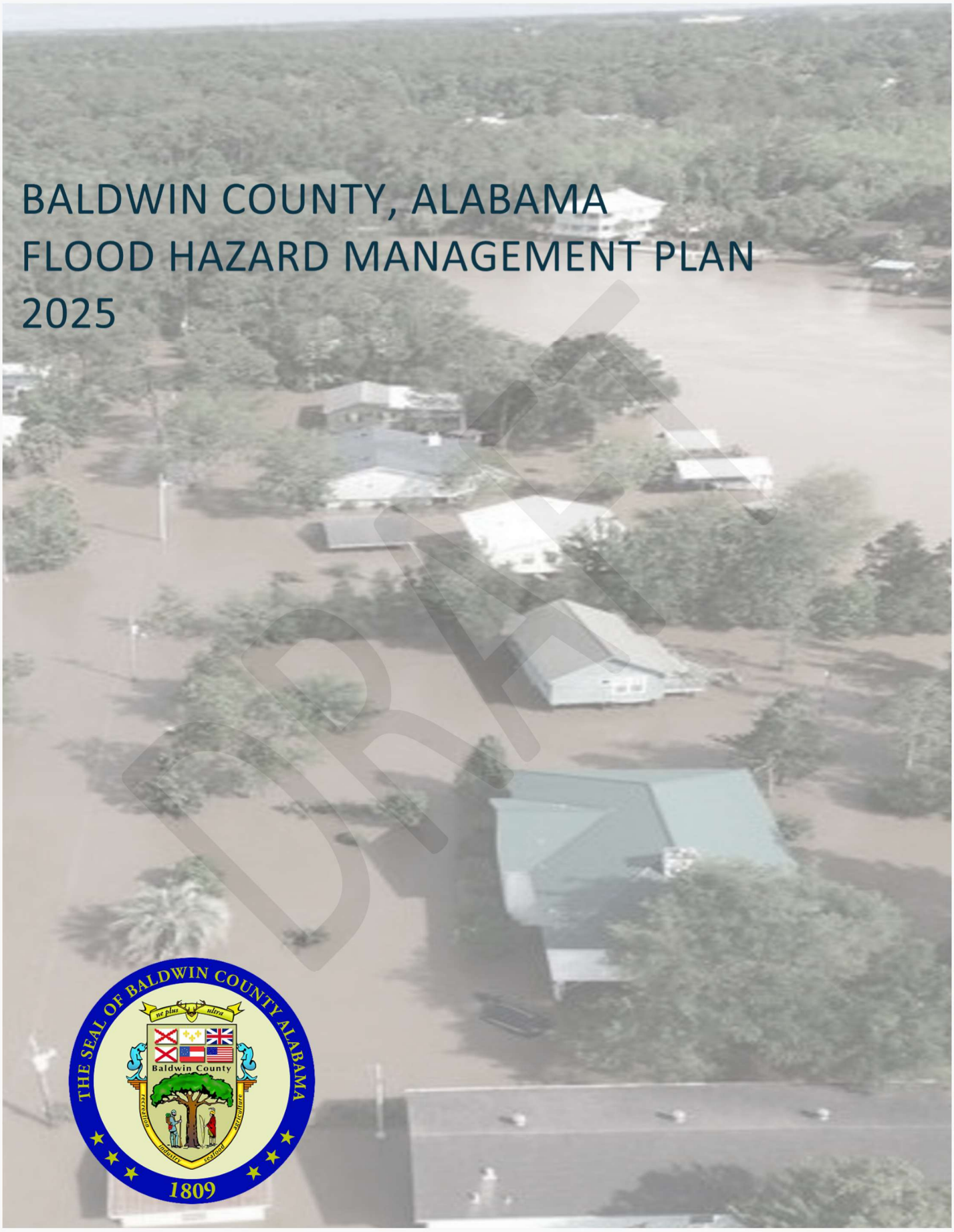
BALDWIN COUNTY, ALABAMA
FLOOD HAZARD MANAGEMENT PLAN
2025



BALDWIN COUNTY FLOOD HAZARD MANAGEMENT PLAN

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Baldwin County, Alabama, has developed this Flood Hazard Management Plan update to enhance the resilience of its unincorporated areas against flood hazards and other related risks. The purpose of this plan is to reduce or eliminate flood-related risks to both people and property, addressing the unique challenges faced by the county. Through a collaborative planning process involving local stakeholders, including county departments, citizens, and various agencies, this plan aims to identify, assess, and mitigate flood hazards effectively.

The plan was developed under the guidance of the Baldwin County Floodplain Management Planning Committee (FMPC), adhering to the Federal Emergency Management Agency (FEMA) guidelines. The committee performed a thorough risk assessment, identifying and profiling flood hazards that pose a significant threat to the county. These hazards include:

- Flood: 100-/500-year
- Flood: stormwater/localized flooding
- Hurricane and tropical storms (including storm surge)
- Coastal bank erosion
- Dam/levee failure
- Changing future conditions and sea level rise

This update provides a comprehensive framework for coordinated action, with strategies to address flood hazards in a cost-effective, efficient, and sustainable manner. The plan includes a detailed risk analysis, a description of identified flood hazards, and proposed activities to mitigate their impact. It also outlines the county's vulnerabilities and its current capabilities to address these challenges.

The Baldwin County Flood Hazard Management Plan has been formally adopted by the Baldwin County Commission and is set for periodic updates within a five-year cycle. It serves as a roadmap for mitigating flood risks and protecting the county's infrastructure, economy, and residents, ensuring a safer and more resilient future.

Table 1 provides the 10-step CRS planning credit activity checklist and the page number(s) within this plan that describes the completion of each planning step in more detail.

Table 1 - CRS Planning Credit Activity Checklist

CRS Step	Chapter
Step 1. Organize to Prepare the Plan	
a. Involvement of office responsible for community planning	Chapter 1
b. Planning committee of department staff	Chapter 1
c. Process formally created by the community's governing board	Chapter 1
Step 2. Involve The Public	
a. Planning process conducted through a planning committee	Chapter 1

b. Public meetings held at the beginning of the planning process	Chapter 1
c. Public meeting held on draft plan	Chapter 1
d. Other public information activities to encourage input	Chapter 1
Step 3. Coordinate With Other Agencies	
a. Review of existing studies and plans	Chapter 1
b. Coordinating with communities and other agencies	Chapter 1
Step 4. Assess The Hazard(S)	
a. Plan includes an assessment of the flood hazard with:	
(1) A map of known flood hazards	Chapter 3
(2) A description of known flood hazard	Chapter 3
(3) A discussion of past floods	Chapter 3
b. Plan includes assessment of less frequent floods	Chapter 3
c. Plan includes assessment of areas likely to flood	Chapter 3
d. The plan describes other natural hazards	Chapter 3
Step 5. Assess The Problem(S)	
a. Summary of each hazard identified in the hazard assessment and its community impact	Chapter 3
b. Description of the impact of the hazards on:	
(1) Life, safety, health, procedures for warning and evacuation	Chapter 3
(2) Public health including health hazards to floodwaters/mold	Chapter 3
(3) Critical facilities and infrastructure	Chapter 3
(4) The community's economy and tax base	Chapter 3
(5) Number and type of affected buildings	Chapter 3
c. Review of all damaged buildings/flood insurance claims	Chapter 3
d. Areas that provide natural floodplain functions	Chapter 3
e. Development/redevelopment/Population Trends	Chapter 3
f. Impact of future flooding conditions outline in Step 4, item c	Chapter 3
Step 6. Set Goals	
Step 6. Review possible activites	
a. Preventive activities	Chapter 4
b. Floodplain Management Regulatory/current & future conditions	Chapter 4
c. Property protection activities	Chapter 4
d. Natural resource protection activities	Chapter 4
e. Emergency services activities	Chapter 4
f. Structural projects	
g. Public information activities	Chapter 4
Step 8. Draft an action plan	

a. Actions must be prioritized	
(1) Recommendations for activities from 2 of the 6 categories	
(2) Recommendations for activities from 3 of the 6 categories	
(3) Recommendations for activities from 4 of the 6 categories	
(4) Recommendations for activities from 5 of the 6 categories	
b. Post-disaster mitigation policies and procedures	Chapter 4
c. Action items for mitigation of other hazards	Chapter 4
Step 9. Adopt The Plan	
	Appendix A
Step 10. Implement, Evaluate, Revise	
a. Procedures to monitor and recommend revisions	Chapter 5
b. Same planning committee or successor committee that qualifies under Section 511.a.2 (a) does the evaluation	Chapter 5

CHAPTER I INTRODUCTION AND PLANNING PROCESS

Purpose

This Plan was developed in a joint and cooperative venture by members of a Floodplain Mitigation Planning Committee (FMPC) which included representatives of County departments, federal and state agencies, citizens and other stakeholders. This Plan will ensure Baldwin County's continued eligibility for federal disaster assistance including the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), and the Flood Mitigation Assistance Program (FMA). This Plan has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S. C. 5165, enacted under Section 104 of the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390 of October 30, 2000, as implemented at CFR 201.6 and dated October 2007.

