properties in this area that have received flood insurance claim payments totaling \$5.1 million in the time period of 1978 – 2014.

Navarre

Navarre, Holley-By-The-Sea, Midway, and the neighborhoods east of the City of Gulf Breeze on the Fairpoint Peninsula are particularly vulnerable to hurricane-related and coastal flooding as well as general flooding due to heavy rains. This area extends east to the Okaloosa County Line and is bordered by the Gulf of Mexico to the south of the Fairpoint Peninsula. This area includes AE, VE and X flood zones. According to information received from FEMA for the time period 1978 – 2014, there are 60 RL properties in this area that have received flood insurance claim payments in the amount of \$10.5 million.

The Holley-by-the-Sea subdivision is in this RL area. This subdivision was developed with no consideration for stormwater runoff or control. Some of the factors leading to the flooding problems are: the types of soils in the area, the high groundwater and the fact that there is slightly sloping property.

One major mitigation project was implemented since the last Flood Mitigation Plan approval:

- **Orion Lake Drainage Project**

This project is located in the Navarre area of unincorporated Santa Rosa County, north of U.S. Highway 98, east of Whispering Pines Boulevard and west of the Okaloosa County Line. The project area extends north to the East Bay River swamp. This stormwater/drainage project was completed to minimize recurring flooding and reduce the repetitive flood loss count to 115 structures against a 100-year storm event. Inadequate 15” drainage systems were replaced along the existing route with a comprehensive and coordinating drainage network capable of handling current conditions, using larger drainage pipes. A new lake discharge structure was installed to lower the lake level to provide better storm attenuation capability. Gravity piping and inlets were placed along Creet Circle to route stormwater runoff into the lake. This project was completed in 2011. Maps and details of this project can be viewed in Appendix I.

There is a drainage problem in an area off Panhandle Road north of Ridge Road that has the Santa Rosa Sound to the south and the East Bay River to the north. During the heavy rains in the spring of 2005, the culvert washed out at East Bay Boulevard due to the ditches being clogged. Deer Lane floods frequently during heavy rains. These problems will be resolved due to the new subdivisions upstream being built to the 100-year storm design. This will have a positive effect on drainage problems downstream.

Navarre Beach

Navarre Beach is particularly prone to flooding due to its position directly on the Gulf of Mexico on Santa Rosa Island, which is a coastal barrier island. This area is located within VE and AE flood zones. There is a considerable amount of development that is located on the beachfront. Of all repetitive loss areas, the Navarre Beach area has the most repetitive loss claims in unincorporated Santa Rosa County. There are 281 RL properties in this area. All but one of the land parcels in Navarre Beach is within the 100-year flood zone. Based on RL information supplied annually by FEMA for the time period of 1978 – 2014, the total amount of flood insurance claims paid to the 281 properties is \$35 million.

A major problem in this area results when residents use breakaway walls to make a living space or an apartment for rental without going through the permitting process. The County is not informed of the changes until the property is sold, or until an insurance agent reports it.

All of Navarre Beach is required to be built to V flood zone standards, regardless of the FIRM designation. Freeboard there can be higher than three (3) feet because it is a barrier island.

There is a problem with acquisitions on the beach because the properties on the beach are owned by the state and leased to the people that live there. This region is not an officially incorporated area, but functions as one due to specific County/Federal agreements.

6.4.4 Flood Insurance Claim History and Repetitive Loss Properties in the City of Milton

Since 1978, there have been 100 flood insurance claims filed by owners of properties in the City of Milton with a total claim payout of \$3,369,396.

According to the 2015 Repetitive Loss Report from FEMA, which includes the years 1978 through July 31, 2015, in the City of Milton the number of repetitive loss properties is 10.

- 4 of the 10 RL properties have been mitigated and thus have been removed from the list, leaving 6 properties on the Repetitive Loss list.
- Since 1978, there have been 31 Repetitive Loss flood claims paid in City of Milton, of which
 - \$645,705 has been paid for damages to buildings
 - In addition, \$177,843 has been paid for damages to building contents

Please see Appendix H which includes a map of the Repetitive Loss properties in the City of Milton. Also, in Appendix J is a listing of all of the flood insurance claims filed in the City of Milton and a map depicting the property locations.

6.4.5 Flood Insurance Claim History and Repetitive Loss Properties in the City of Gulf Breeze

Since 1978, there have been 488 flood insurance claims filed by owners of properties in the City of Gulf Breeze with a total claim payout of \$33,343,987.00.

According to the 2015 Repetitive Loss Report from FEMA, which includes the years 1978 through July 31, 2015, in the City of Gulf Breeze the number of repetitive loss properties is 49.

- Ten of the 49 RL properties have been mitigated and thus have been removed from the list, leaving 39 properties on the Repetitive Loss list.
- Since 1978, there have been 111 Repetitive Loss flood claims paid in Gulf Breeze, of which
 - \$3.4 million has been paid for damages to buildings
 - In addition, \$737,809 has been paid for damages to building contents

Please see Appendix H which includes a map and a listing of the Repetitive Loss locations in the City of Gulf Breeze. Also, in Appendix J is a map that shows the property locations of all of the flood insurance claims filed in the City of Gulf Breeze.

6.4.6 Flood Insurance Claim History and Repetitive Loss Properties in the Town of Jay

There are no Repetitive Loss properties in the Town of Jay.

6.5 Flood Insurance Claims

Flood insurance statistics can help identify vulnerability by regionally isolating areas where claim activity is high and a high rate of flood insurance is in force.

The following tables show information about the flood insurance policies in force in Santa Rosa County:

Flood Insurance Policies in Unincorporated Santa Rosa County

	Total	Special Flood Hazard Area	Preferred Risk Policies
Policies in Force	12,124	4,839	7,323
Premiums	\$6,348,840	\$3,158,443	\$3,190,397
Average Premium	\$523	\$652	\$435

Flood Insurance Policies in The City of Gulf Breeze

	Total	Special Flood Hazard Area	Preferred Risk Policies
Policies in Force	1076	290	786
Premium	\$669,478	\$338,297	\$361,181
Average Premium	\$650	\$1,166	\$459

Flood Insurance Policies in the City of Milton

	Total	Special Flood Hazard Area	Preferred Risk Policies
Policies in Force	167	55	112
Premium	\$122,060	\$71,634	\$50,426
Average Premium	\$730	\$1302	\$450

Flood Insurance Occupancy in Unincorporated Santa Rosa County

	Policies in Force	Premium (\$Thousands)	Amount of Insurance in Force (\$Millions)	Number of Closed Paid Losses	\$ Amount of Closed Paid Losses (\$Millions)	Expenses to Process the Claims (\$Thousands)
Single-Family	10,144	\$5,470	\$3.02	4,960	\$371.4	\$10,372.7
2-4 Family	151	\$96.7	\$35.8	138	\$6.0	\$196.3
All other Residential	1,351	\$283.3	\$276.8	135	\$5.7	\$163.0
Non-Residential	195	\$251.0	\$68.3	95	\$9.5	\$252.3
Total	11,841	\$6,101	\$3401.5	5,328	\$392.6	\$10,984.6

Flood Insurance Occupancy in The City of Gulf Breeze County

	Policies in Force	Premium (\$Thousands)	Amount of Insurance in Force (\$Millions)	Number of Closed Paid Losses	\$ Amount of Closed Paid Losses	Expenses to Process the Claims
Single-Family	831	\$566	\$255.7	420	\$29,122,363	\$856,076
2-4 Family	62	\$18	\$12.5	29	\$2,126,645	\$56,677
All other Residential	130	\$30	\$17	28	\$733,859	\$26,973
Non-Residential	47	\$65	\$17.7	11	\$1,361,042	\$33,452
Total	1070	\$679	\$302.9	488	\$33,343,897	\$973,175

Flood Insurance Occupancy in The City of Milton County

	Policies in Force	Premiums (\$Thousands)	Amount of Insurance in Force	Number of Closed Paid Losses	\$ Amount of Closed Paid Losses	Expenses to Process the Claims
Single-Family	131	\$51	\$29,823,700	79	3,195,614	\$99,362
2-4 Family	3	\$1.48	\$850,000	1	18,940	\$850.
All other Residential	3	\$1.1	\$980,000	1	\$9,520	\$750
Non-Residential	24	\$61	\$9,795,800	10	\$180,698	\$8,232
Total	161	\$114.5	\$41,449,500	91	\$3,404,770	\$109,194

According to information provided by FEMA each year, there have been over 5,000 flood insurance claims filed in unincorporated Santa Rosa County in the time period of 1978 through 2014. The total dollar amount of the claims paid for these loss claims is over \$392 million.

Repetitive loss properties are only representative of the community’s overall repetitive flooding problem. Structures located near to the structures listed by FEMA as repetitive loss may not have been insured during the floods, may have had only single flood insurance claims, or may have had multiple claims under different policies that the system did not recognize as being the same repetitively flooded address.

There are 695 properties that remain on the unincorporated Santa Rosa County Repetitive Loss list; these have received flood insurance claim payments totaling over \$105 million in the time period of 1978 - 2014. The owners of these 695 properties have filed a total of 1,819 flood insurance claims for the years 1978 through 2014. Of these 1,819 claims, 87.5% were filed as a result of the following five events:

Date of Event	Number of Claims	Event
2005, August	61	Hurricane Katrina
2005, July	430	Hurricane Dennis
2004, September	672	Hurricane Ivan
1998, September	77	Hurricane Georges
1995, October	350	Hurricane Opal
Total	1590	< 87.5% of all RL claims filed

Without including the claims from the above extreme events, there have been only 91 Repetitive Loss claims filed for the 695 RL properties remaining on the list in the seven year period from 2007 through 2014.

6.6 Impact of Flooding

While the concern for human life is always of utmost importance in preparing for a natural disaster, there are also economic impacts to the citizens when property damages are incurred. Risk assessment results should be considered in the process of prioritizing and implementing hazard mitigation measures. Because Santa Rosa County is extremely vulnerable to both riverine and coastal flooding, properties worth billions of dollars are at risk.

The data below is provided with HAZUS-MH2 in 2015 is an estimate of the economic exposure in Santa Rosa County as stated in the *State of Florida Hazard Mitigation Plan*. An explanation of the HAZUS methodology is included on page 29 of this Section of this FMP:

2015 Estimated Values for the Key Occupancies (Uses) Santa Rosa County

Exposure	Millions \$
Residential	13,647
Commercial	1,519
Industrial	344
Agricultural	52
Educational	85
Government	63
Religious	224
Total Exposure	15,936

Floods will negatively affect Santa Rosa County with a variety of impacts, including the following:

- Areas with poor drainage, such as subdivision that lack adequate storm drainage management, are more susceptible to the short-term effects of flooding.
- Flooding can cause traffic accidents and congestion that can result in short-term impacts on the transportation infrastructure and long-term degradation of roadways.
- Property damaged by a flooding event often results in a mold infestation that can require cleaning and repairs. The mold can also create health issues for people in contact with it.

- Responders are often put at risk during flood events as they respond to calls for assistance. Their risks can range from sickness or injury due to exposure to inclement weather, to performing dangerous rescue missions for stranded citizens. Most responders, however, are not at a great health and safety risk from flooding events.
- Flooding, as a localized event, does not pose a significant effect on the county's ability to maintain normal operations. However during major flooding events, county resources will be mobilized to assist in the response and recovery; and this can cause a re-prioritization of the short- and medium-term government agenda. This hazard could cause major disruptions to essential government services.

6.6.1 Impact on Health and Safety

The County and its incorporated cities have made it a priority to warn and educate citizens on the dangers and impacts of flooding. They implement public outreach programs that provide information on flood warnings, property protection, flood safety, and flood insurance. The County and the incorporated cities also have developed a comprehensive flood-warning program that can deliver real-time data to citizens and emergency management personnel through cable television and the Internet. This has resulted in an educated and well-informed public in Santa Rosa County.

Roads in low-lying areas that are prone to sudden and frequent flooding are a serious threat to the safety of residents and visitors. Motorists often attempt to drive through barricaded or flooded roadways. Because only 18 to 24 inches of water moving across a roadway can carry away most vehicles, floods can present significant potential safety risks. There is a potential for injuries from people walking or playing in or near flooded areas. Power lines may be down and obscured by the floodwaters.

The impact of floods on the health and safety of the public is one of the prime concerns of the officials of Santa Rosa County. Typical injuries may result from: falling trees/limbs, downed power lines, structural collapse, rising flood waters, vehicle accidents/submersion, drowning, contaminated water, water-borne illnesses, mosquito borne illnesses, mold-induced illnesses, sewerage contamination, animal bites. Chemical storage facilities inundated by floodwater can create a health and safety risk. The chemical storage locations in the county have been identified and are monitored during times of flooding. A map of these critical facilities can be found in Appendix K.

Raw sewage from septic tanks and overflowing sewage treatment systems creates a high risk for the public in Santa Rosa County and to emergency responders as well. These problems can also happen as a result of power system failures.

6.6.2 Impact on Critical Facilities and Infrastructure

Critical infrastructure refers to those assets, systems, and functions so vital to Santa Rosa County that their disruption or destruction would have a debilitating effect on the economy, governance, public health and safety, and morale. Critical infrastructure refers to transportation and energy systems, defense installations, banking and financial assets, water supplies, wastewater facilities, chemical plants, food and agricultural resources, police and fire departments, hospitals and public health systems, information systems, and government offices. The most common disruption/failure is associated with flooded or undermined roads, clogged drainage systems, power outages, communications failure, flooded/overwhelmed/powerless water treatment facilities, and inaccessible community services. A longer period of disruption, particularly to the Internet or power generation/distribution capability has an immediate effect on productivity and may result in financial loss to the business sectors. In catastrophic situations, it has the potential to affect per capita income and/or property values. In severe cases, impacts could potentially include: energy shortages, HAZMAT releases, contamination, diseases, strained local resources, reduced food/water supply, traffic accidents, crop failure, civil disturbance, community decline, and exodus.

Historically, Santa Rosa County experiences critical infrastructure disruption to some degree every year. The probability of encountering this hazard is “Very High”, however through contingency planning and prompt response at each critical facility, disruption has been minimized.

The critical facilities in Santa Rosa County are divided into three categories:

- Lift stations
- Chemical storage
- Response facilities

Lift stations are sewage pumping stations that pump sewage to the wastewater treatment plant. There are GPS locations of each permitted lift station in the County and records of those that have generators, the sizes and the contact information. The map in Appendix K shows the locations of the lift stations and those that are situated in a 100-year flood zone.

Chemical storage locations contain state regulated chemicals, such as well locations that contain chlorine cylinders used in the purification process of the County’s drinking water. Many of the storage facilities are AT&T sub-stations holding supplies that contain copper and mercury. There are approximately 97 of these storage locations in the County and their locations are shown on the map in Appendix K.

Critical infrastructure, such as response facilities, plays a key role in the recovery process during and following an emergency. The facilities include the County’s Emergency Operations Center, radio towers, water treatment facilities, EMS stations, hospitals, and city dispatching facilities for Milton and Gulf Breeze. These locations are monitored during an emergency to ensure that the facilities are functioning properly during an

emergency. A map showing the locations of the response facilities is included in Appendix K.