Baldwin County currently participants in the National Flood Insurance Program's (NFIP) Community Rating System (CRS) and, having more than 50 repetitive loss properties, are required to prepare and maintain a floodplain management plan (FPM). This flood hazard management plan addresses the flood hazard and was developed in accordance with the CRS FPM planning requirements as shown in

In addition to reduced flood insurance rates, citizens of unincorporated Baldwin County benefit from the CRS program through:

- Enhanced public safety, reduction in damage to property and public infrastructure, avoidance of economic disruption and losses, reduction in human suffering, and protection of the environment provided by the credited flood protection activities.
- Increased outreach activities focused on flood risk enabling citizens to evaluate their individual vulnerabilities, and take action to protect themselves, as well as their homes and businesses.
- Training and technical assistance for Baldwin County staff in designing and implementing credited flood protection activities.

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The CRS program recognizes and encourages community floodplain management activities that exceed the minimum requirements of the NFIP. Under the CRS program, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from community activities that (1) reduce flood losses, (2) facilitate accurate insurance ratings, and (3) promote the awareness of flood insurance.

Baldwin County entered the CRS program in 1995 and currently qualifies for a class 7 rating. With the class 7 rating, owners of property within the Special Flood Hazard Area (SFHA) of unincorporated Baldwin County receive a 15-percent discount on flood insurance premiums. In addition, homeowners in non-SFHA's receive a 5-percent discount of flood insurance premiums. **Table 2** presents the relationship of CRS class ratings and insurance premium discounts.

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Table 2 CRS Classes, Credit Points, and Premium Discounts

CRS Class	Credit Points	Flood Insurance Premium Discount	
		In SFHA[1]	Outside SFHA
1	4,500+	45%	10%
2	4,000-4,499	40%	10%
3	3,500-3,999	35%	10%
4	3,000-3,499	30%	10%
5	2,500-2,999	25%	10%
6	2,000-2,499	20%	10%
7	1,500-1,999	15%	5%
8	1,000-1,499	10%	5%
9	500-999	5%	5%
10	0-499	0%	0%

1 – SFHA, Special Flood Hazard Area; the floodplain delineated on the FIRM as A Zones and V Zones

Background And Scope

Each year in the United States, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and non-governmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated.

Hazard mitigation is defined by FEMA as “any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event.” The National Institute of Building Sciences issued Natural Hazard Mitigation Saves: 2019 Report. The Institute's project team looked at the results of 23 years of federally funded mitigation grants provided by the Federal Emergency Management Agency (FEMA), U.S. Economic Development Administration (EDA) and U.S. Department of Housing and Urban Development (HUD) and found mitigation funding can save the nation $6 in future disaster costs, for every $1 spent on hazard mitigation; and save $7 in future riverine disaster costs, for every $1 spent on hazard mitigation.

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are determined, prioritized, and implemented. This plan documents Baldwin County’s flood hazard mitigation planning process and identifies relevant hazards, vulnerabilities, and strategies the County and participating jurisdictions will use to decrease vulnerability and increase resiliency and sustainability in the planning area.

The *Baldwin County Flood Hazard Management Plan* is a single-jurisdictional plan that geographically covers the unincorporated areas of Baldwin County (Referred to as 'the planning area' from this point forward).

Information in this plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. The planning area has been affected by hazards in the past and the participating jurisdictions are therefore committed to reducing future impacts from hazard events and becoming eligible for mitigation-related federal funding.

Planning Process

Requirements §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

The 2025 Flood Hazard Management Plan for Baldwin County Unincorporated Areas contained a risk assessment of identified hazards for the County and a mitigation strategy to address the risk and vulnerability from these hazards. Since adoption of the plan by the Baldwin County Commission, much progress has been made by the County on implementation of the mitigation strategy. This chapter includes an overview of the approach to updating the plan, identifies new analyses and information included in this plan update, and highlights key mitigation successes.

2020 FHMP Mitigation Strategy Status and Successes

The 2018 mitigation strategy contained 25 separate mitigation actions. Of these 25 actions, 3 have been completed, 20 are ongoing, and 1 has not yet been started due to a variety of reasons such as changes in priorities, lack of funding, or changes to the projects themselves. The 20 ongoing projects are still considered viable and will be carried forward in this plan. More details on these projects can be found in **Table 3.**

Table 3 Status of the 2018 Mitigation Actions

Action	Complete	Ongoing	Not Yet Started	Progress
Provide annual notification of flood hazard determination service to lending institutions, insurance companies, real estate companies and title insurance companies.		X		Flood Insurance for Financial Protection brochure is emailed annually lending institutions, insurance companies, real estate companies and title insurance companies.
Distribute outreach materials to floodplain residents at county offices and special events.		X		Baldwin County continues to publish annually Flood Hazard Protection Newsletter and Stay Alert Baldwin County that is available online, at local county offices, and at special events
Develop Program for Public Information (PPI) to Increase citizen awareness and preparedness by providing information describing all types of flood hazards, flood insurance, methods for preventing flood damage, and how to protect their property. Coordinate and consolidate outreach measures identified in the local hazard mitigation plan.			X	The PPI has not yet been initiated, but it is scheduled for completion within the next year.
In coordination with the Local Emergency Planning Committee (LEPC), prepare and adopt a local disaster recovery plan to aid in the recovery of flood hazard events.		X		The LEPC Steering Committee meets monthly. The County is currently in the process of reinstating the disaster recovery plan to include as an annex to the Emergency Operations Plan.
Strengthen flood warning activities by developing programs including a flood threat recognition system, flood prediction models and a system to disseminate flood warnings to the public.		X		Baldwin County's Alert Baldwin Emergency Notification System provides critical information to citizens concerning various hazards and threats including flood warnings.
Strictly administer existing flood hazard regulations (Flood Damage Prevention Ordinance) and review said regulations to determine their adequacy and whether revisions are needed.		X		Baldwin County continues to administer the local flood damage prevention ordinance, as available here: https://baldwincountyal.gov/docs/default-source/building-inspection/building-codes/baldwin-county-floodplain-development-ordinance.pdf?sfvrsn=e23ab884_10
Continue to comply with the NPDES permitting requirements and insist on compliance by the development community		X		Applicants are required to obtain an NPDES permit, when required, and our environmental and permit engineering sections ensure compliance with requirements.
Assure compliance with the existing stormwater and erosion control measures contained in the zoning and subdivision regulations.		X		Zoning and Subdivision regulations are periodically reviewed and updated.
Continue participation in the CRS program to reduce flood hazards.		X		Baldwin County has voluntarily participated in the Community Rating System Program since 1994 and as a result has reduced flood insurance polices
Continue to assist unincorporated areas to implement planning and zoning in accordance with the provisions of Act No. 91-719, as amended.		X		Subdivision regulations and most flood hazard mitigations requirements are required in unincorporated areas as well.
Assure compliance with the wetland's protection provisions contained in the zoning and subdivision regulations and utilize the ADID study findings in the land development review process.		X		P&Z reviews residential and commercial developments for compliance with Baldwin County Wetland Protections.
Continue to review and comment upon ADEM and COE permit applications for dredge and fill.		X		P&Z reviews public notices and works with the USACE and ADEM regarding permit compliance
Continue to coordinate flood hazard activities with state and federal environmental agencies including Health Department, ADCNR, ADEM, EPA, NRCS, FEMA, USFWS and COE.		X		All agencies were contacted in the planning process for this Flood Hazard Management Plan update as stakeholders. Baldwin County will continue to coordinate with state and federal agencies for flood hazard activities.
Continue to coordinate flood hazard activities with municipal governments involved in flood hazard management.		X		Neighboring communities were contacted in the planning process for this Flood Hazard Management Plan update as stakeholders. Baldwin County will continue to coordinate with local agencies for flood hazard activities.

Action	Complete	Ongoing	Not Yet Started	Progress
Utilize the County's geographic information system (GIS) to identify and protect flood hazard areas.	X			Baldwin County's Revenue and Map Viewer (public) and the Baldwin County Permitting App are both supported by the County's Geospatial section within the Highway Department.
Maintain an inventory of county-maintained roads and bridges which become partially or wholly submerged during rainfall events.		X		The Baldwin County Highway Department has developed an accounting system as well as a GIS layer that identifies the roadways that have been damaged during flooding events.
Coordinate with the Baldwin County Local Hazard Mitigation Planning Committee.		X		The Hazard Mitigation Planning Committee meet quarterly to discuss and update mitigation plans, discuss grant opportunities, and learn about various mitigation activities in the county and best practices to strengthen the Hazard Mitigation Plan.
Continue participation in the FEMA hazard mitigation program to purchase properties which repeatedly flood.	X			This mitigation action has been completed. Baldwin County will pursue funding in the future if applicable.
Research and evaluate the impact of a buyout only hazard mitigation program within the floodway and pursue appropriate action.	X			This mitigation action has been completed. Baldwin County will pursue funding in the future if applicable.
Review location of repetitive loss properties, define repetitive loss areas (RL and neighboring properties), and develop repetitive loss area analyses to provide more specific guidance on how to reduce damage from repetitive flooding.		X		RL analyses have been completed, letters are mailed to all repetitive loss properties with information on how to reduce future damages.
Train local Baldwin staff with specific EMI retrofitting and floodproofing courses to provide technical assistance to homeowners, builders, and developers on flood protection alternatives. Advertise service on Baldwin County Website.			X	This is an expensive and lengthy collaborative effort.
Research the feasibility of establishing and funding a stream maintenance and restoration program and pursue appropriate action		X		The stream restoration program is housed within the environmental department. More resources and staff are being added to the department to be able to focus on projects like this in the near future.
Identify significant open space and wetland resources and pursue public and private grants for purchase as appropriate.		X		In addition to several previously acquired parcels, the County is currently engaged in acquiring several dirt pits adjacent to the Magnolia River and converting them into a constructed wetland to help improve water quality and minimize flooding.
Through continued coordination with US Fish and Wildlife and the Alabama Dept of Conservation & Natural Resources, Baldwin County will continue to examine the appropriate use of sediment-trapping vegetation, sediment mounds, etc., in addressing the impacts of coastal erosion.		X		Through continued coordination with state and federal agencies, Baldwin County will continue to pursue grants to assist in coastal erosion management measures.
Continue program to pave County dirt roads giving priority to dirt roads with known erosion problems.		X		The Baldwin County Highway Department prioritizes dirt road paving projects that are included in *The 25 Most Environmentally Damaging Dirt Roads of Baldwin County, Alabama* that was published by the Baldwin County Environmental Advisory Board.

What's New in the Plan

This update to the Flood Hazard Management Plan (FHMP) builds on the 2018 plan by assessing the County's progress in implementing mitigation strategies. Only relevant and up-to-date data were carried forward.

Key Updates in Chapter 5: Implementation & Maintenance

- The plan now outlines critical requirements for future updates, including:
- Evaluating how mitigation actions have reduced vulnerability.
- Documenting successes and areas where mitigation efforts were ineffective.
- Identifying newly emerging or previously overlooked hazards.
- Incorporating new hazard data, studies, and changing risks.
- Accounting for changes in development, infrastructure, and capabilities.
- Updating action recommendations and priorities based on new information.

Major Enhancements in This Update

- Expanded Flood Risk Analysis using updated Flood Insurance Rate Maps (FIRM) and the latest County Tax Assessor data.
- Enhanced Hurricane Discussion, including storm surge impacts on the County.
- New "Changing Future Conditions" Hazard focused on sea level rise (SLR), supported by an in-depth literature review and County-specific impact analysis.
- GIS-Based Hazard Assessment, integrating mapped hazard data with County parcel information for better risk analysis.
- Population Risk Analysis using GIS and 2020 Census data.
- Asset Risk Assessment, identifying at-risk properties and their values based on the County Tax Assessor's Database.
- Improved Growth & Development Analysis with insights from 2020 Census data.
- Future Development Impact Evaluation, including maps and tables analyzing potential hazard risks by property type.
- Critical Facility Risk Assessment, mapping facilities exposed to priority hazards.
- Strengthened Public Outreach & Agency Coordination to meet more rigorous Community Rating System (CRS) requirements.

Plan Update Process

Phase 1 - Planning Process (Step 1, 2, 3)

Baldwin County recognized the importance of the flood hazard management plan update and established a FHMP Committee to help facilitate this update.

- Support objectives under the National Flood Insurance Program's Community Rating System and the Flood Mitigation Assistance program,
- Facilitate the entire planning process;
- Identify the data requirements that FMPC participants could provide and conduct the research and documentation necessary to augment that data;
- Assist in facilitating the public input process; and
- Produce the draft and final plan documents.

The *Baldwin County Flood Hazard Management Plan Update* used the CRS planning requirements and FEMA's associated guidance. The guidance is structured around a four-phase process:

1. Planning process,
2. Risk assessment,
3. Mitigation strategy, and
4. Plan maintenance.

Into this process, the more detailed 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs was integrated. Thus, the modified 10-step process used for this plan meets the requirements of five major programs: FEMA's Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, Community Rating System, Flood Mitigation Assistance Program, and new flood control projects authorized by the U.S. Army Corps of Engineers.

Table 4 Mitigation Planning Processes Used to Update the Baldwin County Flood Hazard Management Plan.

Community Rating System (CRS) Planning Steps (Activity 510)	FEMA Local Mitigation Planning Policy Guide Tasks (44 CFR Part 201)
Phase 1 – Planning Process	
Step 1. Organize to Prepare the Plan	Task 1: Determine the Planning Area and Resources
	Task 2: Build the Planning Team 44 CFR 201.6(c)(1)
Step 2. Involve the public	Task 3: Create an Outreach Strategy 44 CFR 201.6(b)(1)
Step 3. Coordinates	Task 4: Review Community Capabilities 44 CFR 201.6(b)(2) & (3)
Phase 2 – Risk Assessment	
Step 4. Assess the hazard(s)	Task 5: Conduct a Risk Assessment 44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
Step 5. Assess the problem(s)	
Phase 3 – Mitigation Strategy	
Step 6. Set goals	Task 6: Develop a Mitigation Strategy 44 CFR 201.6(c)(3)(i); 44 CFR 201.6(c)(3)(ii); and 44 CFR 201.6(c)(3)(iii)
Step 7. Review possible activities	
Step 8. Draft an action plan	
Phase 4 – Plan Maintenance	
Step 9. Adopt the plan	Task 8: Review and Adopt the Plan
Step 10. Implement, evaluate, revise	Task 7: Keep the Plan Current
	Task 9: Create a Safe and Resilient Community 44 CFR 201.6(c)(4)

Source: Local Mitigation Planning Policy Guide, May 2023; NFIP CRS Coordinator's Manual, FEMA, 2017

STEP 1: ORGANIZE TO PREPARE THE PLAN

Committed to the CRS planning process, Baldwin County engaged department and community representatives to establish the plan's framework. An initial meeting addressed organizational aspects, and invitations were extended to County officials, citizens, and key stakeholders to join the Floodplain Management Planning Committee (FMPC). The following departments and organizations were represented.