Of the 2,207 miles of State and County roads in Santa Rosa County, 331 miles are located in the 100-year flood zones and 14 miles are located in the 500-year flood zone and are vulnerable to disruption and degradation as a result of flooding. There are 101 miles of documented dirt roads in the County and hundreds of informal, undocumented roads located in the rural areas of the county.

There are eleven identified critical facilities in the City of Gulf Breeze, of which eight are vulnerable to the flood hazard. The table below was obtained by overlaying GIS hazard layers onto point locations of critical facilities to determine the facility's vulnerability to the flood hazard:

**City of Gulf Breeze
 Critical Facilities Vulnerable to Flooding**

Facility	Facility Classification	Flood	Storm Surge
GULF BREEZE POLICE DEPARTMENT	LAW ENFORCEMENT	X	Category 5
CITY OF GULF BREEZE FIRE DEPT	FIRE AND RESCUE	X	Category 5
GULF BREEZE HOSPITAL	HOSPITAL	X	Category 5
GTE WIRELESS TOWER	TOWER - PRIVATE	X	Category 5
GULF BREEZE HOSPITAL	PRIVATE	X	Category 5
GULF BREEZE WTP	WATER TREATMENT	X	Category 5
AT&T TELE (GULF BREEZE)	AT&T SUB STATION	X	Category 4
EMS STATION POST 33	EMERGENCY MEDICAL SERVICES	X	Category 5

**City of Milton
 Critical Facilities Vulnerable to Flooding**

Facility	Facility Classification	Flood	Storm Surge
ASHTON WOODS SUB LIFT STATION	LIFT STATION	AE	X
EMS STATION POST 23	EMERGENCY MEDICAL SERVICES	AE	X
JACKSON PRE K	SCHOOL	AE	CATEGORY 4
MILTON LIFT STATION GLOVER LN	LIFT STATION	AE	CATEGORY 5
MILTON LIFT STATION JAIMEES RIDGE	LIFT STATION	AE	X
MILTON LIFT STATION MUNSON HIGHWAY	LIFT STATION	AE	CATEGORY 3
MILTON WATER WELL 1	POTABLE WATER DISTRIBUTION	AE	X
MILTON, CITY OF WWTP	SEWAGE TREATMENT PLANT	AE	CATEGORY 3/4
SRC COURTHOUSE	COURT HOUSE	AE	CATEGORY 4/5

In the Town of Jay, the one critical facility that is vulnerable to the flood hazard is the Jay Wastewater System Lift Station

6.6.3 Impact on the Economy and Tax Base

To be truly sustainable in the face of natural hazards, Santa Rosa County must work to protect the residents and also to limit, as much as possible, property losses that slow a community's ability to recover from a disaster.

Flooding of homes and businesses can result in displaced residents, and can directly affect the financial stability of citizens, especially those who are underinsured or without flood insurance. The degree of personal and employment loss will determine whether the event will have broad implications and result in a loss to per capita income. This loss could be lessened by the purchase of flood insurance. Homeowners of substantially damaged properties will likely incur additional expenses, as they may be required to rebuild their property to the most current local codes and standards. Repetitively flooded areas tend to deteriorate over time and property values plunge as citizens become aware of the financial risk involved in living in unmitigated structures in floodprone areas, affecting the respective municipality's tax base.

Roads and railroads could be closed for days or weeks during high water, which could have a regional as well as local economic impact.

Flooding and flood damage could have a substantial negative effect on the economy of Santa Rosa County. In assessing the economic vulnerability, there are three general phases of impact:

- Immediate economic impact
- A short or long-term disruption of the economy
- Income losses, both personal and business

The County will incur costs and/or lose income during each phase of recovery.

Particularly vulnerable are power-dependant industries, utilities and government. A longer period of disruption, particularly to the Internet or power generation/distribution capability has an immediate effect on productivity and may result in financial loss to many business sectors.

Floods cause problems that are not as easy to identify as damage to buildings and critical facilities. Some of the adverse effects of flooding in Santa Rosa County include closing of businesses that are disrupted by floods. Businesses can lose inventories, customers and employees as a direct or indirect result of flooding. In addition to lost income, there are costs for fighting the floods, finding temporary housing, and cleaning up. While property damage to the County's businesses may account for only a small percentage of total

property damage, the loss of services, products, employment and taxes has a relatively larger effect on the local economy than damage to residences.

All economic sectors are vulnerable to loss from flooding. Business vulnerability is dependent upon the degree of preparedness for continuity of operations, protection of key electrical components, ability to quickly restore functioning, and mitigative types of insurances (such as for flood damage, lost income, structural repairs etc). Businesses may also be vulnerable to loss of product/facilities, supply disruption, loss of important paperwork, and shifting of consumer spending to emergency/replacement needs, for example.

The zip code business patterns reveal the major areas of employment and the dollar impact that the loss of these businesses would have on the local economy. This study shows the importance of identifying and protecting these properties and identifying alternative locations for operation should the present location be closed due to flooding.

Zip Code Business Patterns for Santa Rosa County in 2007

City	Zip Code	Number of Establishments	Number of Employees
Milton	32570	922	11,356
Milton/Pace	32571	979	5,857
Milton	32583	654	4,760
Gulf Breeze	32561	714	5,532
Gulf Breeze	32563	1,035	5,550
Navarre	32566	1,010	4,849
Bagdad	32530	66	467
Jay	32565	187	1,316

Sources: Alteryx, Inc and EMSI, Inc (Payroll)

NOTE: Payroll estimates do not necessarily include all industries due to insufficient data

Protecting the County's industries and employers from natural hazards will minimize the impact on Santa Rosa County's overall economy. Mitigation and preparedness will result in savings for businesses and residents, in addition to insurance companies and government agencies.

Major Employers in Santa Rosa County

Private Organizations			
		Industry	#Employed
Wal-Mart Stores		Retail	1285
Baptist Health Care		Health Services	543
Santa Rosa Medical		Health Services	400
Blackwater Correctional Facility		Private State Prison	400
Publix		Grocery	380
Navy Federal		Financial Services	340
Mediacom		Internet/Cable	300
Goldring Gulf Distributing		Warehouse/Distribution	240
App River		Internet Security	220
Lifeguard Ambulance		Ambulance Service	160
Public Organizations			
State Government			1282
Santa Rosa County School District			2750
Federal Military			1336
Santa Rosa County Government			949
Federal Government			751

Source: Team Santa Rosa Economic Development Council, Inc

Santa Rosa County is home to the beautiful bays and freshwater rivers of the Gulf Islands National Seashore and Blackwater State Park that attract local residents and visitors alike for swimming, boating, and fishing, in addition to picnicking and camping. Area beaches are consistently ranked among the best in the world, and the rivers near Milton offer some of the best canoeing available in Florida. Any major flood damage inflicted during the tourist season could have an especially negative effect, as businesses depend on making the majority of their income at that time. The severity of this effect would depend on the extent and duration of flooding. The greatest threat of flooding to Santa Rosa County comes from large amounts of rainfall in a short period of time, and hurricanes, which occur predominantly between June and November. If Santa Rosa County were forced to evacuate and the stores, restaurants and hotels were closed for part of the tourist season, the tourism and the retail/service industry could stand to lose a significant amount of income. The Tourist Development Tax is imposed on every person who rents, leases, or lets for consideration any living quarters or accommodations in any hotel, motel, resort motel, mobile home part, RV park or condominium, for a term of six months or less. Estimated receipts for the 2013-2014 fiscal year are \$1,544,964.

The Ad Valorem Tax or Property Tax is a tax based upon the assessed value of property. A large majority of revenue for Santa Rosa County is from Ad Valorem Taxes. Estimated receipts for the 2014-2015 fiscal year are \$46,996,569.

The following economic information was taken from the *Santa Rosa County Board of County Commissioners Annual Report 2013-2014*:

- ❑ Military Economic Impact: \$274.4 million
- ❑ Agricultural Impact (2014)
 - ❑ Total planted crops: 73,665 acres
 - ❑ County gross value: \$75,427,801
 - ❑ Top crops: Cotton and Peanuts
 - ❑ Livestock gross value: \$11,736,100

After a disaster, economic injury is assessed by Team Santa Rosa, which is an organization dedicated to the economic development of Santa Rosa County. In conjunction with other information and research gathering organizations such as the University of West Florida, and the Chamber of Commerce organizations, Team Santa Rosa uses all available information to determine economic injury and typically distributes results found through press releases and other means.

6.6.4 Impact on the Population

The average population density in Santa Rosa County is 158 persons per square mile. This is expected to increase to 203 persons per square mile by the year 2030 according to Population Growth forecasts. Several census block groups, particularly the Santa Rosa Peninsula and the Pace areas, already exceed 1,000 persons per square mile. (*See the Population Density Map in Appendix L.*)

This population is expected to steadily increase and is projected to reach 205,300 by the year 2030 according to “medium” growth forecasts. The effect of natural disasters on population growth depends on prior expectations. If disasters occur with the expected frequency, they will have no significant impact on economic activity. If they occur more frequently than expected, they will tend to induce the out-migration of both labor and capital. Consequently, if Santa Rosa County were to experience several highly destructive hurricane seasons in a row, the number of people moving into the County may decline and the number moving out may increase. Given the potential that global warming is raising the intensity and frequency of hurricanes, this is a possibility that should not be overlooked. Higher housing costs created by more stringent construction requirements and rising insurance rates could lead to slower population growth as well.

Population Growth in Santa Rosa County

	2015	2020	2025	2030	2035	2040
Low	158,300	166,700	173,900	179,700	184,100	188,000
Medium	163,300	178,300	192,300	205,300	217,400	229,300
High	169,700	189,800	210,200	230,700	251,300	272,800

Source: BEBR, April 2015

The entire population of Santa Rosa County, and any coastal community in Florida could be impacted by the flood hazard. However, there are specific populations that may be more vulnerable to the effects of a flood than the general population. Such populations include:

- **Special needs**

The special needs segment of the population is those for whom special arrangements are necessary during emergencies, particularly during shelter operations, due to medical issues, handicaps or other impairments. Typically, they are vulnerable to flooding, which could compromise the electrical distribution system or render them without power for life-sustaining equipment or supplies. Additionally, they are vulnerable to those events requiring mobility to escape or evacuate. Santa Rosa County Emergency Management maintains a year-round voluntary registration program for special needs individuals, in order to pre-plan, identify needs and determine potential sheltering options for these individuals. During a major disaster, these individuals may be sheltered in the county's Special Needs Shelter which is staffed by the Santa Rosa County Health Department. Other options include local hospitals, or general public shelters, depending on each individual's needs. The list of individuals who have registered with the County as having "Special Needs" is maintained at the Santa Rosa County Emergency Management office.

- **Elderly**

Santa Rosa County has approximately 20,000 citizens classified as elderly, aged 65 or older. The majority of the elderly population resides in the general community, rather than in nursing homes or assisted living facilities. Twelve Nursing Homes/Assisted Living Facilities/ Retirement Centers and three hospitals (Gulf Breeze Hospital-77 beds, Santa Rosa Medical Center-129 beds and Jay Hospital-55 beds) serve a small segment of the elderly population in Santa Rosa County. (*See the Population Density Map in Appendix L.*)

- **Hearing-impaired**

Data from the Florida Department of Education, Division of Vocational Rehabilitation estimates that in the year 2004, there were 11,789 persons with hearing-impairment or hearing loss in Santa Rosa County. Urgent public information or situational awareness may be delayed in getting to these populations due to the nature of their disability. TV crawlers, website updates, and closed-caption television are methods used to inform this population of an impending flood.

- **Non-English speaking**

Messages, such as public protective actions, television scrolls, and other situational awareness are primarily disseminated in English. Therefore a time delay may exist for those who do not speak English in initial recognition of the event. Additionally, the language barrier may also impede the ability to seek out additional information, such as street closures, shelter locations, and assistance locations, etc. In order to address this vulnerability, Santa Rosa County contracts with a foreign language service, "Can Talk", that will translate public safety messages, or telephone residents known to be in need. The presence of family members or neighbors who can translate in such situations

can also serve to mitigate this vulnerability. Additionally, Santa Rosa County's Hurricane Plan is translated into Spanish and is on the County website. (*See the Population Density Map in Appendix L.*)

- **Transient, or homeless**
Public protective measures relayed through the traditional media outlets may be delayed in reaching these populations, and without transportation, they may find it difficult to travel to public shelters set up for a specific disaster.
- **Populations in mobile homes**
Approximately 16,000 individuals reside in mobile homes in Santa Rosa County. The *Florida Department of Revenue-Tax Data Book 2014* indicates there are 6,135 Mobile homes registered with the Department of Motor Vehicles in Santa Rosa County with a Just Value of \$259,378,530. Mobile homes are used as an affordable form of housing in Santa Rosa County. They are distributed throughout the county, in the rural as well as urban areas. Areas of particularly high concentrations are in the numerous mobile home parks in the county. Based on the Department of Health Mobile Home/RV Park Listing there are 56 mobile home parks with 951 mobile home spaces and 6 RV Parks with 13 mobile homes in the county. (*See Appendix M for the map of Santa Rosa County Mobile Home Locations.*)
- **Group homes**
Assisted Living Facilities, Nursing Homes, Schools, Jails/Prisons are vulnerable due to the special needs of the occupants of such facilities, the length of time necessary to take evacuate, the mobility of the occupants, and the potential for electrically-dependant populations within. Additionally, most in group settings must rely on the emergency plans, decisions, and care of others.
- **Inmates**
Santa Rosa County is home to the Santa Rosa County Jail, the Santa Rosa Correctional Institution, and the Berrydale Forestry Prison Camp. Inmates in these facilities are protected in accordance with respective institution emergency plans.
- **Tourists**
In the summer months, 10,000 - 15,000 tourists can be present at any given time at local attractions. Gulf Island National Seashore, Gulf Breeze Zoo, Blackwater River State Park, Adventures Unlimited, and Navarre Beach are among the largest sites to attract tourists in Santa Rosa County. Tourist populations can also be found in numerous motels, hotels, RV parks, and campgrounds. Visitors to Santa Rosa County are often unaware of, or complacent about, the potential for severe disasters in the area. Their vulnerability stems from potential lack of situational awareness and unfamiliarity with local roadways, evacuation routes, hospitals, and resources. Additional vulnerability exists if the individual is a tourist in combination with special needs qualifiers.

- **Impoverished**

According to the 2011 American Community Survey (US Census Bureau), approximately 14.31% of the population in Santa Rosa County lives below the poverty line. Their vulnerability lies in the increased likelihood that mitigation actions may not have been conducted due to lack of resources. This population may also be more likely to reside in areas built to earlier building codes. Impact of disasters on this population can add further strain to an already limited amount of personal resources.

6.7 Existing Built Environment Exposed to Flooding

Homes built at-grade within flood prone areas are more vulnerable than sufficiently raised, or elevated houses. Structural vulnerability depends on elevation, proximity to bodies of water, capacity of community drainage systems, impediments to water flow, soil saturation, and other factors. Drywall, carpet, wood, and other building materials are particularly vulnerable to flood damage. Structural, electrical, plumbing, and flooring systems may be compromised and contribute to the risk of other hazards. Additionally, flooding can cause mold growth on structural components or personal belongings.