Baldwin County Commission Departments:

- Building Inspection
- Planning & Zoning
- Emergency Management Agency
- Highway Department

Local Stakeholder Representatives:

- Local Citizens
- Mobile Bay National Estuary Program

The DMA planning regulations and guidance stress that each local government seeking FEMA approval of their mitigation plan must participate in the planning effort in the following ways:

- Participate in the process as part of the FMPC;
- Detail areas within the planning area where the risk differs from that facing the entire area;
- Identify potential mitigation actions; and
- Formally adopt the plan.

For Baldwin County and the FMPC, participation meant the following:

- Attending and participating in the FMPC meetings;
- Providing requested data (as available);
- Reviewing and providing comments on plan drafts;
- Advertising, coordinating, and participating in the public input process; and
- Coordinating the formal adoption of the plan by the governing boards.

The planning process began with a kick-off meeting on September 4, 2024, at the Emergency Operations Center in Robertsdale, outlining the scope of work and CRS planning requirements. The FMPC maintained communication through meetings, phone interviews, and email. **Table 5** outlines the meeting schedule and topics, while **Table 6** details FMPC participation. Sign-in sheets and agendas are included in Appendix B.

Table 5 Schedule of FMPC Meetings

Meeting	Topic	Date
Coordination	Baldwin County staff to prepare for the project kick-off and identify FMPC members.	September 4, 2024
FMPC #1	Review of the hazard mitigation planning process and hazard identification	October 8, 2024
FMPC #2	Coordination Meeting with Baldwin County to prepare for risk assessment meeting.	November 4th, 2024
FMPC #3	Review of previous risk assessments; discussion of risk assessment and data needs for plan update; and review of plan goals and objectives	December 2, 2024
FMPC #4	Update mitigation actions and prioritization	January 6, 2025
FMPC # 5	Discussion of process to monitor, evaluate, and review final draft	January 27, 2025

Table 6 FMPC Meeting Attendance

Member Name	Aug 7 2024	Sep 4 2024	Oct 8 2024	Nov 4 2024	Dec 2 2024	Jan 6 2025	Jan 27 2025
Flowers, Corey	X	X	X	X	X	X	X
Vernon Dandridge	X	X	X	X	X	X	
Newman, Josh			X	X	X	X	X
Acreman, Mark			X	X	X	X	
Summerville, Peggy			X	X	X	X	X
Miller, Christian					X		X
Joffe, Donald					X	X	X
Williams, Nick					X	X	X

Table 7 outlines the areas of expertise for each department representative on the FMPC, categorized across the six mitigation areas: Prevention, Property Protection, Natural Resource Protection, Emergency Services, Structural Flood Control Projects, and Public Information. The Planning & Zoning Department, which is responsible for community land use and comprehensive planning, played an active role in the FMPC, contributing valuable data and information to support the development of the plan.

Table 7 FMPC Capability & Mitigation Categories

Mitigation Categories						
Baldwin County, Alabama Departments	Prevention	Property Protection	Natural Resource Protection Protect	Emergency Services Cy Services	Structural Flood Control Projects	Public Info Public Information
Building Department	X	X	X			X
Planning & Zoning Department	X	X	X	X	X	X
Emergency Management Agency	X	X	X	X		X
Highway	X	X	X	X	X	X

STEP 2: INVOLVE PUBLIC

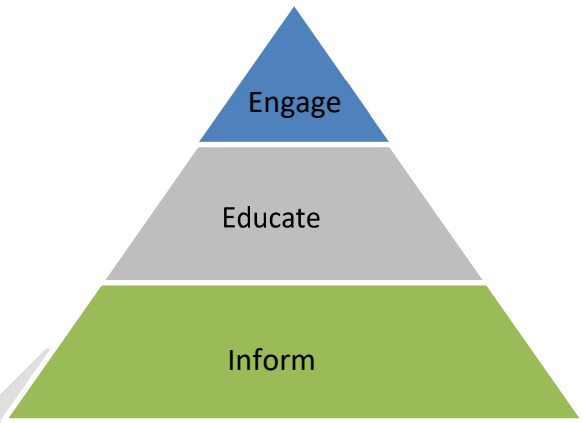
At the kick-off meeting, the FMPC discussed options for public involvement. A public outreach strategy was prepared to capture the input of the FMPC and identify tools and activities to engage, educate, and inform the citizens of Baldwin County of flood hazard mitigation planning efforts for each of the major phases of the mitigation planning process.

This outreach includes:

- **Engage** the public and other stakeholders through interactive dialogue including such forums as planning committee meetings, public meetings, workshops and open house events;

- **Educate** the public and other stakeholders through a listen and learn process such as information booths, presentations, and briefings to elected officials; and

- **Inform** the public and other stakeholders through one-way communication such as written outreach materials, websites, and news media.



Engage

Three public meetings were held at key points in the project timeline to gather public input on flood hazards, issues, and potential solutions. These meetings took place during the draft-plan development phase and prior to finalizing the plan. Where appropriate, stakeholder and public comments were incorporated into the final plan, particularly in the sections addressing mitigation goals and strategies.

Meetings:

1. Public Input on Flood Hazard and Mitigation Actions
    - Date & Time: 1:00 PM, Monday, December 2, 2024
    - Location: Baldwin County Foley Satellite Courthouse – Large Meeting Room 201 E. Section Ave., Foley, AL 36535
    - Purpose: An update on the flood hazard management planning process to gather input from the public and stakeholders on potential mitigation actions.
2. Review of Hazard Mitigation Strategies
    - Date & Time: 1:00 PM, Monday, January 6, 2025
    - Location: Baldwin County Foley Satellite Courthouse – Large Meeting Room 201 E. Section Ave., Foley, AL 36535
    - Purpose: An update on the hazard mitigation planning process, allowing stakeholders and the public to review and provide input on proposed strategies.
3. Review of Final Draft Plan
    - Date & Time: 1:00 PM, Monday, January 27, 2025
    - Location: Baldwin County Foley Satellite Courthouse – Large Meeting Room 201 E. Section Ave., Foley, AL 36535
    - Purpose: An update on the hazard mitigation planning process, providing stakeholders and the public an opportunity to review the final draft and ensure the plan reflects community needs and priorities.

Public Presentation:

A public presentation was held prior to the final draft meeting. This presentation took place during the regular meeting of the Baldwin County Planning and Zoning Commission on Thursday, January 9, 2025, at 4:00 p.m. The sign-in sheet for this meeting, along with the slide presentation, can be found in the appendix.

Public Hearing:

A public hearing will be held during the regularly scheduled Baldwin County Commission meeting on Tuesday, February 18, 2025. This hearing will provide an opportunity for the public to review and provide feedback on the plan.

Educate

▶ Presentations/Information Distribution for Stakeholder Groups

Staff from Baldwin County coordinated additional flood hazard mitigation presentations and/or information distribution to various stakeholder groups to explain the planning process and encourage input to the FMPC.

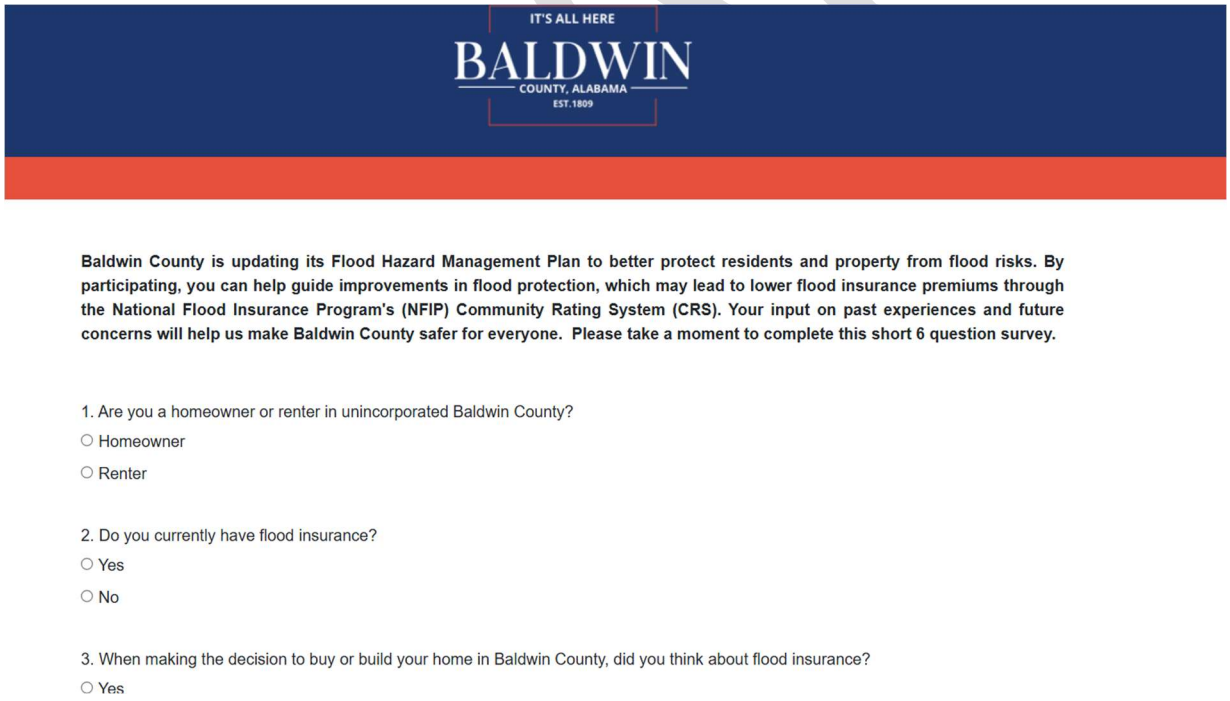
▶ Briefings to Elected Officials

Baldwin County staff presented annual progress reports to Elected Officials, including updates on the Flood Hazard Mitigation Planning process. A draft of the updated plan will be provided to the County Commissioners prior to February 18, 2025, County Commission meeting to allow for review of the plan.

▶ Questionnaire

The FHMP Committee developed a public participation questionnaire, accessible through the county website (see **Figure 1**). The purpose of the questionnaire was to gather input from the public and stakeholders in the planning area on hazards of concern, areas of mitigation interest, and preparedness efforts. The online survey provided an opportunity for those unable to attend in-person meetings to still participate in the planning process. The questionnaire was promoted through web links on community websites, public flyers, and social media platforms.

Figure 1 Public Questionnaire



Inform

▶ Website and Social Media

http://baldwincountyal.gov/departments/building-inspection

Baldwin County developed and hosted project web pages across several areas of the Baldwin County Commission website throughout the planning process, with the primary goal of sharing relevant details about the Baldwin County Flood Hazard Management Plan Update. The web pages included a variety of resources, such as: meeting schedule, agendas, presentations, and minutes

- Project information flyers for introduction, risk assessment, and notification of draft document
- Link to online questionnaire
- Draft Flood Hazard Management Plan Update for review/comment
- Reference documents and links to planning resources

Additionally, the community social media pages were utilized to inform the community about the planning process, the questionnaire, and upcoming meetings. The social media sites include:

- X (formerly known as Twitter): Baldwin County EMA @BaldwinEMA
- X (formerly known as Twitter): Baldwin County Commission @BCCommission
- Facebook: Baldwin County Emergency Management Agency
- Facebook: Baldwin County, Alabama Commission
- Instagram: Baldwin County Commission @Baldwin County Commission

▶ Project Information Flyers

Project information flyers were developed and distributed throughout the planning process to provide information on hazard mitigation planning and opportunities for public involvement. This resource was available on the project information website as well as distributed to local libraries and at public meetings identified in the 'educate' process. Specific information to be provided in the flyers includes:

- What is a Hazard Mitigation Plan?
- Why is it important to me?
- What can I do to participate?
- Planning Status
- Mitigation Success Stories

▶ Social Media

Baldwin County's social media outlets on X and Facebook were utilized to publish information regarding public meetings, the online questionnaire, and general hazard mitigation planning information.

Documentation of all public outreach activities is included in Appendix B.

STEP 3: COORDINATE

Early in the planning process, the FMPC determined that data collection, mitigation strategy development, and plan approval would be greatly enhanced by inviting state and federal agencies and organizations to participate in the process. A detailed list of agency coordination is provided above under Planning Step 1: Organize to Prepare the Plan.

In addition, the FMPC reached out to agencies and organizations outside of Baldwin County. The following agencies and organizations were contacted requesting data or information related to flood hazards in the planning area and offered the opportunity to participate in the planning process and on the FMPC:

- ACE Hardware Support
- ADCNR - State Lands
- ADEM - Field Ops Division
- AL EMA
- AL Historical Commission
- AL Soil & Water Conservation
- ALDOT - SW Region - BC
- Alabama Forestry
- Ascend Performance
- Baldwin County Board of Ed, Public Schools
- Baldwin County Sewer
- Bon Secour Fisheries
- Central Baldwin Chamber of Commerce
- Clarke County EMA
- Collins Aerospace Systems
- Eastern Shore Chamber of Commerce
- Escambia County EMA
- Escambia County EMA - BC
- International Paper
- Mobile County EMA
- National Weather Service
- NFIP Coordinator
- North Baldwin Chamber of Commerce
- Novelis, Inc.
- NRCS - Auburn University
- Quality Filters
- Quincy Compressor
- SARPC
- Segers Aerospace
- South Baldwin Chamber of Commerce
- Town of Elberta
- Town of Magnolia Springs

- Town of Perdido Beach
- US Corp of Engineers
- US Fish and Wildlife Services
- USA-Safety & Compliance

The agencies and organizations were contacted a second time, by formal letter, requesting review and comment on the Draft Flood Hazard Management Plan Update. The letter templates can be found in Appendix B, and the list of points-of-contact for each organization can be provided upon request.

Other Community Planning Efforts and Hazard Mitigation Activities

Coordination with other community planning efforts is also paramount to the success of this plan. Hazard mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's risk and vulnerability to hazards. Baldwin County used a variety of comprehensive planning mechanisms, such as general plans and ordinances, to guide growth and development. Integrating existing planning efforts and mitigation policies and action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from the following existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions.

Table 8 Incorporation of Data From Existing Plans

Plan	Incorporation into 2025 Flood Hazard Management Plan
Alabama State Hazard Mitigation Plan (2023)	Chapter 3 - Flood Risk Assessment Hazard Identification and Profiles
Baldwin County Flood Hazard Management Plan (2018)	Chapter 4 Mitigation Strategy Review of Goals and Mitigation Actions
Baldwin County Local Hazard Mitigation Plan (2021)	• Chapter 3 - Flood Risk Assessment Hazard Identification and Profiles • Chapter 4 Mitigation Strategy Review of Goals and Mitigation Actions
National Flood Insurance Program Policy and Loss Statistics	Chapter 3 - Risk Assessment Vulnerability Assessment
Flood Insurance Administration, Repetitive/Severe Repetitive Loss Property Data	Chapter 3 - Risk Assessment Vulnerability Assessment
Flood Insurance Rate Maps and Flood Risk Map for Baldwin County	• Chapter 3 - Risk Assessment Hazard Profiles • Chapter 3 - Risk Assessment Vulnerability Assessment
National Inventory of Dams	Chapter 3 - Risk Assessment Hazard Identification and Profiles
US Department of Agriculture's (USDA) Risk Management Agency Crop Insurance Statistics	Chapter 3 - Risk Assessment Hazard Identification and Profiles

Plan	Incorporation into 2025 Flood Hazard Management Plan
Various local plans such as Comprehensive Plans, Economic Development Plans, Capital Improvement Plans, etc.	• Chapter 2 – Planning Area Profile and Mitigation Capabilities • Chapter 3 Flood Risk Assessment Hazard Identification and Profiles • Chapter 4 Mitigation Strategy Review of Goals and Mitigation Actions

These documents were reviewed and considered during the data collection for Planning Steps 4 and 5, which involve hazard identification, vulnerability assessment, and capability assessment. The relevant data was incorporated into the risk assessment and hazard vulnerability sections and was also used to assess the community's ability to implement mitigation strategies. A detailed description of the Capability Assessment can be found in Chapter 2.

Phase 2 Risk Assessment (Step 4 & 5)

Step 4 & Step 5: Assess The Hazard(S) And Assess The Problem(S)

The FHMP Committee identified and documented hazards affecting the planning area and used GIS to analyze and map vulnerabilities. A capability assessment reviewed existing programs, policies, and plans to evaluate the area's capacity to mitigate risks. Details of the risk assessment process and results are in Chapter 3: Risk Assessment.