Risks associated with flooding were analyzed using data compiled from local and national sources and HAZUS. HAZUS-MH is a powerful risk assessment methodology for analyzing potential losses from floods, hurricane winds and earthquakes. In HAZUS-MH, current scientific and engineering knowledge is coupled with the latest geographic information systems (GIS) technology to produce estimates of hazard-related damage before, or after, a disaster occurs. Potential loss estimates analyzed in HAZUS-MH include:

- **Physical damage** to residential and commercial buildings, schools, critical facilities, and infrastructure;
- **Economic loss**, including lost jobs, business interruptions, repair and reconstruction costs; and
- **Social impacts**, including estimates of shelter requirements, displaced households, and population exposed to scenario floods, earthquakes and hurricanes.

The primary purpose of HAZUS is to provide a methodology and software application to develop flood losses at a regional scale. Local officials can use these loss estimates to plan and simulate efforts to reduce risks from flooding and to prepare for emergency response and recovery. The County has begun applying its HAZUS program in 2009. Two HAZUS-MH Hurricane Event Reports can be found in Appendix N.

The Santa Rosa County Property Appraiser is primarily responsible for identifying, locating, and valuing all property within the county for ad valorem tax purposes. Information from the Property Appraiser's office is used to estimate potential dollar losses to structures within hazard areas. This department also participates in the collection of

damage assessment information during and after disasters that is useful in ongoing mitigation planning.

The following table, derived from the Santa Rosa County Property Appraiser parcel dataset, presents estimates of the number of structures in Santa Rosa County by occupancy type that are exposed to flooding and storm surge. Exposure refers to the number of people or structures that are susceptible to loss of life, property damage and economic impact due to a particular hazard:

Estimated Number of Structures Exposed to Flooding in Santa Rosa County

Occupancy Type	Storm Surge	Flood
Single-Family	12,240	5836
Mobile Home	711	258
Multi-Family	2,087	1380
Commercial	1,048	457
Agriculture	151	10
Gov./Institutional	175	216
Total	16,412	8,157

Santa Rosa County Planning/Zoning GIS Analysis

This table shows that there are over 8,500 structures located within the 100-year floodplain. Nearly 75% of the structures exposed to surge are single-family homes. Typically, structures at risk from surge are high-value real estate due to their proximity to the ocean or tidally influenced water bodies such as the Gulf of Mexico, the East Bay, and the Santa Rosa Sound.

Using the County’s GIS including the Property Appraiser’s parcel dataset, GIS analysis was performed to identify the vulnerability of parcels of land as summarized in the following tables:

**Unincorporated Santa Rosa County
 Value Of Land Parcels In The Flood Zone**

	100-Year Flood Zone	500-Year Flood Zone
Number of Parcels	15,220	3,278
Just Fair Market Value	\$2.4 billion	\$325.5 million

**City of Gulf Breeze
 Value Of Land Parcels In The Flood Zone**

	100-Year Flood Zone	500-Year Flood Zone
Number of Parcels	1,012	11
Just Fair Market Value	\$513 million	\$10.47 million

Town of Jay
Value Of Land Parcels In The Flood Zone

	100-Year Flood Zone	500-Year Flood Zone
Number of Parcels	30	0
Just Fair Market Value	\$2.88 million	0

City of Milton
Value Of Land Parcels In The Flood Zone

	100-Year Flood Zone	500-Year Flood Zone
Number of Parcels	419	580
Just Fair Market Value	\$53.5 million	\$73.65 million

6.8 Current and Future Vulnerability Based on Land Use

The total amount of land in Santa Rosa County within the Coastal High Hazards Zone (CHHAZ) is 20,453 acres. The areas that are most susceptible to these categories of storm surge are located in the coastal communities of Navarre Beach and the Gulf Breeze area, as well as along the Gulf of Mexico, the East Bay and the Santa Rosa Sound.

The predominant land use categories in the northwestern quadrant of Santa Rosa County are Agriculture/Rural residential (AG) and Agriculture (AG2). The Northeastern quadrant is primarily zoned for State/Conservation Land use with Agriculture/Rural Residential (AG) and Agriculture (AG2) interspersed. Military lands compose a small portion of the land use within Santa Rosa County; they are located near the Hwy 90 corridor. Also found along the Hwy 90 corridor are commercial, industrial and residential land uses. The southern portions of Santa Rosa County along Gulf Breeze and Navarre are primarily zoned for residential uses with a commercial corridor following Hwy 98. The Santa Rosa County Future Land Use Map indicates a projected increase in Conservation/Recreation Land Use along the bays. It also indicates an expansion of industrial uses.

The Hurricane Vulnerability Zone (HVZ) is defined in the *2010 Statewide Regional Evacuation Study* as the area delineated by a regional hurricane evacuation study as requiring evacuation in the event of a 100-year or category three hurricane event. The HVZ is predominantly located along the coast, as well as along the East Bay and its tributaries.

There are flood prone areas scattered across the County. The total amount of land in the special flood hazard area is 137,438.85 acres, which is approximately 21% of the total land area of the county.

- There are 49,197 buildings (Housing Units) in Santa Rosa County
 - 8,727 were built before 1970
- There are 56,070 households (single and multi-family) in Santa Rosa County
- The median property value of single-family residences according to the 2011 American Community Survey (US Census Bureau) was \$91,225 in Milton, \$158,600 in Pace, \$359,216 in Gulf Breeze, and \$203,900 in Navarre.

According to the *Florida Department of Revenue-Tax Data Book 2014* there are approximately 105,159 parcels of land in the unincorporated county that have a “Just Value” of \$11,632,334,984. The following table represents the percentage of this total that falls within each vulnerable area bases on the existing land use category assigned by the local Property Appraiser.

Total Unincorporated Acres in Flood Hazard Areas by Existing Land Use Category

Existing Land Use Category	Coastal High Hazard Zone		Hurricane Vulnerability Zone		Special Flood Hazard Area	
	Acres	Percentage	Acres	Percentage	Acres	Percentage
Agriculture	765.32	3.87%	4,515.85	9.04%	34,138.37	28.95%
Attractions, Stadiums, Lodging	0.16	0.00%	11.07	0.02%	118.10	0.10%
Commercial	4.68	0.02%	31.98	0.06%	85.20	0.07%
Government, Institutional, Hospitals, Education	2,393.59	12.11%	8,068.59	16.14%	15,607.97	13.23%
Industrial	39.83	0.20%	183.67	0.37%	177.23	0.15%
Parks, Conservation Areas, Golf Courses	11,499.37	58.20%	20,454.76	40.93%	48,506.40	41.13%
Places of Worship	0.62	0.00%	48.08	0.10%	37.27	0.03%
Residential Group Qtrs/Nursing Homes	0.14	0.00%	2.05	0.00%	3.13	0.00%
Residential Mobile Home or Commercial Parking Lot	0.00	0.00%	3.27	0.01%	3.54	0.00%
Residential Multi-Family	3.54	0.02%	67.96	0.14%	72.23	0.06%
Residential Other (Open Space)	17.70	0.09%	57.93	0.12%	61.81	0.05%
Residential Single Family	654.16	3.31%	3,941.57	7.89%	5,764.57	4.89%
Submerged Lands (Water Bodies)	653.39	3.31%	846.72	1.69%	784.45	0.67%
Transportation, Communication, Rights of Way	44.37	0.22%	1,238.51	2.48%	1,165.38	0.99%
Utility Plants and Lines, Solid Waste Disposal	14.44	0.07%	262.82	0.53%	211.01	0.18%
Vacant	3,667.50	18.56%	10,244.90	20.50%	11,198.16	9.50%
Total	19,758.82	100.00%	49,979.73	100.00%	117,934.82	100.00%

Source: Santa Rosa County Planning/Zoning GIS Analysis

In the *Future Land Use Table* it should be noted that those area’s that represent 1% or higher in the hazard zones represent a very large percentage of the vacant land in Santa Rosa County. Those lands that are vacant and lie within the residential or multi-family future land use category are carefully evaluated during the development review process to insure that development is not place within the land area that falls within the vulnerable zones. The county’s GIS is a valuable tool that is used to mitigate future hazards from the coastal high hazard area, the hurricane vulnerability zone and the special flood hazard area.

Santa Rosa County Flood Mitigation Plan
Section Six, Assessment of the Problem

Future Land Use Category	Coastal High Hazard Zone		Hurricane Vulnerability Zone		Special Flood Hazard Area	
	Acres	Percentage	Acres	Percentage	Acres	Percentage
Agriculture	2,386.9	14.04%	6,460.6	16.21%	39344.0	36.75%
Commercial	57.9	0.34%	176.4	0.44%	236.6	0.22%
Conservation/Recreation	12,006.5	70.63%	20,968.8	52.61%	50028.8	46.72%
Garcon Point Rural Residential	702.8	4.13%	3,036.4	7.62%	2172.7	2.03%
Garcon Point Single Family Residential	326.9	1.92%	2,635.7	6.61%	1720.2	1.61%
Historic	17.2	0.10%	28.0	0.07%	30.9	0.03%
Industrial	29.1	0.17%	58.0	0.15%	64.6	0.06%
Marina	51.9	0.31%	74.7	0.19%	76.0	0.07%
Medium Density Residential	0.0	0.00%	4.3	0.01%	3.5	0.00%
Military	1,374.7	8.09%	5,607.8	14.07%	12554.1	11.72%
Mixed Residential/Commercial	38.0	0.22%	424.0	1.06%	445.5	0.42%
Navarre Beach Commercial	0.5	0.00%	29.0	0.07%	31.9	0.03%
Navarre Beach High Density Residential	1.1	0.01%	35.1	0.09%	38.6	0.04%
Navarre Beach Low Density Residential	0.0	0.00%	97.4	0.24%	100.5	0.09%
Navarre Beach Medium Density Residential	3.5	0.02%	149.2	0.37%	148.2	0.14%
Navarre Beach Medium/High Density Residential	0.0	0.00%	8.5	0.02%	10.5	0.01%
Navarre Beach Mixed Residential/Commercial	1.2	0.01%	44.2	0.11%	46.5	0.04%
Navarre Beach Utility	0.4	0.00%	19.3	0.05%	19.7	0.02%
Residential	14.3	0.08%	174.4	0.44%	212.8	0.20%
Single Family Residential	1,724.7	10.15%	6,998.5	17.56%	7590.0	7.09%
Total	16,998.67	100.00%	39,857.30	100.00%	107,072.88	100.00%

Source: Santa Rosa County Planning/Zoning GIS Analysis

Based on information taken from the *Florida Department of Revenue-Tax Data Book 2014* the change in the value of the property in Santa Rosa County has dramatically decreased since the 2007 submittal. This decrease was a result of the economic downturn that occurred throughout the United States. Real property value in 2007 were \$9,308,147,209 whereas the values in 2014 were \$7,687,642,991. Property values are estimated to continue to climb as well as growth within the county.

The coastal areas of Santa Rosa County are subject to widespread flooding from coastal surges, resulting from storm surges that accompany hurricanes and other severe storms. The following table illustrates the number and value of structures that are located in the evacuation zones in Santa Rosa County:

Vulnerability of parcels due to surge was evaluated using the Evacuation Zones which is the standard based on the *2010 Statewide Regional Evacuation Study*. Analysis is provided below on a countywide basis. Individual analysis is provided in the Local Mitigation Strategy for the unincorporated area of the county and each individual municipality.

Santa Rosa County & Municipalities					
Evacuation Zone	Number of Properties	Building Value (\$Million)	Land Value (\$Million)	Extra Feature Value (\$Million)	Market Value (\$Million)
A	3,515	425	697	16	1,137
B	3,862	266	218	11	494
C	9,514	668	493	23	1,185
D	3,123	186	275	12	473
E	10,521	938	735	54	1,727
Non-Evac	67,429	4,337	1,936	359	6,631
Total	97,964	6,819.59	4,353.48	474.61	11,647.67

Future building in Santa Rosa County will be constructed to Florida Building Code standards and will be built above the established base flood elevations, or BFE's, whether for zones impacted by moving water (velocity of "V" zones or floodways on the Flood Insurance Rate Maps of FIRMS) or by rising water (such as "A" and "B" zones on the county's FIRMS). Future planning and development will support activities that integrate flooding mitigation techniques with design and review processes of subdivision plats to reduce flooding risks to new communities through cooperative efforts between and planning and building inspection offices.

As stated in the Santa Rosa Local Mitigation Strategy, the County will ensure that all public buildings that serve first response and critical emergency/public needs, including record/data collection and communication centers/infrastructure, are located outside of flood zones or flood-prone areas except where these facilities are absolutely necessary to provide for the daily safety of the citizenry they serve. To ensure the structural soundness of existing and future local government centers, the County will continue to promote and support funding that allows for the local government centers to remain functional before, during and after a hurricane event in order to support the function of Santa Rosa County Emergency Management's mandates under Chapter 252 Florida Statutes. This includes support of the formation of municipal emergency operations centers and protection of both municipal and county infrastructure named in the County's or a municipal Comprehensive Emergency Management Plan and its Emergency Support Functions (including first response entities and their supporting buildings).

Bridge and highway construction in the County will be designed and engineered for the amount of wind, surge, flooding and debris that can be expected.

6.9 Warning of Impending Flooding

The Santa Rosa County Emergency Management Division is responsible for work in the development, implementation and management of countywide disaster prevention, preparedness, response, recovery and mitigation. The Division is responsible for the County's all-hazard Comprehensive Emergency Plan and coordinates the activities for the County's Emergency Operations Center (EOC).

The EOC, when activated, is a central location where representatives of local government and private sector agencies convene during disaster situations to make decisions, set priorities and coordinate resources for response and recovery. The Santa Rosa County EOC is a 13,000 square foot secure facility with a range of surveillance and security measures. The EOC is located at 4499 Pine Forest Road in the City of Milton, adjoined to the Emergency Management administrative offices as well as the Media and Training Office for the Santa Rosa County Public Information Officer. The building was built to withstand 150 mph winds (Category 4 hurricane) and is equipped with two generators to support emergency operations. In the event that the EOC is threatened, an alternate EOC is activated.

Communications staff from Santa Rosa County Emergency Management Division serves as the County Warning Point 24 hours a day, seven days a week. The public in Santa Rosa County is informed of impending floods by the following methods of communication:

- Reverse 911®
A high-speed telephone notification system used to call homes and businesses to notify citizens of emergency situations. Using a mapping system, Reverse 911® is capable of calling a particular section of the county that may be affected by an incident occurring in that area. A recorded message provides the listener with information about the emergency and recommended steps to take to protect themselves from harm.
- Breaking News and E-Breaking News Alerts
Emergency information can be viewed on the Santa Rosa County web page at www.santarosa.fl.gov and citizens can sign up to have breaking news e-mailed and/or texted to cell phones when the information is updated with emergency information. E-breaking news should supplement, not replace, traditional alert systems.
- Cable Television Override
Santa Rosa County, through agreement with Mediacom, has the capability to interrupt Cable television with emergency information on Cable Channel 27. This is used primarily to disseminate critical warnings and life-saving public protective actions. *This capability does not extend to those receiving satellite television.*
- The Weather Channel

The Weather Channel has agreed to display Santa Rosa County emergency weather related information on their text crawl, which is displayed at the bottom of the television screen.