Phase 3 Mitigation Strategy (Step 6, 7 & 8)

Steps 6 And 7: Set Goals And Review Possible Activities

The FHMP Committee led sessions with the FMPC to outline the purpose, process, and criteria for developing goals, objectives, mitigation alternatives, and recommended actions. Details are in Chapter 4: Mitigation Strategy, with additional documentation in Appendix C: Mitigation Alternatives and Prioritization.

Step 8: Draft Action Plan

The draft Flood Hazard Management Plan (FHMP) for Baldwin County has been distributed to the Floodplain Management Planning Committee (FMPC) and relevant agencies for review and feedback. To ensure transparency and community involvement, the draft is available for a two-week public review period, during which residents can provide comments. Feedback will be evaluated and incorporated as appropriate, with a summary included in the final plan.

After the public review, the draft will be submitted to FEMA Region IV for approval, contingent on final adoption by participating jurisdictions. The final plan will include all deliverables, such as risk assessments and mitigation strategies, ensuring compliance with FEMA and CRS standards while supporting Baldwin County's flood hazard management goals.

Table 9 Planning Deliverables

Deliverable	Date
Kickoff Preparation	September 4, 2024
Introduction for FMPC	September 4, 2024
FMPC #1- Agenda	October 8, 2024
Public Outreach Strategy	October 11, 2024
FMPC #2- Agenda	November 4th, 2024
Public Information Flyer #1	November 6th, 2024
FMPC #3- Agenda	December 2, 2024
Public Information Flyer #2	December 10, 2024
FMPC #4- Agenda	January 6, 2025
Presentation To Planning Commission	January 9, 2025
FHMP #5 Draft For Public Review	January 27, 2025

Phase 4 Plan Maintenance (Steps 9 & 10)

Step 9: Adopt The Plan

In order to secure buy-in and officially implement the plan, the plan was adopted by each participating jurisdiction on the date included in the adoption resolution in Appendix A: Adoption Resolution.

Step 10: Implement, Evaluate, And Revise The Plan

The effectiveness of a mitigation plan is measured by its successful implementation. So far, the FMPC has focused on data analysis, gathering input from stakeholders, and developing targeted mitigation actions. Chapter 5: Plan Implementation and Maintenance outlines the implementation strategy, along with a schedule for updates, maintenance, and ongoing public engagement.

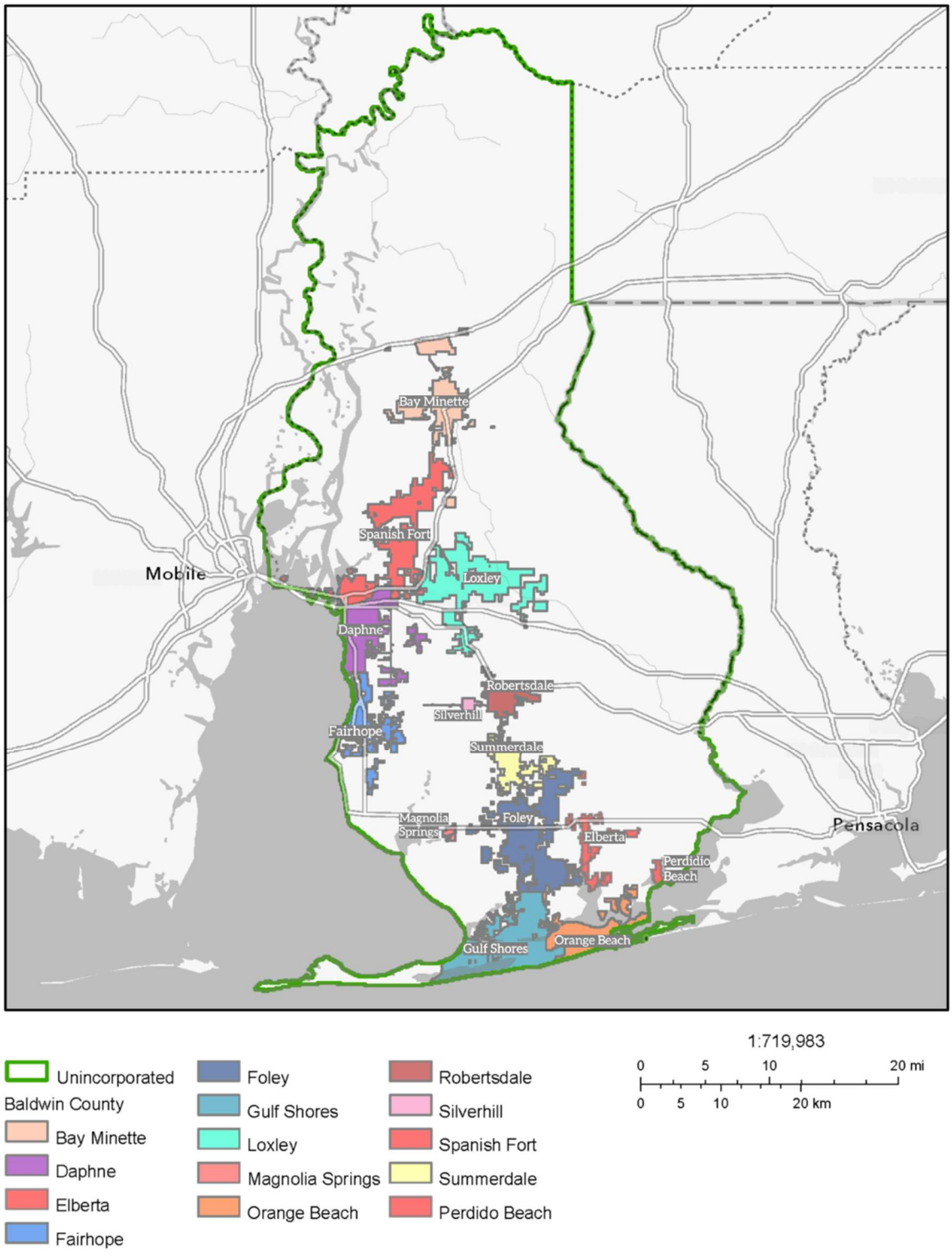
Collaboration with various organizations in the planning area, whose goals align with hazard mitigation, is vital. As highlighted in Planning Step 3, this coordination is crucial to the plan's success in Baldwin County and is further detailed in Chapter 5.

Chapter 3 provides a general profile of Baldwin County, as well as details on existing capabilities, plans, and programs that enhance their ability to implement flood mitigation strategies.

CHAPTER II PLANNING AREA PROFILE AND CAPABILITIES

Planning Area Profile

Figure 2 Baldwin County Planning Area



History

Baldwin County was first organized as a county in 1809 and found itself situated within the confines of the Mississippi Treaty until December 10, 1817, when the state of Mississippi entered the United States as the 20th state in the federal union. Thereafter, Baldwin County was absorbed into the Alabama territory until December 14, 1819, when the state of Alabama entered the United States as the 22nd state in the federal union.

Early on, the Town of McIntosh Bluff (now in Mobile County, Alabama, west of Baldwin County) on the Tombigbee River was the county seat. After being transferred to the Town of Blakeley in 1810, the county seat was later moved to the City of Daphne in 1868. In 1900, by an act of the legislature of Alabama, the county seat was authorized for relocation to the City of Bay Minette. The County is governed by a four-member County Commission with all four members elected by a vote of the entire county, one of which, its chairman, serves as the presiding officer. Further, the County Commission employs a county administrator who serves as its chief administrative officer in order to affect the policies adopted by the county commission.

Today, Baldwin County remains one of the fastest growing counties in Alabama in 1990, 98,290 citizens resided in Baldwin County; by 2000, the population had grown to 140,415; and the 2010 census counted 182,265 citizens. As of the 2020 Census, Baldwin County's population reached 231,767. Baldwin County's rich history and diverse cultures have created a place welcome to all, for its strength is not only found among the plethora of abundant natural resources, healthy economy or beautiful beaches, but also with the people who have carved out a place to live, prosper & continuously grow.