- ❑ **NOAA Weather Radio**
Emergency Management highly recommends the purchase of a NOAA weather radio. This radio will provide quick alerts for emergency situations that could develop quickly.
- ❑ **Taminco/Air Products Sirens**
Sirens are placed strategically throughout the Pace area to provide emergency alerts from the Taminco/Air Product Plant. These sirens may be used for hazardous material release or weather related incidents. Sirens are tested on the first Sunday of each month at 2:15 p.m.
- ❑ **Warnings for the Deaf or Hard of Hearing**
People who are deaf, hard of hearing, or visually impaired can be alerted to severe weather and other hazards by special devices connected to the NOAA Weather Radio receiver. These attention-getting devices may include strobe lights, bed shakers and even sirens. Devices with the SAME feature can be programmed for activation when warnings are issued for a particular county and event. Some weather radios also provide a limited caution-like front message display that gives basic information regarding the nature of the event or emergency. Once activated, the users should go to their normal source of news and/or information for further details.
- ❑ **Electronic Message Boards**
The County utilizes two electronic solar-powered message boards that can be moved to locations to warn of high water and/or closed roads.

The Santa Rosa County Division of Emergency Management Disaster Preparedness Guide describes the prediction levels of impending flooding:

Flash Flood Watch

Conditions are favorable for flash flooding in and close to the watch area. These watches are issued by the weather forecast office and are usually issued six to twenty-four hours in advance of expected flood potential.

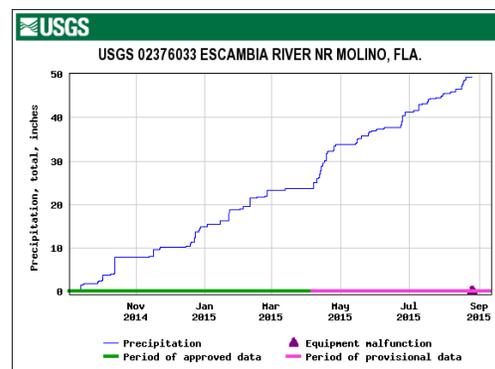
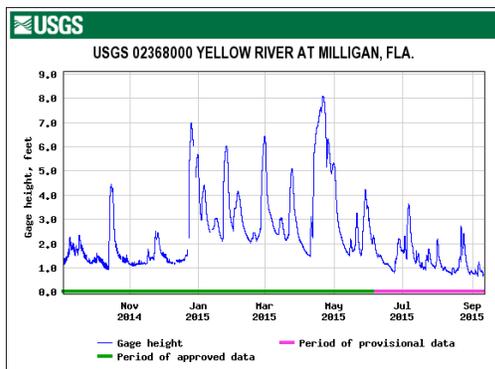
Flash Flood Warning

Flash flooding is occurring, imminent or highly likely. A flash flood is a flood that occurs within six hours of excessive rainfall and that poses a threat to life and/or property. Ice jams and dam failures can also cause flash floods. These warnings are issued on a county by county basis by the local weather forecast office and are generally in effect for up to six hours.

Flood Warning

General or area flooding of streets, low-lying areas, urban storm drains, creeks and small streams is occurring, imminent, or highly likely. Flood warnings are issued for flooding that occurs more than six hours after the excessive rainfall. These warnings are issued on a county by county basis by the local weather forecast office and are generally in effect for six to 12 hours.

The Santa Rosa County Emergency Management Division regularly monitors river gauges on Coldwater Creek, Blackwater River, Yellow River and Escambia River. When a substantial amount of rainfall occurs locally, the river and creek conditions will be closely monitored. This information is available to the public on the United States Geological Survey (USGS) website. The graphs below show the gauge height of the Yellow River and the Escambia River from November 2014 until September 2015, and indicate the flood stages of these rivers:



6.10 Evacuations and Shelters

A key life-saving protective measure available for use by Santa Rosa County is the ability to order evacuations of an impacted area in conjunction with or in advance of a pending threat.

Evacuations can be local or can encompass areas beyond the county's borders. In each, Santa Rosa County's responsibilities remain the same. However in the event of a multi-county, regional or interregional evacuation, evacuations will be coordinated by the Governor of the State of Florida according to Regional Evacuation Procedures developed at the state level and involve coordination with the State of Alabama, and/or neighboring counties.

Santa Rosa County Division of Emergency Management is the primary agency with overall responsibility for coordinating the evacuation process in Santa Rosa County and for the issuance of evacuation orders for community-wide events such as hurricanes and tropical storms.

The Incident Commander, the Santa Rosa County Emergency Management Director, or other authorized government official will decide on the type and level of evacuation needed, based on the situation. Consideration must be given to evacuation routes, affected areas, evacuation clearance times, time of day, special populations, etc

There are two types of evacuations:

- ❑ **Mandatory Evacuation** - A mandatory evacuation is an organized, official evacuation, ordering residents to leave an area of danger. Santa Rosa County Emergency Management coordinates shelter openings, if necessary, in conjunction with mandatory evacuations. Additionally, traffic control measures are implemented in order to expedite and direct traffic flow.
- ❑ **Voluntary Evacuation** - A voluntary evacuation is a requested evacuation, not mandatory, because an impending disaster may occur. The residents in the affected area are encouraged to seek refuge on their own initiative and independently obtain safe area and accommodations.

The key steps in the local evacuation process are:

- ✓ Determine the “effective” date and time of evacuation order
- ✓ Determine evacuation type and affected areas
- ✓ Notify local and/or state law enforcement for traffic support and security
- ✓ Notify appropriate road department for local or state roads for coordination and support (including reverse-laning decisions)
- ✓ Determine notification needs for Special Needs Registry and transportation coordination
- ✓ Notify State of Florida and neighboring counties (including Alabama) to prepare for influx of people
- ✓ Evacuation Orders signed by the Chairman of the Board of County Commissioners, or successor
- ✓ Enact any necessary local Mutual Aid Agreements
- ✓ Coordinate resources and actions necessary to deal with directing evacuees caught on evacuation routes to safer surroundings
- ✓ Issue an evacuation notice to the public
- ✓ Activate citizen information line for all evacuations
- ✓ Activate shelters, if required
- ✓ Enact MOU with Santa Rosa County School District for provision of school buses and drivers (25 committed). Santa Rosa County is not dependant on mass transit systems; however, Santa Rosa County Department of Emergency

Management has made arrangements with the Santa Rosa County School District for school bus transportation, if necessary.

- ✓ Request state assistance, if necessary

The *2010 Statewide Regional Evacuation Study* indicates the worst-case evacuation time is over twenty-two hours. This time is for evacuating the Category 5 Evacuation Zones. Bridge closures and other events may increase that time. Santa Rosa County may take the added precaution of allowing for more time than the evacuation study indicates, in order to accommodate increased traffic due to population growth, current conditions, fuel supplies and other factors.

Evacuation orders are ideally issued early in the morning in order for evacuation to take place during daylight hours and to provide evacuees ample opportunity to make travel arrangements.

Citizens are advised to evacuate immediately if they are in a flood zone and a flood warning has been issued. Many times, the County may ask for a voluntary evacuation one day prior to a mandatory evacuation. A map showing evacuation routes and zones can be seen in Appendix O.

The estimated number of residential structures in each evacuation zone in Santa Rosa County is:

Evacuation Zone	Number of Residential Structures
A (All Hurricanes & Tropical Storm)	1,589
B (Category 1-5)	1,919
C (Category 2-5)	5,608
D (Category 3-5)	1,586
E (Category 4-5)	6,265

Source: SRC Planning/Zoning GIS Analysis

Consideration is made of the fact that some of the major roadways used for evacuation are subject to flooding. This is an especially critical issue if this is in combination with an approaching hurricane.

The Gulf Breeze area is highly susceptible to storm surge. Those who choose not to evacuate from this area in a timely manner may become trapped, due to flooding of inland roads that lead to bridges or by bridge closures. There are only two routes of evacuation in the Gulf Breeze area for approximately 58,000 residents (this number does not include tourists): U.S. 98 (Gulf Breeze Parkway leading to Pensacola or Navarre) and SR 399 (Pensacola Beach Boulevard and the Bob Sikes Bridge to Pensacola Beach). Evacuation orders issued by Escambia County on neighboring Pensacola Beach must be coordinated

with Santa Rosa County Emergency Management and the City of Gulf Breeze to ensure traffic flow away from vulnerable beach areas. The Garcon Point Bridge (SR 281), which is about seven miles east of Gulf Breeze, can alleviate some traffic pressures on the City during evacuations.

Avalon Boulevard, a north south arterial roadway which is vital to the County for evacuation access to Interstate 10 has been undergoing a four (4) lane widening project that will be complete in the winter of 2015.

Additional road projects that impact evacuation routes include plans to widen I-10 from four to six travel lanes from the eastern end of the Escambia Bay Bridge to east of the S.R. 281 (Avalon Boulevard) interchange begins in August 2015. The Avalon Boulevard overpass and associated I-10 on- and off-ramps will also be widened. Additional elements of the work include constructing new curb, gutter and sidewalks on Avalon Boulevard, new highway lighting, drainage improvements and constructing stormwater retention ponds. Construction activities will begin on I-10 near the Escambia Bay Bridge and move east toward Avalon Boulevard. The work is scheduled for completion in summer 2017.

In August 2015, the Florida Department of Transportation will begin work on the multilane project to widen five miles of S.R. 87 from two to four travel lanes from the Eglin Air Force Base boundary to two miles south of the Yellow River Bridge. The project is slated for completion in spring 2017. The remaining 3.87 mile widening project from 2 miles south of Yellow River Bridge to Hickory Hammock is funded for construction in FY2016. Other additions include stormwater retention ponds, and drainage upgrades.

The Santa Rosa County Division of Emergency Management gives special consideration to the visitors in Santa Rosa County in the event of impending flooding. Tourists are more vulnerable to the impacts of flooding, due to their unfamiliarity with roadways and locations of drainage ditches, creeks, and other water features that may be obscured as a result of flooding. Visitors and tourists can refer to the Santa Rosa County website for instructions tailored specifically to them for evacuation and shelter information. A copy of the visitor evacuation routes map and instructions can be found in Appendix O.

The evacuations facilitated by emergency personnel will be stopped either when the hazard is abated or when conditions become unsafe for emergency responders. For example, during a hurricane, the evacuation process will cease with sustained tropical storm force winds (above 39 mph). All other evacuation cessations are at the independent discretion of the Incident Commander, unified command, or area command structure.

Santa Rosa County Emergency Management maintains direction and control of all sheltering operations and directs entities to open or close shelters. This is facilitated through cooperation by the Santa Rosa County School District. The operation and establishment of the special needs shelter is the responsibility of the Santa Rosa County Health Department.

There are five shelters, one of which is pet-friendly, one special needs shelter, and five refuges of last resort that are available to be opened in Santa Rosa County. They might not all be opened at the same time, or at all; therefore, attention must be given to the current shelter status. The four types of shelters are described below:

- ❑ **Risk Shelters**- American Red Cross operated shelters; structurally evaluated to provide best opportunity for withstanding direct threat; ability to withstand threat cannot be guaranteed; generally located at schools or other hardened structures. There are five risk shelters.
- ❑ **Host Shelters** –Used when no direct threat to structure exists; generally located at churches/other facilities.
- ❑ **Special Needs Shelter**- Shelter operated by the Santa Rosa County Health Department for handling special needs individuals; generally located at a school or other sufficiently hardened structure. There is one special needs shelter in Santa Rosa County.
- ❑ **Refuges of Last Resort**- locations used as a last resort to provide refuge for evacuees that may have otherwise been stranded along evacuation routes within hazard impact areas. There are five potential refuges of last resorts in Santa Rosa County. As the need becomes apparent, Santa Rosa County Emergency Management will announce the locations of refuges of last resort to motorists by all available means including news media, programmable road signs, etc. The facility owners or their staff operates refuges of last resort and are responsible for taking care of all necessities, such as food and water, etc.

Shelter openings will be announced through all means possible including local media outlets and press conferences. The Citizen Information Line at 800-225-7421 will have information about shelter openings. The evacuation shelters map that indicates shelter capacities is included in Appendix O. There is no guarantee that an evacuation shelter is totally safe in severe storms.

The locations of the risk shelters used in Santa Rosa County are:

Milton Community Center
5629 Byrom Street
Milton, FL 32570

S.S. Dixon Intermediate School
5540 Education Drive
Pace, FL 32571

Jay High School
3741 School St
Jay, FL

Sims Middle School
5500 Education Drive
Pace, FL 32571 SRC

PET-FRIENDLY SHELTER

Avalon Middle School
5445 King Arthur's Way
Milton, FL 32583

SPECIAL NEEDS SHELTER

Bennett C. Russell Elementary
3740 Excalibur Way
Milton, FL 32583

The annual *Santa Rosa County Division of Emergency Management Disaster Preparedness Guide* provides valuable information to help Santa Rosa County residents and businesses plan for man-made and natural disasters. This guide has a listing of important telephone numbers along with information for sheltering, transportation, evacuation, recovery, supplies and tips for before, during and after specific disasters or incidents. The guide is available on the Santa Rosa County website and by contacting the County.

The *Santa Rosa County Emergency Management Comprehensive Emergency Management Plan (CEMP)* provides a framework for the County to be as prepared as possible to deal with all types of hazards. It establishes the operational framework through which Santa Rosa County prepares for, responds to, recovers from, and mitigates the effects of a wide variety of disasters, regardless of cause, size, or complexity.

6.11 Natural and Beneficial Functions

Keeping a hazardous area free from development is the best approach to preventing damage from that hazard. Using flood prone areas for parks and conservation purpose is a strong flood mitigation strategy since development can be limited in these areas and the natural hydrology can be left in place. Existing vacant land allows the County and municipalities an opportunity to regulate or limit development before it occurs.

Floodplains should be considered in their natural context. They are more than just hazardous locations. Open and natural areas absorb much more rain and floodwaters than urbanized areas, reducing flood flows on downstream properties. Wetland plants filter stormwater runoff, making it cleaner for those downstream.

Santa Rosa County has extraordinary natural resources, including pristine white sand beaches, abundant and healthy rivers, marshes and verdant, productive farmland. The natural environment of Santa Rosa County is diverse and includes riverine systems: the Escambia River and its tributaries, the Blackwater River and its tributaries, and the Yellow River and its tributaries. Rivers provide commercial, recreation, and conservation uses for

the public. Other natural resources include beaches and dunes, wetlands, wildlife, marine habitats, vegetative communities, minerals, and forests, along with estuarine systems: Escambia Bay, Blackwater Bay, East Bay and Santa Rosa Sound. These resources are used for commercial, recreation, and conservation purposes.

These resources are highly susceptible to human degradation. In order to preserve these natural resources now and for future generations, it is imperative that regulations maintain a balance between human activities, which sometimes entails rapid growth, and conservation. Recreation and open space are important considerations in any planning program. As growth occurs and population increases, the availability of sites for leisure time pursuits or passive enjoyment assumes more importance. Protecting and preserving these natural and beneficial floodplain functions yield flood protection benefits and also help integrate floodplain management efforts with other community goals. Natural features in Santa Rosa County that protect property from flooding include lakes, ponds, wetlands, barrier islands, sand dunes, and beaches. Through their location, recreation and open space areas can serve to protect valuable natural resources by putting such areas under public control and restricting development. In a similar manner, recreation and open space areas can channel growth by establishing buffers or greenbelts. However, recreation and open space areas should also complement urban development by meeting the community's need for active and passive recreation.

Santa Rosa County has an abundance of natural resources, which can be used as open space and recreation. The County contains State Park areas, open space (wetlands), gulf beach, river areas (creeks, rivers, bays and streams), special purpose parks and/or parks with special features. The Department of Environmental Protection has developed a State Park system. In addition, the Northwest Florida Water Management District (NFWFMD) acquires land for water resource purposes and has also developed a Regional Park System. These parks are defined as regional park areas, which preserve the natural setting of the area. Wildlife Management Areas provide open space recreational activities including hunting, fishing and nature study, while also preserving the natural setting of the environment. The Florida Fish and Wildlife Conservation Commission operates Wildlife Management Areas.

Some of these recreational opportunities are provided by the Federal and State Park system including the Gulf Islands National Seashore. Some of the major State Parks in the County include Navarre Beach State Park, Blackwater River State Park and Blackwater Heritage Trail State Park. There are also additional federal and state lands owned or managed by the Air Force (Eglin Air Force Base), the Navy (Naval Air Station Whiting Field), the Division of Forestry (Blackwater River State Forest), the Florida Department of Environmental Protection (Yellow River Marsh Aquatic Preserve and Yellow River Marsh State Buffer Preserve), the Florida Fish and Wildlife Conservation Commission (Escribano Point Wildlife Management Area), and the Northwest Florida Water Management District (Lower Escambia River Water Management Area, Garcon Point Water Management Area and Yellow River Water Management Area).

Approximately 2,100 acres of coastal area recreation sites are open to the public in unincorporated Santa Rosa County, including county, state, and federal parklands located on the Gulf of Mexico and other estuarine shorelines in the coastal planning area. The County plans to continue pursuing grants and other funding sources to increase public shoreline access through acquisition, conservation easements, or other similar methods.

The Santa Rosa County Land Development Code addresses lot coverage, setbacks from wetlands and water bodies, floor elevations, and protection of native vegetation for all new development and redevelopment for the primary purpose of conserving vegetative cover. Development is all but prohibited in wetlands, and in most cases wetland areas are set aside as private conservation areas within residential subdivisions and may function as filters for stormwater management facilities in residential and non-residential developments.

Environmentally sensitive lands are identified as wetlands under the jurisdiction of the Florida Department of Environmental Protection or the U.S. Army Corps of Engineers; floodplains as identified by the Federal Emergency Management Agency; free flowing streams, rivers, lakes, bays, basins, and bayous; and wildlife habitat within publicly owned lands managed for conservation use. Two examples in Santa Rosa County include Garcon Point and Navarre Beach.

Natural coastal communities such as those found in Santa Rosa County, are among the most threatened in Florida. Undeveloped and lightly developed areas along barrier islands are characterized by distinct zone designation, from sandy Gulf beaches, through intermittent scrub along dune ridges and swales, to maritime forests, and finally to salt-tolerant herbaceous vegetation and limited emergent vegetation along the bay shore. Habitat loss, pollution, and reduced fish and wildlife populations and diversity result when shoreline development is unbroken by conservation areas or very low density buffer zones. Population growth and the increasing popularity of the Florida Panhandle as a residential and recreational destination has intensified competition for limited coastal resources. Across much of the region, government jurisdictions and private landowners have failed to plan for the coexistence of competing shoreline uses and functions. The Pensacola Bay system has been subjected to chronic environmental stress from industrial and domestic discharges, non-point source pollution runoff, and dredge and fill and other direct habitat displacement. Sea grass communities have been profoundly impacted, wetland areas continue to decrease, and riverine and estuarine benthic habitats have been stressed.

The wetlands in Santa Rosa County are regulated by dredge and fill rules of the Department of Environmental Protection and the Army Corps of Engineers. Santa Rosa County has taken steps to further protect floodplains from development using zoning measures. These zoning categories preclude high-density private development, in favor of resource conservation or low intensity public use.

Goal 10 of the State of Florida Land Development Plan provides for the protection and acquisition of unique natural habitats and natural systems. This goal also includes the restoration of degraded natural systems to a functional condition. Achieving this goal requires the cooperation of the County with other agencies in the identification of unique

areas. Substantial areas of floodplain and wetland in the watershed have been acquired and protected via the Save Our Rivers and Preservation 2000 programs. In particular, the NFWFMD owns over 30,000 acres of land along the Escambia and Yellow Rivers, in Escribano Point and within the Garcon Point peninsula.

The Florida Natural Areas Inventory (FNAI) provides listings of the presence of endangered species within the County. The inventory was established to aid in the protection of listed species and should be recognized by the County in land use and land acquisition decisions. In addition to this inventory, the Florida Fish and Wildlife Conservation Commission publishes an official list of endangered and potentially endangered fauna and flora in Florida.

The Coastal Management Element of the Santa Rosa County Comprehensive Plan is a plan for development, and where appropriate restricts development activities where such activities would damage or destroy coastal resources, in addition to protecting human life and property from the destruction of natural disasters. The Coastal Planning Area identified for Santa Rosa County encompasses all oceanic and estuarine water bodies and all adjacent lands where development activities would impact their integrity or quality. Several areas of extensive, continuous wildlife habitats exist in the coastal planning area of Santa Rosa County.

Through stringent stormwater management ordinances and sedimentation and runoff controls, urban runoff nonpoint sources of pollution are minimized. Issues of concern include: runoff pollution from older residential and non-residential developments that did not leave natural vegetation adjacent to the shorelines; development of more docks associated with residential development; and the increase of recreational and commercial boating activities associated with increased development. The County is coordinating with the Northwest Florida Water Management District in the implementation of recommendations offered in the *Pensacola Bay System SWIM Plan* that will maintain and improve the water resources of this system. The County has utilized Community Development Block Grant (CDBG) funds to retrofit stormwater facilities in some older neighborhoods, and to upgrade sewer lines to allow residents to convert from septic systems to central sewer. More of these types of projects are anticipated.

The majority of the vacant land in unincorporated Santa Rosa County is located outside of areas that are characterized as environmentally sensitive. A few scattered vacant parcels or platted lots are located in floodplain areas and sensitive areas. In southern Santa Rosa County, especially in the Holley and Navarre area, there are a number of vacant parcels and platted lots located within hydric soil areas or within the Coastal High Hazard Area. On Santa Rosa Island, development of vacant lots must be consistent with federal, state and county regulations for coastal construction and for preservation of beach and dune systems. Development of vacant parcels or platted lots located in areas that are currently considered wetlands, habitats of threatened or endangered species, or Coastal High Hazard Areas, are required to meet Land Development Code regulations relating to the protection of these natural resources. In some newer residential developments conservations areas have been set aside which act to preserve wildlife habitats, sometimes acting in concert

with stormwater management facilities. Development of smaller, vacant parcels may contribute to the reduction of small pockets of wildlife habitats.

The majority of the vacant land in the Garcon Point Protection Area is located in areas that are characterized as potentially environmentally sensitive. A few scattered vacant parcels or platted lots are located in floodplain areas and sensitive areas. Development of vacant parcels or platted lots located in areas that are currently considered wetlands, habitats of threatened or endangered species, or Coastal High Hazard Areas, are required to meet Land Development Code regulations relating to the protection of these natural resources.

At one time, all of Santa Rosa County was open to the easy movement of wildlife requiring large foraging areas. As these vegetated areas have declined with development, wildlife populations have been reduced. Wildlife habitats correspond to vegetated communities. Some of the endangered and threatened animals that can be found in Santa Rosa County are the alligator snapping turtle, Florida bog frog, the Florida black bear and the red-cockaded woodpecker. The endangered and threatened plants in the County include the hairy wild indigo, the dwarf witch-alder and the pineland hoary-pea. Large tracts within the county provide critical habitat for these species as well as other wildlife: the Blackwater State Forest, Blackwater River Water Management Area, Yellow River Wildlife Management Area, Garcon Point Water Management Area, Yellow River Water Management Area and the Lower Escambia River Water Management Area. These areas alone are approximately 181,000 acres or approximately 27% of the total land area within Santa Rosa County.

6.12 Development and Redevelopment

Santa Rosa County has long been considered a “bedroom community” of the larger Pensacola metropolitan statistical area. Knowing that residential growth does not sustain a healthy tax base, the County has been very successful at aggressively promoting the area as a good place to bring new and expanding businesses. Santa Rosa County has undergone significant growth in recent years and the prospect for further growth is very good, although some components of the infrastructure to support that growth may lag behind.

The *Future Land Use Element of the Santa Rosa County Comprehensive Plan* is used to evaluate existing development patterns and potential constraints to development in order to determine and describe what development will occur in Santa Rosa County, where this development will be located, and through what mechanisms this will be accomplished over the planning time frame of the *Comprehensive Plan*. The *Future Land Use Element* and its accompanying *Future Land Use Map* provides the blue print and the strategies for managing the County’s future development. These growth management strategies directly pertaining to the *Capital Improvements Element* are implemented through other elements of the *Comprehensive Plan* (i.e., *Transportation Element, Infrastructure and Parks and Recreation Elements*).

The *Future Land Use Element* provides an overview of the County in relationship to its natural and built environment and is an overall blueprint for managing growth in the County. The data and analysis describes existing and projected development of Santa Rosa County over the twenty-five year planning time frame (2000-2025). Aside from the location of land uses, the element also, to the extent possible, allocates the amount of land to be utilized for residential and non-residential activities. The *Future Land Use Element* establishes not only the density and intensity of land uses appropriate for planned development, but it also considers factors such as timing, cost, and recent development trends. It defines the direction and intensity of future growth and development and, therefore, impacts many of the other elements of the Comprehensive Plan, including:

- *Aquifer Recharge Elements* provide for the necessary public facilities and infrastructure to accommodate the existing and future populations. The *Future Land Use Element* provides the current and projected population growth and designates future growth boundaries, which in turn, provides the areas of need for infrastructure. In addition, the *Future Land Use Element* may limit the intensity of development and use of land within areas that allow for natural aquifer recharge, directly affecting the *Natural Groundwater Aquifer Recharge Element*.
- The *Coastal Management Element* provides for development restrictions along coastal areas where such development may directly damage or destroy the coastal environment. The *Coastal Management Element* further addresses limitations along the coast in order to protect human life and public infrastructure in the event of a natural disaster, such as a hurricane. The *Coastal Management Element* also addresses evacuation routes. The *Future Land Use Element* may limit the intensity and density of development along the coast providing for less human destruction of the natural coastal environment, less expenditure of public funds in areas that may be destroyed by a natural disaster and more efficient evacuation, when necessary.
- The *Conservation Element* promotes the conservation, protection and use of natural resources, such as rivers, bays, wetlands, estuarine marshes, groundwater, air and similar natural resources. The *Future Land Use Element* may limit the intensity and density of development along and within the natural areas providing for less human destruction of the natural environment.

Development shall be reviewed and land development regulations shall be adopted and applied in such a manner as to prevent the development's impact on the County's resources. Preservation shall require that the resource remain completely undisturbed.

Santa Rosa County has adopted a Land Development Code (LDC) that establishes standards, criteria, and permitting requirements for development of land within the unincorporated area of Santa Rosa County. The Land Development Code applies to all new development within the County and is consistent with the adopted Comprehensive Plan.

The existing patterns and trends of development in Santa Rosa County have been used as the basis for determining future development potential. The pattern and mix of existing land uses is indicative of the market forces and natural resource constraints which have shaped existing development and are likely to influence future growth. In addition, existing levels of development have been used to evaluate the adequacy of public facilities and services to serve this development and to identify potential constraints.

Based on the primary use code assigned by the Santa Rosa County Property Appraiser, Santa Rosa County contains 46,511 acres of vacant land, or approximately ~~8%~~ 7% of its total acreage. The County will analyze the suitability of this vacant land for development, focusing on natural resource constraints. The purpose of this analysis is to identify natural resource constraints and to determine how much of the vacant land is affected.

The majority of the vacant land in unincorporated Santa Rosa County is located outside of areas that are characterized as environmentally sensitive. A few scattered vacant parcels or platted lots are located in floodplain areas and areas that may or may not include habitats of threatened or endangered species. In southern Santa Rosa County, especially in the Holley and Navarre area, there are a number of vacant parcels and platted lots located within hydric soil areas or within the Coastal High Hazard Area. On Santa Rosa Island, development of vacant lots must be consistent with federal, state and county regulations for coastal construction and for preservation of beach and dune systems. Development of vacant parcels or platted lots located in areas that are currently considered wetlands, habitats of threatened or endangered species, or Coastal High Hazard Areas, are required to meet Land Development Code regulations relating to the protection of these natural resources.

Santa Rosa County has an abundance of historical and archaeological resources throughout the entire county. The Florida Master Site File (FMSF) provides an inventory of historic resources located in Santa Rosa County. This inventory, part of a statewide inventory of historic and archaeological resources, is maintained by the Florida Department of State, Division of Historic Resources. As of July 2014 the FMSF contained 1,894 listings of historic resources submitted for evaluation in Santa Rosa County (municipalities and unincorporated); 940 archaeological sites, 936 standing historic structures and 18 historic cemeteries. The County periodically uploads updates into the GIS so that the Community Planning, Zoning and Development Division can—verify site locations during the development review process.

The goals, objectives and policies established in the *Comprehensive Plan*, in conjunction with revised Land Development Regulations and other implementing mechanisms will alter the distribution of growth so as to ensure that future patterns of land use are tailored to:

- (a) Reduce sprawl, consistent with the Florida Administrative Code
- (b) Improve development efficiency by guiding development to existing growth areas where infrastructure systems are in place and where unit costs for public services and facilities are relatively low

- (c) Protect natural resources by guiding development away from wetlands and other natural resources
- (d) Enhance community character by reinforcing existing development patterns and addressing compatibility issues.

The Future Land Use Map (FLUM) reflects the location and densities of development permitted in the county. A copy of the map can be found in Appendix P. The patterns of development reflect historic development trends where appropriate, constraints based on provision of central sewer and water services, and natural resource constraints, as well as the future development potential of Santa Rosa County based on population projections. Generalized land use categories and densities and intensities of development have been established in the *Comprehensive Plan Goals, Objectives and Policies*.

The allocation of 177,767 acres for conservation use on the FLUM represents land devoted to conservation, recreation and open space purposes at the current time. It is not possible to estimate when or how much land will be acquired in the future for conservation purposes. Conservation land use needs are not forecast because the need is not related to growth in population, rather it results from efforts to protect the land through acquisition.