This brief historical compilation was provided by Baldwin County and can be found onthe community website: https://baldwincountyal.gov/community/about-baldwin-county/history-of-baldwin-county/historic-overview-introduction-to-baldwin-county

Geography And Topography

Baldwin County is located in the southwest corner of the State of Alabama. It is bordered by Mobile, Clarke, and Washington counties on the west; Clarke and Monroe counties on the north; Escambia County, Florida and Escambia County, Alabama on the east; and the Gulf of Mexico on the south. Baldwin County, the largest county in Alabama, comprises about 1600 square miles. Much of its land area is bordered by large, open bodies of water, including the 43 miles of Gulf of Mexico shoreline; 57 miles of Mobile and Bon Secour Bay shoreline to the southwest; and 60 miles of Perdido bay shoreline to the southeast. Other than these bodies of water, several other water features define the county's borders. These include the Perdido river on the east; Tombigbee, Mobile, and Middle rivers on the west; and the Alabama river cutoff, the Alabama river and the Little River on the north. Also, numerous bays and shallow estuaries characterize the southernmost portion of the county interconnecting Mobile/Bon Secour Bay and Perdido bay. These bays and estuaries include Oyster Bay, and artificial gulf Intracoastal Waterway Cut, Wolf Bay, Bay La Launch, Arnica Bay, and Bayou St. John. Other water bodies

include Weeks Bay, Cotton Bayou, Terry Cove, the Old River, and a series of narrow lagoons, including Little Lagoon, Shelby Lake, Middle Lake, and Little Lake.

Also, within the county lie three tidal inlets, including main channel (Mobile Bay entrance), Little Lagoon entrance, and Perdido Pass (Perdido Bay entrance). These three inlets, particularly main channel and Perdido Pass, serve as the major passages through which the Gulf of Mexico tides and hurricane surges propagate in the county's estuaries.

While swampy, mildly sloping terrain fringes much of the county, particularly along the Tensaw/Mobile River system, Bon Secour Bay, Upper Perdido Bay, and coastal areas, moderately sloping terrain with well-defined waterways generally characterizes most of Baldwin County topography. Ground elevation generally ranges from sea level in the southern and western extremes of the county to +200 to +300 ft ngvd (usgs, Pensacola, 1978; Bay Minette, 1981) in the central and northern portions. Wide, gently sloping beaches with low dunes characterize the Gulf of Mexico shoreline. The Mobile Bay shoreline ranges from low-lying marsh (along Bon Secour Bay) to steep bluffs in the northeast. Along Wolf Bay and Perdido Bay, moderately sloping terrain characterizes most of the shoreline with some low-lying marsh particularly at the northern end of the bays. The soil associations are generally well-drained and consist of the following types: Norfolk Kleij-Goldsboro, Bowie-Lakeland-Cuthbert, Marlboro-Faceville-Greenville, Bowie- Tiftin-Sunweet, and Lakeland-Plummer (U.S. Dept. Of Agriculture, 1963). Soils in the County's lower central region, the area drained by the three restudy streams; primarily consist of the latter three soil associations.

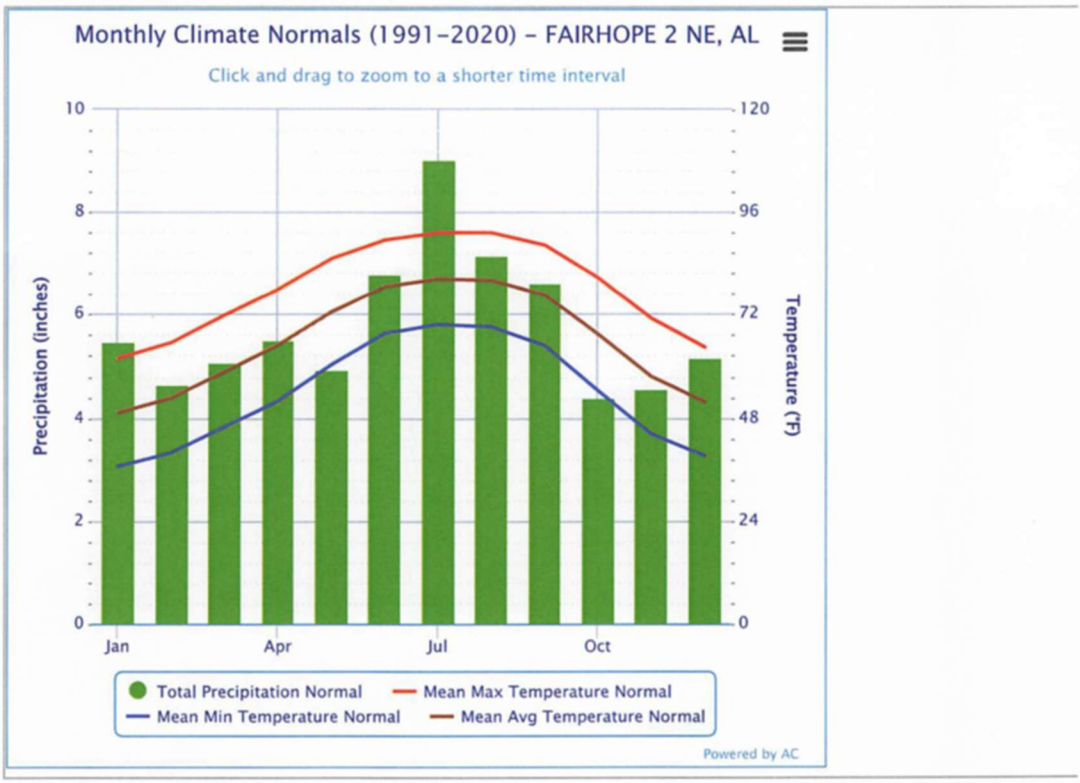
Geographic and topographic information were obtained from the 2019 flood insurance study (FIS) report for Baldwin County.

Climate

Summers are the warmest time of year in Baldwin County, with the daily average temperature in august at 83°f and an average of 20.5 days per year with temperatures reaching 90°f. Winters are generally much cooler and less stable. January has a daily average temperature of 51.0°f, although in most years there is at least one day (average 9.9) where the high remains at or below freezing. The record high for the NWS station in Robertsdale is 104°f August 5, 1947, while the record low is 3°f on January 22, 1985.

Annual precipitation averages 69.31 inches, and normal seasonal snowfall is 0.2 inches occurring in January and February. Information in **Figure 3** presents the annual weather averages for Baldwin County 1992-2021

Figure 3 - Baldwin County Annual Weather Averages & Climate Information



Month	Total Precipitation Normal (inches)	Mean Max Temperature Normal (°F)	Mean Min Temperature Normal (°F)	Mean Avg Temperature Normal (°F)
January	5.48	61.8	36.6	49.2
February	4.65	65.4	39.8	52.6
March	5.06	71.8	45.9	58.8
April	5.51	77.9	51.9	64.9
May	4.93	85.0	60.3	72.6
June	6.78	89.4	67.5	78.5
July	9.03	91.1	69.6	80.3
August	7.16	91.1	69.0	80.0
September	6.60	88.2	64.7	76.5
October	4.38	80.5	54.3	67.4
November	4.57	71.0	44.2	57.6
December	5.16	64.3	39.1	51.7
Annual	69.31	78.1	53.6	65.8

CHANGING FUTURE CONDITIONS

The *fifth national climate assessment (nca5)* provides updated insights into climate change impacts across the United States, including the southeast region, which encompasses Baldwin County, Alabama. Key findings relevant to Baldwin County include:

Temperature increases: the southeast has experienced a rise in average temperatures, with projections indicating continued warming throughout the 21st century. This trend is expected to result in more frequent and intense heatwaves, increasing the number of days with temperatures exceeding 95°f. Such conditions pose heightened risks of heat-related illnesses and can adversely affect agriculture and livestock productivity. (See **Figure 4 Days With Maximum Temperature Above 95°F)**

Sea level rise: the Gulf Coast, including Baldwin County, is witnessing sea level rise, leading to coastal erosion, increased flooding, and loss of wetlands. Projections suggest that sea levels could rise by 18 inches to 4 feet over the next century, exacerbating the impacts of storm surges and threatening infrastructure and ecosystems.