Several areas of Santa Rosa County could be considered to be in need of some level of revitalization or redevelopment. Specific examples include areas of deteriorated residential structures, including mobile homes that are located in unsafe areas; deteriorated commercial and residential areas; and areas potentially constrained by inadequate infrastructure. Also, several areas of Santa Rosa County could be considered to be in need of redevelopment based on the criteria of inadequate affordable housing. Appropriate responses to such conditions include indirect actions such as monitoring and proactive code enforcement, more direct investments in renovation of buildings and public facilities, or proactive community revitalization and redevelopment. When redevelopment occurs, the opportunity exists to upgrade infrastructure and buildings to standards that meet current building codes and coastal building requirements.

The Future Land Use Map supports and encourages redevelopment by classifying much of the older areas of the county, those most often in need of redevelopment, as either suburban residential or urban mixed use future land use categories. The adopted future land use categories include language that relates to non-conformities in land uses and compatibility issues in mixed land use districts that are intended to support and encourage redevelopment. In addition, even though there is not a targeted redevelopment program, redevelopment needs are addressed in part through housing grants and code enforcement activities.

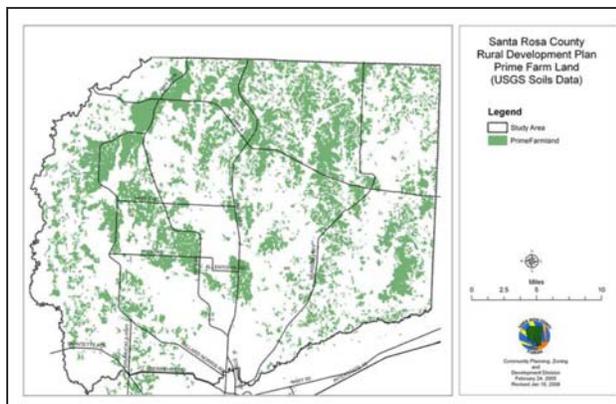
Floodplain areas within Santa Rosa County as defined by the Federal Emergency Management Agency include the 100-year floodplain (Zone A and AE) and the velocity zone (Zone VE). Much of the development within flood prone areas occurred before the adoption of state and local regulations in the early 1980s. Implementation of the

Comprehensive Plan Goals, Objectives and Policies and enforcement of the Land Development Code will direct new growth away from areas particularly susceptible to flooding from severe storms or hurricanes and will ensure that all redevelopment activities will be consistent with regulations that address flood mitigation.

Agriculture is a significant part of the economy and an important element in the character and culture of the County. Increasing development pressure and continued movement of development into traditionally rural areas is threatening the County's farmlands, military bases, open spaces, rivers and streams, and the northern rural character. This spurred the County to consider the impact of this development on rural lands. The *Santa Rosa County Rural Development Plan (RDP)* was designed to protect the rural character, agricultural viability, and natural resources of northern Santa Rosa County. Some of the recommendations of the *Rural Development Plan* include:

- ❑ Creation of a Rural Protection Zone (RPZ) within which the creation of new communities will be allowed, but urban sprawl will be avoided and development performance standards will be revised to better reflect the rural character of the area
- ❑ Creation of a Transition Zone adjacent to the RPZ within which rezoning will be allowed to facilitate a smooth transition from the urbanized areas to the rural areas
- ❑ Establishment of buffer requirements between new residential subdivisions and agricultural uses
- ❑ Establishment of riparian buffer requirements
- ❑ Use of agricultural and conservation easements to protect agricultural viability and rural character

Of concern in Santa Rosa County is the number of rezonings from agricultural (AG) to a higher density residential zone. As part of the background of this RDP, an analysis was conducted of all the rezonings within the study area. Between 1990 and 2004, there were 72 rezonings granted within the study area, 29 of those taking place since 2000. Seven of the 29 granted since were rezoning to AG. The major rezonings have been granted in areas close to urbanized sections of Santa Rosa County. Although the number of rezonings is not astronomical, there is concern that this trend will only increase, due to the fact that International Paper Company (IP) has begun to divest itself of hundreds of acres of its



timberland. Santa Rosa County estimates that over 24,000 acres of IP holdings are soon to be converted from timberland and sold for development. As anticipated, this trend has continued; during the time period of 2005-2014 an additional 149 (13,456 acres) rezonings have occurred which changed land from an Agricultural Zoning District. Staff is currently working with land owners and interested community members to find a solution to this trend.

Approximately 2,100 acres of coastal area recreation sites are open to the public in unincorporated Santa Rosa County, including county, state, and federal parklands located on the Gulf of Mexico and other estuarine shorelines in the coastal planning area. The *Recreation and Open Space Element of the Santa Rosa County Comprehensive Plan* did not identify any deficiencies in water-dependent recreation sites; however, the County plans to continue pursuing grants and other funding sources to increase public shoreline access through acquisition, conservation easements, or other similar methods.

Experience in Santa Rosa County, as in other neighboring coastal counties, has shown that reducing hurricane evacuation times through limiting population density and construction of more and bigger roadways is unrealistic. The County is restricted by federal lands, geography and topography and by economic constraints from constructing many more evacuation routes. Recommendations to address these situations may include adoption of stronger policies on land use, creation of special treatment overlays in high hazard flood areas, requiring new development to address the additional evacuation needs they create, or instituting new development impact fees aimed at supporting new evacuation routes.

Santa Rosa County

Flood Mitigation Plan

Section Seven

SET GOALS

This section presents mitigation goals and objectives identified to reduce or avoid long-term vulnerabilities to the flood hazard. The Flood Mitigation Task Force developed these goals and objectives through discussions, research, and meetings, and they are based on input from participating stakeholders and the public.

When this plan was first crafted in 2009, using information garnered from the *Santa Rosa County Local Mitigation Strategy*, the *County Mitigation Initiatives* (August 2007), the flood risk assessment and review of the *State of Florida Hazard Mitigation Plan* and a review of historical flooding in the county, the Task Force went through a process to identify goals and objectives for this *Flood Mitigation Plan* (FMP). Three goals and eleven objectives were identified by the Task Force through a facilitated exercise working from a catalog of goal statements created through review of other similar plans and Federal Emergency Management Agency (FEMA) guidance. The identified goals set the context for the subsequent review of floodplain management activities and drafting of the Action Plan. The Task Force reviewed the goals for the 2015 Plan update and determined that the adopted goals remain relevant and did not recommend changes.

For the purposes of this plan, goals and objectives are defined as summarized below:

- **Goals** are general guidelines that explain what is to be achieved. They are usually broad-based, policy-type statements, long-term, and represent global visions. Goals help define the benefits that the plan is trying to achieve. The success of the FMP, once implemented, should be measured by the degree to which its goals have been met (that is, by the actual benefits in terms of hazard mitigation that occurs on the ground).
- **Objectives** are defined as short-term aims which, when combined, form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

Goal 1. Protect people from the safety and health hazards caused by flooding.

Objective 1.1 Ensure that residents are given adequate notification and warning of floods and hurricanes.

Objective 1.2 Provide appropriate assistance before, during and after major flooding events.

Objective 1.3 Provide appropriate education and information regarding flooding to various groups through appropriate and pre-established channels.

Goal 2. Protect public and private property from damage by floods.

Objective 2.1 Implement effective procedures and processes that advance local government jurisdictions' and the public's ability to accomplish mitigation activities in Santa Rosa County.

Objective 2.2 Reduce or eliminate flooding hazards identified to at risk locations, including repetitive loss areas and critical facilities, in the County and its municipalities.

Objective 2.3 Ensure that new development reduces the possibility of property damage from flooding by retaining and managing stormwater, and building to safe elevations.

Objective 2.4 Reduce flooding hazard through strategic planning and implementations, including updating the *Flood Mitigation Plan* as necessary.

Objective 2.5 Assist property owners, residents, businesses, non-profits and others in understanding and knowing of their eligibility for grants, loans and services that may help to mitigate hazards that directly affect their interests.

Goal 3. Improve the quality of life in Santa Rosa County by maintaining, enhancing, and restoring the natural environment's capacity to deal with the impacts of flooding.

Objective 3.1 Protect by regulation, acquisition and/or restoration, existing natural areas, particularly in the floodplain.

Objective 3.2 Ensure preservation of open space.

Objective 3.3 Minimize destructive erosion.

Santa Rosa County

Flood Mitigation Plan

Section Eight

REVIEW OF POSSIBLE ACTIVITIES

The Flood Mitigation Plan Task Force considered a number of different floodplain management and hazard mitigation activities. They were organized under six primary categories:

1. Preventative:

These activities are intended to prevent problems from getting worse. The use and development of floodprone areas is limited through planning, land acquisition, or regulation. Building, zoning, planning, and/or enforcement offices usually administer them.

- Pursue appropriate grants to enhance flood mitigation, including one or more of the following:
 - Flood Mitigation Assistance Grant
 - Hazard Mitigation Grant
 - Pre-Disaster Mitigation Grant

There are no known changes being considered to this policy.

- Review County Code of Ordinances to strengthen maintenance requirements of private stormwater management facilities.
- Update Flood Insurance Rate Maps (FIRMs) to include elevations in all Special Flood Hazard Areas.
- Continue County's periodic inspection program of stormwater control structures to ensure the proper functioning of such structures. This program should continue to be implemented as it currently is.
- Continue practice of correcting localized drainage problems so that LOS standards are maintained. There are no changes planned in the current approach.
 - Consider the relocation, mitigating or replacement of infrastructure currently present within the Coastal High Hazard Area where state funding is

Santa Rosa County Flood Mitigation Plan
Section Eight, Review of Possible Activities

anticipated to be needed, as identified in the *Local Mitigation Strategy Priority List*.

- Maintain the County's strong regulatory flood prevention standards, including:
 - Utilization of 100-year design storm for development
 - Closed basin design
 - Lot grading plan
 - Freeboard in all SFHAs
 - Coastal A Zone Requirements – 200' of mht

The Floodplain Manager will be responsible to identify any proposed ordinance that could weaken the County's strong standards and to coordinate with other County staff as needed to follow up as needed. This responsibility will be ongoing.

- Incorporate into the County's review processes for infrastructure planning an assessment of the appropriateness of public capital improvements in coastal high hazard areas as identified in the Coastal Management Element of the Comprehensive Plan. (EAR Policy 10.1.B.2)
- Maintain the County's practice of denying development permits for projects that do not meet the design criteria for correcting existing deficiencies, or do not meet future drainage requirements (EAR). This has been a successful practice and should be continued in the same manner.
- Continue to require that installation of stormwater management facilities made necessary by new development is the responsibility of the developer. There are no changes planned in the current approach. This activity is ongoing.
- Evaluate *the Flood Mitigation Plan*, particularly the Action Plan, annually.
- Include separate updating of the *Flood Mitigation Plan* in the *Local Hazard Mitigation Strategy* 5-year updates. This *Flood Mitigation Plan* is included as an appendix to the *Local Hazard Mitigation Strategy*.
- Consider acquisition of natural areas for parks or open space.
- Zone all County parks to assure perpetual preservation of open space.
- Require designation of open space property for all major development.
- Support efforts of the Institute of Food and Agricultural Services (IFAS/County Cooperative Extension Service) and the Natural Resources Conservation Services (NRCS) relating to reduction and mitigation of flood hazards to crops and

silvicultural operations. The County should continue this current policy as in the past.

2. Property Protection

These activities include those undertaken by property owners, on a building-by-building or parcel basis.

- Research including base flood finished floor elevations on Certificates of Occupancy, for implementation within one year if possible
- Continue to prioritize the reduction of repetitive loss properties through various means of mitigation, update repetitive loss forms and remove properties from the Repetitive Loss List. This is an ongoing activity that will continue as a top priority of the County's Floodplain Manager, the results of which will be reported annually to the Local Mitigation Strategy Task Force.
- Continue active participation in the Flood Mitigation Assistance Program. This is an ongoing activity and no changes to this policy are planned at this time.
- Include notification of grants, loans and service availability in all County publications, seminars and websites that address flood mitigation.

3. Natural Resource Protection

These activities preserve or restore natural areas or the natural functions of floodplain and watershed areas. Parks, recreation, or conservation agencies or organizations usually implement them.

- There are no plans for changes to the County's policy to encourage designation, protection and maintenance of wetlands.
- Maintain and enforce designation of Coastal Barrier Resources Act (CBRA) property. This is an ongoing activity and no changes to this policy are planned.
- Consider expansion of the County's properties that are designated natural and beneficial areas.
- Maintain strong enforcement of Northwest Florida Water Management District regulations pertaining to floodplain management. The County should continue this current policy as is.

- Encourage individual property owners to pursue percolation-oriented drainage improvements using best management practices through outreach and education. Drainage that seeps into the soil, rather than being directed out to the ocean, provides multiple benefits. Not only does it mitigate flooding, but it also recharges the aquifer, enhances water quality, and reduces erosion.
- Implement strict enforcement of best management practices for reducing erosion during development activity. This is current County policy and should continue as is.

4. Emergency Services

These activities include measures taken during an emergency to minimize its impact. These measures are the responsibility of city or county emergency management staff and the owners or operators of major or critical facilities.

- Assign an individual to continually update information pertaining to hurricane and flood warnings. This update responsibility will include, but not be limited to, the following media:
 - County website
 - Email advisements
 - Television Government Access Channel
 - Reverse 911 telephone system
 - e-breaking news
 - Public Service Announcements through local media (radio, newspapers, etc.)
- Ensure adherence to the County's Emergency Procedures Manual, particularly in the event of evacuation orders. Key components of the procedures should be reviewed before June 1st of each year.
- Provide free sand and sandbags to residents prior to impending floods. There are no plans to change this practice.
- Immediately prior to, during and after a hurricane or flood event, post pertinent information concerning major points of interest, such as bridge and road closures, evacuation orders, emergency shelter locations and electrical outages, utilizing the following media:
 - County website
 - Email advisements
 - Television Government Access Channel
 - Electronic message boards
 - Reverse 911 telephone system
 - e-breaking news

- Public Service Announcements through local media
- Brochure handouts at PODs
- Department of Health Emergency Health Inoculations

- Ensure optimal staffing of emergency management personnel to receive and respond to emergency events. This practice will continue as in the past, in accordance with Incident Command System (ICS) standards.

- Integrate response to flooded homes with appropriate response organizations (Red Cross, Baptist Association, etc.).

- Assist with establishment of Disaster Recovery Center (DRC).

- Identify all critical facilities located within SFHAs and make contingency plans for each, in the event of flooding.

- Ensure that all public buildings that serve first response and critical emergency/public needs, including record/data collection and communication centers/infrastructure, are located outside of flood zones or floodprone areas.

5. Structural Projects

These activities keep floodwaters away from an area with a levee, reservoir, or other flood control measure. They are usually designed by engineers and managed or maintained by public works staff.

- Implement the following structural drainage projects as prioritized by the Local Mitigation Strategy and recommended by the FMPTF since the last plan update. See Appendix I for details of each project:
 - Settlers Colony Stormwater Improvement
 - Venetian Way Stormwater Improvement
 - Ranchettes Stormwater Improvement
 - Pace and Patterson Lane Stormwater Improvement
 - Chipper and Maranatha Stormwater Improvement
 - Holley by the Sea Master Stormwater/Drainage Plan

- Prioritize addressing of flooding issues in repetitive loss areas and implement capital projects to mitigate flooding. Drainage issues should continue to be given top priority in the capital improvement program, particularly in repetitive loss areas. To supplement funding, the County must continue to be proactive in obtaining funding for this program. The following sources are recommended:
 - Community Development Block Program

- Community Redevelopment Agency
- Flood Mitigation Assistance Grant
- Hazard Mitigation Grant Program

6. Public Information

These activities advise property owners, potential property owners, and visitors about the hazards, ways to protect people and property from the hazards, and the natural and beneficial functions of local floodplains. A public information office usually implements them.

- Ensure that citizens know how to contact FEMA post-flood. The Floodplain Manager will continue this practice.
- Provide knowledgeable staff to assist citizens before, during and after a flood event to help them understand their repair/rebuilding/flooding/mitigation options. There are no plans for changes to this procedure.
- Assure annual distribution of *Santa Rosa County Disaster Guide*. There are no plans to change this practice
- Post the *Santa Rosa County Disaster Guide* on the County website in a location that is easily accessed by the community.
- *Plan for Public Information* has been created and will be maintained as outreach to the public so that they may be informed and educated. This activity will be ongoing, a copy of which can be found in Appendix Q.
- The County should continue its current policy of conducting a public outreach campaign (chambers, civic groups, etc.).
- Work with County Housing Program to provide education to homebuyers regarding flood information.

Santa Rosa County

Flood Mitigation Plan

Section Nine

ACTION PLAN

All of the following activities are recommended by the Flood Mitigation Task Force. Realizing the need to expend time and resources strategically, the activities have been ranked, based upon the following criteria:

1. Overall effectiveness to mitigate flooding
2. Feasibility and affordability
3. Reduction of repetitive losses
4. Urgency of need

Furthermore it should be noted that due to the diversity of the below list, the rankings are subject to being changed based upon urgency of need due to current events and funding.

Based on research and the assessment of the flood hazard, and the fact that there are no repetitive loss properties in the Town of Jay, it was determined that no flood mitigation action is necessary in the Town of Jay at this time.

This action plan is reviewed annually and modified as necessary. For this Plan update a section titled “2015 Status” was added for each action.

1. Maintain the County’s strong regulatory flood prevention standards, including:
 - Utilization of 100-year design storm for development
 - Closed basin design
 - Lot grading plan
 - Freeboard in all SFHAs
 - Coastal A Zone Requirements – 200’ of mht

Action: The Floodplain Manager will be responsible to identify any proposed ordinance that could weaken the County’s current strong standards and to coordinate with other County staff as needed to follow up as needed. This responsibility will be ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.3

2015 Status: This activity is conducted throughout the year. The ordinance has been updated and is scheduled for BOCC public hearing in December 2015. The FBC requirements are being followed, even though the ordinance is still under revision.

2. Prioritize addressing of flooding issues in repetitive loss areas and implement capital projects to mitigate flooding. Drainage issues should continue to be prioritized in the capital improvement program, particularly in repetitive loss areas. To supplement funding, the County must continue to be proactive in obtaining funding for this program. The following sources are recommended:
 - Community Development Block Program
 - Flood Mitigation Assistance Grant
 - Hazard Mitigation Grant Program

Action: The Director of Public Works will coordinate with the Floodplain Manager to determine those areas for which capital drainage improvements would be most beneficial and cost effective. This activity will be ongoing. The Director of Public Works will report on the progress annually at the August meeting of the Local Mitigation Strategy Task Force. Thereafter, projects can be incorporated into the LMS as appropriate.

Budget: Staff time (operating funds); funding for the capital improvement projects that are developed may be obtained utilizing Road and Bridge Funds or Electric Franchise Fee Drainage Reserves (if available) in addition to the grants sources listed above. Matching funds, if required, will need to be budgeted in General or Electric Franchise Fee Drainage Fund.

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: As funding opportunities become available in the above referenced programs, the grants coordinator in consultation with the Public Works Director, County Administrator and CDBG consultant will discuss priority flooding issues and determine which projects should be submitted for funding depending on many factors including critical need, estimated cost of the project in comparison to the available grant budget and other factors. This activity is ongoing.

3. Implement County's Plan for Public Information (formerly Public Information Outreach Strategy)

Action: The Floodplain Manager shall be responsible to implement the County's Plan for Public Information and to report on its annual evaluation and revisions by October 1 of each year.

Budget: Staff time and operations funding

Flood mitigation goal and objective achieved: Goal 1, Objective 1.3

2015 Status: The Public Information Outreach Strategy was replaced with the Plan for Public Information in July 2015. As a whole, the plan for public information is considered effective and implementation of activities is ongoing.

4. Pursue appropriate grants to enhance flood mitigation, including one or more of the following:
 - Flood Mitigation Assistance Grant
 - Hazard Mitigation Grant
 - Pre-Disaster Mitigation Grant

Action: The Special Projects and Grants Coordinator will follow up annually on this responsibility and provide annual progress report to the Local Mitigation Strategy Task Force in August of each year.

Budget: Staff time (operating funds) Matching funds, if required, will need to be budgeted in General or Electric Franchise Fee Drainage Fund or will be assumed by the homeowner if agreed.

Flood mitigation goal and objective achieved: Goal 2, Objective 2.5

2015 Status: The county submitted grant applications under the Hazard Mitigation and Severe Repetitive Loss Programs as appropriate including four hazard mitigation grant applications and one flood mitigation assistance grant including six properties.

5. Implement the following structural drainage projects previously identified in the Unincorporated County Mitigation Initiatives (August 2007):
 - Orion Lake Stormwater Improvement
 - Greenbriar Subdivision Stormwater Improvement
 - Harrison Ave Stormwater Improvement
 - Villa Venyce Flooding
 - Ramblewood Flooding/Stormwater
 - Sabertooth Circle Stormwater
 - Ganges Trail/Madura Trail Flooding

Action: County Engineering Staff will coordinate the permitting, bidding and construction of all of these projects in accordance with applicable grant requirements. The 2011-2016 version of the LMS targeted this activity for completion by August 2012.

Budget: Staff time (operating funds); grant funding and project matching funds have already been identified and budgeted for these projects.

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: As of July, 2015, all projects are completed.

6. Implement capital flood mitigation improvement projects in the following repetitive loss areas:
 - Polynesian Isles
 - Villa Venyce

Action: County Engineering Staff will evaluate potential mitigation alternatives and determine the most appropriate projects. Grants Coordinator will investigate potential sources of grant funding and apply as deemed appropriate. The 2011-2016 version of the LMS targeted this activity for completion by August 2014.

Budget: Staff time (operating funds); grant funding and project matching funds for these projects will be budgeted as projects become more clearly defined.

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: Four SRL or RL properties located on Coral Strip Pkwy and Coquina Way within Polynesian Isles have been elevated. One property was acquired and demolished. Three additional properties have been submitted for elevation in the area for the FFY 2015 and have been selected by FEMA for further review. Hazard Mitigation Grant funded Stormwater drainage projects in the Greenbriar and Villa Venyce areas are believed to have aided these areas significantly during the April 30, 2014 flood event. An HMGP grant was approved for Settler's Colony (Villa Venyce) and Phase I (Engineering) is complete with construction expected in FY 2016. An HMGP grant was approved for Venetian Way and Coronado Drive (Villa Venyce) and Phase I (design and permitting) will be complete in 2016.

7. Provide for the flood proofing of the City of Milton's Glover Lane Lift Station by raising the tops of the existing structures, control panels and standby generator.

Action: City of Milton Engineering Staff will coordinate as needed to provide the required flood proofing of this critical facility. This activity shall be completed by September 2011.

Budget: Staff time (operating funds); funding of this project, estimated to cost \$80,000, will be from one or more of the following sources: grant fund, utility fund and general fund.

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: The City of Milton obtained HMGP grant funds to complete this project. The project has been completed

8. Implement capital project in the City of Gulf Breeze to control flooding that occurs on Nightingale Lane, near its intersection with Fairpoint Dr. The project will consist of underground drainage, stormwater treatment, and a stormwater gravity drain system.

Action: City of Gulf Breeze Engineering Staff will coordinate the design and construction of this project. The 2011-2016 version of the LMS targeted this activity for completion by September 2011.

Budget: Staff time (operating funds); funding of this project, will be from one or more of the following sources: grant fund, utility fund and general fund.

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: This project, part of a larger construction project, began in August 2014. The Washington and Camelia areas are complete; the Nightingale Drive area is in process with anticipated completion June 30, 2016. Funding included \$1.5 million from FDEP and \$1.2 million from the Gulf Breeze general fund.

9. Provide knowledgeable staff to assist citizens before, during and after an event to understand their repair/rebuilding/flooding/mitigation options.

Action: The Floodplain Manager shall coordinate with the Building Official to provide this assistance as needed.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.2

2015 Status: This activity is conducted throughout the year. Staff members attend continuing education training to maintain/improve their level of knowledge. Staff also attended the Florida Floodplain Managers Conference in March 2015.

10. Update Flood Insurance Rate Maps (FIRMs) to include elevations in all Special Flood Hazard Areas.

Action: The Floodplain Manager will coordinate with NFWFMD to implement this activity as funding becomes available.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.1

2015 Status: This activity is currently underway, preliminary maps are expected in April/May 2016 according to the Northwest Florida Water Management District.

11. Identify all critical facilities located within Special Flood Hazard Areas (SFHAs) and make contingency plans for those facilities under the responsibility of the county and continue to work with other agencies to assist with their contingency plans, in the event of flooding.

Action: The Emergency Management Planning Chief will be responsible to identify all critical facilities located within the SFHAs and to make the recommended contingency plans by August 2011. The 2011-2016 version of the LMS targeted presentation of a preliminary report to the Local Mitigation Strategy in its August 2010 meeting.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: This activity is conducted throughout the year.

12. The Emergency Management Director will implement the Post-disaster Mitigation Policy and Procedures outlined in Appendix R.

Action: The Emergency Management Director will coordinate with the other members of the specified teams to implement the Post-Disaster Mitigation Policy and Procedures.

Budget: Staff time (operations funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.2

2015 Status: This activity is conducted on a post-disaster recovery basis. The April 2014 flooding event produced significant pockets of damage resulting in a Presidential disaster declaration.

13. The Emergency Management Plans Chief shall ensure that immediately prior to, during and after a hurricane or flood event, pertinent information will be posted concerning major points of interest, such as bridge and road closures, evacuation orders, emergency shelter locations and electrical outages, utilizing the following media:
 - o County website
 - o Email advisements
 - o Television Government Access Channel

- Electronic message boards
- Reverse 911 telephone system
- e-breaking news
- Public Service Announcements through local media
- Brochure handouts at PODs

Action: The standard operating procedure written for the emergency information dissemination shall include the items listed above. The 2011-2016 version of the LMS targeted this activity for completion by May 2010.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.2

2015 Status: This activity is conducted on an as-needed basis and was utilized as appropriate during the last year.

14. The Emergency Management Director shall ensure optimal staffing of emergency management personnel to receive and respond to emergency events.

Action: No less than 24 hours prior to an anticipated hurricane or flooding event, a review of personnel assignments will be made to assure adequate staffing, in accordance with Incident Command System (ICS) standards. Following each event, an assessment will be made to determine whether or not there was adequate staffing and adjustments for future planning will be made accordingly.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.2

2015 Status: Staffing levels are routinely monitored and adjusted on an as-needed basis to ensure optimal staffing.

15. Continue to prioritize reduction of repetitive loss properties through various means of mitigation, updating repetitive loss forms and removing properties from Repetitive Loss List.

Action: The Floodplain Manager will be responsible for the reduction of properties from the Repetitive Loss List and shall report on annual progress made each year at the August meeting of the Local Mitigation Strategy Task Force. Thereafter, information can be incorporated into the LMS as appropriate.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: This activity is conducted throughout the year. AW-501's have or will be sent on properties mitigated.

16. Work with County Housing Program to provide education to home buyers regarding flood information.

Action: The Floodplain Manager will follow up annually on this responsibility by October 1 of each year.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.3

2015 Status: County Housing asks for and receives a flood determination on all properties for which assistance is provided.

17. Continue to require that installation of stormwater management facilities made necessary by new development is the responsibility of the developer.

Action: The Director of Planning and Zoning will be responsible for the continued implementation of this activity. This activity is ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.3

2015 Status: This is required by the Land Development Code as part of every site plan review.

18. Consider the relocation, mitigating or replacement of infrastructure currently present within the Coastal High Hazard Area where state funding is anticipated to be needed, as identified in the Local Mitigation Strategy Priority List.

Action: The 2011-2016 version of the LMS tasked the Floodplain Manager to coordinate with the Special Projects and Grants Coordinator to identify the state funding requirements and to make contingency plans by August 2010.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: This activity is conducted throughout the year and action taken when appropriate.

19. Integrate response to flooded homes with appropriate response organizations (Red Cross, Baptist Association, etc).

Action: The Emergency Management Plans Chief shall contact appropriate response organizations at least 24 hours prior to anticipated hurricane or flooding event. During or immediately following the event, contact with these organizations will be made again to ensure integration of response.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.2

2015 Status: This activity is conducted on a post disaster basis. During the April 2014 flood event, the response process was implemented and is currently being adjusted as appropriate due to lessons learned. Regular communication and training occurs between the county and response organizations to ensure optimal response efforts.

20. Continue active participation in the Severe Repetitive Loss Grant program.

Action: The Special Projects and Grants Coordinator will be responsible to for this activity. This responsibility is ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.1

2015 Status: Since 2008, Santa Rosa County has successfully obtained Flood Mitigation Assistance Program grants to elevate and or acquire 8 properties designated as an SRL Property. Another 3 SRL properties have been selected by FEMA for further review in the 2015 cycle. This activity is conducted on an annual basis.

21. Assist with establishment of Disaster Recovery Center (DRC).

Action: The Emergency Management Director shall coordinate with the County Administrator, with other County departments and with other appropriate agencies to assist in the establishment of a Disaster Recovery Center.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.2

2015 Status: As a result of the April 2014 flood event, two DRCs were established.

22. Ensure citizens know how to contact FEMA post flood.

Action: The Floodplain Manager shall ensure that the literature and announcements included in the County's public information outreach includes information concerning how citizens can contact FEMA post flood. This activity is ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.3

2015 Status: This activity is conducted on an as-needed basis. Information is contained on the county's website and in our disaster guides. All employees received an email with important information to give out to citizens which included FEMA assistance contact information and locations of DRCs.

23. Include notification of grants, loans and service availability in all County publications, seminars and websites that address flood mitigation.

Action: The 2011-2016 version of the LMS tasked the Special Projects and Grants Coordinator will coordinate with Floodplain Manager to implement this activity. Initial implementation was to be accomplished by March 2010 and subsequent implementation will be ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.5

2015 Status: Property owners of repetitively flooded properties are notified by the state and the county of the availability of grant funds. A press release is also generated when workshops are held notifying the public of the availability of grant funds. Social media was also used to spread the word about grant funding availability.

24. Maintain and enforce designation of Coastal Barrier Resources Act (CBRA) property.

Action: The Floodplain Manager will coordinate with the Planning and Zoning Director to implement this item. This responsibility will be ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.3

2015 Status: Ongoing – this is done by staff on a daily basis.

25. Maintain strong working relationship with all state and federal agencies including Northwest Florida Water Management District in an effort to ensure that our regulations pertaining to floodplain management are equal to or are greater than their regulations.

Action: The Director of Planning and Zoning will coordinate with the Floodplain Manager to implement this item. This activity is ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.1

2015 Status: Ongoing – this is done by staff on a daily basis. The Floodplain Manager is in contact with the NFWMD, State DEM, FEMA and other agencies.

26. Implement strict enforcement of best management practices for reducing erosion during development activity.

Action: The Code Compliance Director will be responsible to implement this activity. An accounting of enforcement of this activity will be included in each annual evaluation.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 3, Objective 3.3

2015 Status: Erosion Control plan is part of site plan and WMD permit that has enforcement capabilities. This activity is conducted throughout the year. The county's building inspection department has increased efforts to enforce the implementation of erosion control practices on the construction sites for single family homes and has hired a site inspector to further that effort.

27. Assist citizens with Letter of Map Amendment and Letter of Map Revision Paperwork (NEW).

Action: The floodplain Manager will be responsible for advising and assisting citizens/interested parties with filling out the FEMA paperwork correctly and obtaining the appropriate documentation to

apply for a Letter of Map Amendment or a Letter of Map Revision. The responsibility will be ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.5

2015 Status: Ongoing – this is done by staff on a daily basis. The FM has assisted numerous individuals with LOMA (Letter of Map Amendment) paperwork and 100% have been granted. Floodplain Manager reviews all LOMA and LOMR requests prior to being submitted to FEMA.

28. Encourage individual property owners to pursue percolation-oriented drainage improvements using best management practices through outreach and education. Drainage that seeps into the soil, rather than being directed out to the open water, provides multiple benefits. Not only does it mitigate flooding, but it also recharges the aquifer, enhances water quality, and reduces erosion.

Action: The Floodplain Manager will include recommendations pertaining to percolation-oriented drainage in some of the outreach and education. This activity will be ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.5

2015 Status: This activity is ongoing throughout the year. Additional outreach efforts are needed and are currently being planned.

29. Review County Code of Ordinances to strengthen maintenance requirements of private stormwater management facilities.

Action: The 2011-2016 version of the LMS tasked the Public Works Department to coordinate with the Building Official, Code Enforcement Division and others to make code revisions that would improve private stormwater management facilities attenuation by December 2010.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.1

2015 Status: Some challenges exist with implementation of this activity. County departments will continue to work toward coordination with appropriate agencies and property owners to review original site plan requirements and towards enforcement of such. As a result of the April 30, 2014 flood event, the

County's Code Enforcement division and Engineering Inspections personnel inspected approximately 20 commercial stormwater sites in an effort to ensure ongoing compliance with the permitted design standards.

30. Consider acquisition of natural areas for parks or open space.

Action: The Director of Planning and Zoning will coordinate with the Director of Parks to implement this item. An evaluation will be included in each year's annual Flood Mitigation Plan evaluation.

Budget: Staff time (operating funds); should acquisition be recommended, funding could be budgeted from General Fund and/or grant funds.

Flood mitigation goal achieved: Goal 3, Objective 3.1

2015 Status: Policy 9.1.C.6 of the Comprehensive Plan requires the County to consider the acquisition of open space and natural areas on a continuous basis. This activity is ongoing.

31. Require designation of open space property for all major development.

Action: The 2011-2016 version of the LMS tasked the Director of Planning and Zoning will be responsible to implement this activity by August 2011.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 3, Objective 3.2

2015 Status: Policy 9.1.A.1 of the Comprehensive Policy requires the designation of open space in the Mixed Residential/Commercial Future Land Use Category and Policy 9.1.C requires developments of regional impact, planned unit developments and other large residential developments to provide for parks and play fields. Since the 2007 economic slowdown, there has been very few, if any, major developments. As the economy improves, there should be more progress towards the satisfaction of this goal. Additionally, Future Land Use Elements within the Comprehensive Plan identify a maximum amount of impervious cover allowed.

32. The Emergency Management Director shall ensure adherence to the County's Comprehensive Emergency Management Plan, particularly in the event of evacuation orders.

Action: Before June 1 of each year, a meeting with key emergency management personnel will be held, at which time key components

of the County's Comprehensive Emergency Management Plan will be reviewed.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.4

2015 Status: This activity is conducted as appropriate.

33. The Public Works Director shall provide free sand and sandbags to residents prior to impending floods.

Action: Prior to June 1 of each year, public works will ensure that at least 10,000 empty sand bags will be available in stock. Sand will be delivered at appropriate locations prior to every anticipated major flooding event.

Budget: Staff time and operating materials and supply funding (operating funds)

Flood mitigation goal and objective achieved: Goal 1, Objective 1.1

2015 Status: This activity is conducted as appropriate and with the approval of appropriate administration. Since March of 2013, the Public Works Department provided approximately 24,000 sand bags, and adequate volumes of sand, to County residents, free of charge. The County has replenished its stock of sandbags; and is prepared for additional distributions as the need arises.

34. Continue County's periodic inspection program of county maintained stormwater control structures to ensure the proper functioning of such structures.

Action: The Director of Public Works will assure that this program is implemented and shall submit records each year to the Local Mitigation Strategy Task Force in August of each year.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.1

2015 Status: A County inspection and maintenance crew, that utilizes inmate labor, is assigned the task of addressing all issues discovered relative to the functioning of our stormwater facilities. This activity is conducted throughout the year, and includes: the cleaning of debris and trash from the ponds, mowing, fence repair, and the cleaning of pond bottoms to restore percolation. The

inmate squad is assisted by our District Crew when heavy machinery is involved.

35. Ensure that all public buildings that serve first response and critical emergency/public needs, including record/data collection and communication centers/infrastructure, are located outside of flood zones or flood-prone areas.

Action: The Emergency Management Planning Chief will be responsible for this activity by June 1, 2010 and will continue to implement it in subsequent years.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: According to the data collected for the Post Disaster Redevelopment Plan the following structures that serve first response and critical emergency/public needs are located in flood zones or flood-prone areas: Milton EMS Station is in 0.2% ACF zone, Avalon Beach-Mulat Fire Dept Station #2 is in a 0.2% ACF zone, Milton Well #1 is in a 0.2% ACF zone, Navarre Beach Fire Dept is in an AE flood zone, Navarre Beach wells #2 & 3 are in an AE flood zone, Milton WWTP is in an AE flood zone, Navarre Beach STP & utilities office are in an AE flood zone, Jackson Pre-K School is in an AE flood zone, Santa Rosa County Courthouse is in an AE flood zone, and approximately 70 lift stations are in various flood zones. The county works to relocate and/or mitigate first response and critical emergency/public needs infrastructure as appropriate based on funding limitations and geographic needs.

36. Continue practice of correcting localized drainage problems so that the best possible drainage standards are maintained.

Action: The Public Works Department will continue efforts to maintain, replace, and upgrade drainage features to minimize or eliminate localized drainage problems. The Director of Public Works shall submit records in August of each year to the Local Mitigation Strategy Task Force outlining the previous year's accomplishments.

Budget: Staff time (operating funds and road and bridge drainage funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.2

2015 Status: This activity is conducted throughout the year. County maintenance crews have focused drainage improvement activities on the areas that have demonstrated the need during prolonged periods of rain. Numerous projects to alleviate street and yard flooding have been conducted during the past 5 years.

37. Include separate updating of the *Flood Mitigation Plan* in the *Local Mitigation Strategy* 5-year updates.

Action: The Special Projects and Grants Coordinator will be responsible to ensure that the *Flood Mitigation Plan* is updated separately from the Local Mitigation Strategy every 5 years. This responsibility will be completed by November.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.4

2015 Status: Per the plan, separate updating of the Flood Mitigation Plan shall occur in conjunction with the Local Hazard Mitigation Strategy 5-year updates. The Flood Mitigation Plan is included as an appendix to the Local Hazard Mitigation Strategy. The 18 month process for updating the LMS plan began in December 2014. It is expected that the Flood Mitigation Plan Task Force will meet at least quarterly during the period from December 2014 – June 2016.

38. Incorporate into the County's review processes for infrastructure planning an assessment of the appropriateness of public capital improvements in coastal high hazard areas as identified in the Coastal Management Element of the Comprehensive Plan. (EAR Policy 10.1.B.2)

Action: As part of the plan review process for infrastructure improvement projects, Planning & Zoning, in coordination with the Engineering Department and Public Works Departments, will make assessments as to the appropriateness of expending public funds for projects located within the Coastal High Hazard Area and which will be highly susceptible to damage from natural disasters. Recommendations will be brought forth based on each assessment.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.1

2015 Status: This activity has occurred.

39. Evaluate the Flood Mitigation Plan, and particularly the Action Plan, annually.

Action: The Special Projects and Grants Coordinator will be responsible to prepare an evaluation of the Flood Mitigation Plan, including the Public Information Outreach Strategy, for every annual August meeting of the Local Mitigation Task Force. This responsibility will be ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.4

2015 Status: Annual Evaluation Report completed as required and made available to the public on the county's LMS page.

40. Consider expansion of the County's properties that are designated natural and beneficial areas.

Action: The 2011-2016 version of the LMS tasked the Floodplain Manager to coordinate with the Director of Planning and Zoning to implement this item with recommendations to be presented to the Local Mitigation Strategy in its August 2010 meeting.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 3, Objective 3.1

2015 Status: Policy 9.1.C.6 of the Comprehensive Plan requires the County to consider the acquisition of open space and natural areas on a continuous basis. This activity is ongoing.

41. Encourage designation, protection and maintenance of wetlands as identified in the Comprehensive Plan and Land Development Code.

Action: The Floodplain Manager will coordinate with the Planning and Zoning Director to implement this item. This responsibility will be ongoing.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 3, Objective 3.1

2015 Status: This is conducted as part of the site plan review process for every building permit.

42. Support efforts of the Institute of Food and Agricultural Services (IFAS/County Cooperative Extension Service) and the Natural Resources Conservation Services (NRCS) as it relates to reduction and mitigation of flood hazards to crops and silvicultural operations.

Action: Blackwater Soil and Water Conservation District Staff will coordinate with IFAS and NRCS to identify problem areas and work with private landowners/land users to pursue funding through the

appropriate federal cost share programs, including one or more of the following:

- 1) Environmental Quality Incentive Program (EQIP)
- 2) Emergency Conservation Program (ECP)
- 3) Emergency Watershed Protection Program (EWPP)
- 4) Emergency Watershed Protection Program – Flood Plain Management

This task shall be ongoing.

Blackwater Soil and Water Conservation District will coordinate with NRCS to update the Santa Rosa County Soil Survey. Problem areas will be identified for further investigation and/or possible remapping. Information from the Santa Rosa County Soil Survey update will be made available to the public by Blackwater SWCD on hard copy disk or by internet access at the NRCS Web Soil Survey.

Recommendations were to be presented to NRCS Soil Survey Team in June 2010. Soil Survey Update were to be approved by Blackwater SWCD upon completion.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 3, Objective 3.1

2015 Status: This activity is conducted throughout the year with the financial support of the County to these agencies.

43. Investigate the feasibility of including base flood finished floor elevations on Certificates of Occupancy.

Action: The 2011-2016 version of the LMS tasked the Floodplain Manager to coordinate with the Building Official to investigate this option by December 2010.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.3

2015 Status: Ongoing – this request has been submitted to the Computer Department. They will incorporate as staff time is available.

44. Continue County participation in, and compliance with the National Flood Insurance Program (NFIP) and the Community Rating System (CRS). Seek

CRS classification improvements within capabilities of County programs, including adoption and administration of FEMA-approved ordinances and flood insurance rate maps (FIRMs).

Action: Floodplain Manager will be responsible to assure that the County continues its participation in and compliance with the NFIP and the CRS Programs, including assuring its efforts to improve the CRS classification.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.4

2015 Status: Ongoing – this is done by staff on a daily basis. CRS 3 year cycle visit conducted in October 2015, waiting on results. Constantly working on improving CRS Class rating; adding new items such as the Plan for Public Information which replaced the Public Information Strategy in Appendix Q.

45. Develop Holley by the Sea Master Drainage Plan

Action: The County contracted with Baskerville Donovan Engineers in April 2014.

Budget: \$399,820

Flood mitigation goal and objective achieved: Goal 2, Objective 2.4.

2015 Status: This project is 98% complete.

46. The Emergency Management Director shall ensure adherence to the County's Flood Response Plan.

Action: Before June 1 of each year, a meeting with key County staff will be held, at which time key components of the County's Flood Response Plan will be reviewed.

Budget: Staff time (operating funds)

Flood mitigation goal and objective achieved: Goal 2, Objective 2.4

2015 Status: New action added November 2015.

Santa Rosa County

Flood Mitigation Plan

Section Ten

ADOPTION OF THE PLAN

The Santa Rosa County Commission adopted the updated *Flood Mitigation Plan* on _____, 2016, renewing its dedication to the safety and well-being of the citizens and businesses of Santa Rosa County. Exhibit 9 includes a copy of the resolution to adopt the Plan.

Santa Rosa County

Flood Mitigation Plan

Section Eleven

IMPLEMENTATION, EVALUATION AND REVISION

In an effort to ensure that there is a continuing and responsive planning process, the following procedure is included in the *Santa Rosa County Flood Mitigation Plan* (FMP):

The Flood Mitigation Plan Task Force responsible for the development of this plan shall meet annually in the month of August. Prior to the meeting, the Floodplain Manager and Grants and Special Projects Coordinator will be jointly responsible to prepare a draft Flood Mitigation Plan Evaluation Report that will be presented at the annual August meeting. The Task Force will review and discuss the report, after which it may be revised before the Task Force approves it. The report shall include:

- A review of the original plan
- A review of any floods that occurred during the previous calendar year
- A review of the action items in the original plan, including how much was accomplished during the previous year
- A discussion of why any action items were not completed or why implementation is behind schedule
- Recommendations for new projects or revised action items. Such recommendations shall be subject to approval by the County Commission as amendments to the adopted plan

Following adoption of the annual FMP Evaluation Report, it will be submitted to the Local Mitigation Strategy (LMS) Task Force for approval and submittal to the County Commission as part of the LMS annual update to the commissioners no later than the second meeting date in September, as well as released to the media and made available to the public. Should the Commission adopt any recommended plan revision(s), the plan will be updated accordingly.

The Floodplain Manager and Grants Coordinator will be jointly responsible in assuring that the Flood Mitigation Plan Task Force continues to be comprised of key staff members, community residents and stakeholder representatives.