Precipitation patterns: changes in precipitation are contributing to more severe floods and droughts in the region. While annual rainfall has increased, the variability has led to periods of both intense rainfall and extended dry spells. This variability challenges water resource management and agricultural planning.

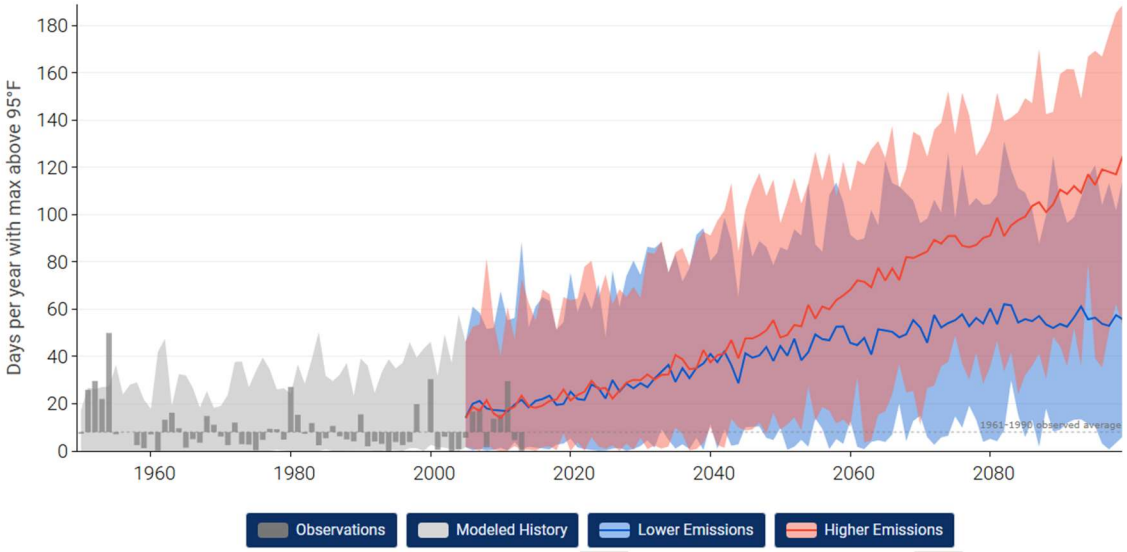
Extreme weather events: the frequency and intensity of tropical storms and hurricanes affecting the gulf coast have increased, resulting in significant rainfall, flooding, and wind damage in Baldwin County. These events pose risks to life, property, and the local economy.

Air quality concerns: warmer temperatures and increased drought conditions can lead to poorer air quality due to higher concentrations of ground-level ozone and particulate matter. This deterioration in air quality can exacerbate respiratory conditions and other health issues among residents.

Community vulnerability and resilience: rapid population growth in Baldwin County raises concerns about environmental sustainability, water quality, and the preservation of the region's farming heritage. Addressing these challenges requires comprehensive planning to enhance community resilience against climate-related impacts.

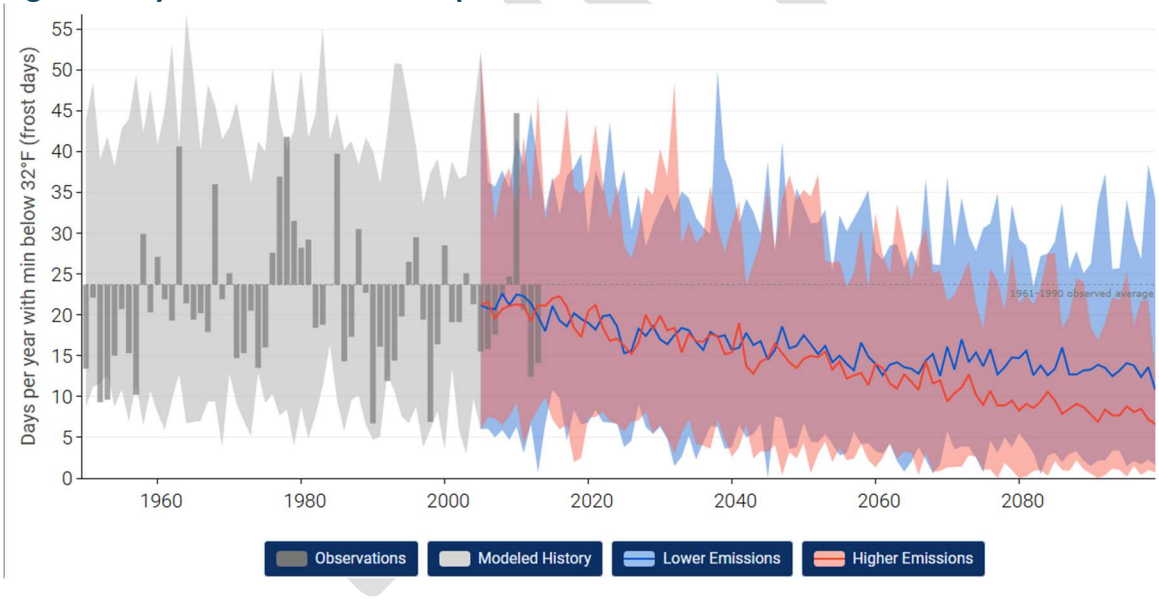
These findings underscore the importance of proactive measures to mitigate and adapt to climate change impacts in Baldwin County. Implementing strategies to reduce greenhouse gas emissions, enhance infrastructure resilience, and protect natural resources is crucial for safeguarding the well-being of the community and its environment.

Figure 4 Days With Maximum Temperature Above 95°F



Source: National Climate Explorer; https://crt-climate-explorer.nemac.org/climate_graphs/?city=Baldwin%2BCounty%2C+AL&county=Baldwin%2BCounty&area-id=01003&fips=01003&zoom=7&lat=30.6010744&lon=-87.776333299999999&id=days_tmin_lt_32f

Figure 5 Days With Minimum Temperature Below 32°F



Source: National Climate Explorer; https://crt-climate-explorer.nemac.org/climate_graphs/?city=Baldwin%2BCounty%2C+AL&county=Baldwin%2BCounty&area-id=01003&fips=01003&zoom=7&lat=30.6010744&lon=-87.776333299999999&id=days_tmin_lt_32f

Population / Demographics

According to the U.S. Census, the 2020 population in unincorporated Baldwin County was 103,662. In 2023, the population is an estimated 143,920, representing a 5.7-percent increase. **Table 10** provides the populations for Baldwin County for 2020 and 2023, as well as population statistics for 2023. Statistics for unincorporated Baldwin County are calculated from the total values for Baldwin County less the values for the incorporated communities.

Table 10 Baldwin County Population 2020 - 2023

Jurisdiction	2020 Population	2023 Population	Percent Change 2020-2023	2023 Estimates		
				Under 5	Over 65	Housing Units
Baldwin County, AL	231,768	253,507	9.4%	12,914	55,847	135,669
Bay Minette, City of	8101	8,371	3.3%	435	1565	3,116
Daphne, Town of	27,463	30,321	10.4%	2,728	5,308	11,329
Elberta, Town of	2,006	2,109	1.7%	169	421	1,147
Fairhope, City of	22,464	24,974	11.2%	1,124	6,398	9,956
Foley, City of	20,486	24,873	21.4%	645	7,900	10,990
Gulf Shores, City of	15,140	16,850	11.3%	252	4,464	14,331
Loxley, Town of	3,641	4,623	8.3%	554	739	1,479
Magnolia Springs, Town of	810	844	1.4%	8	464	600
Orange Beach, City of	8,095	8,534	5.4%	179	2431	14,777
Perdido Beach, Town of	553	578	1.8%	40	260	368
Robertsdale, City of	6,705	7,421	10.7%	304	1110	3741
Silverhill, Town of	795	1,923	40.8%	135	328	369
Spanish Fort, City of	10,062	10,923	8.6%	819	1954	4223
Summerdale, Town of	1,485	1,576	1.9%	110	410	617
Unincorporated Baldwin County	103,662	143,920	38.76%	5,412	22,095	58,625

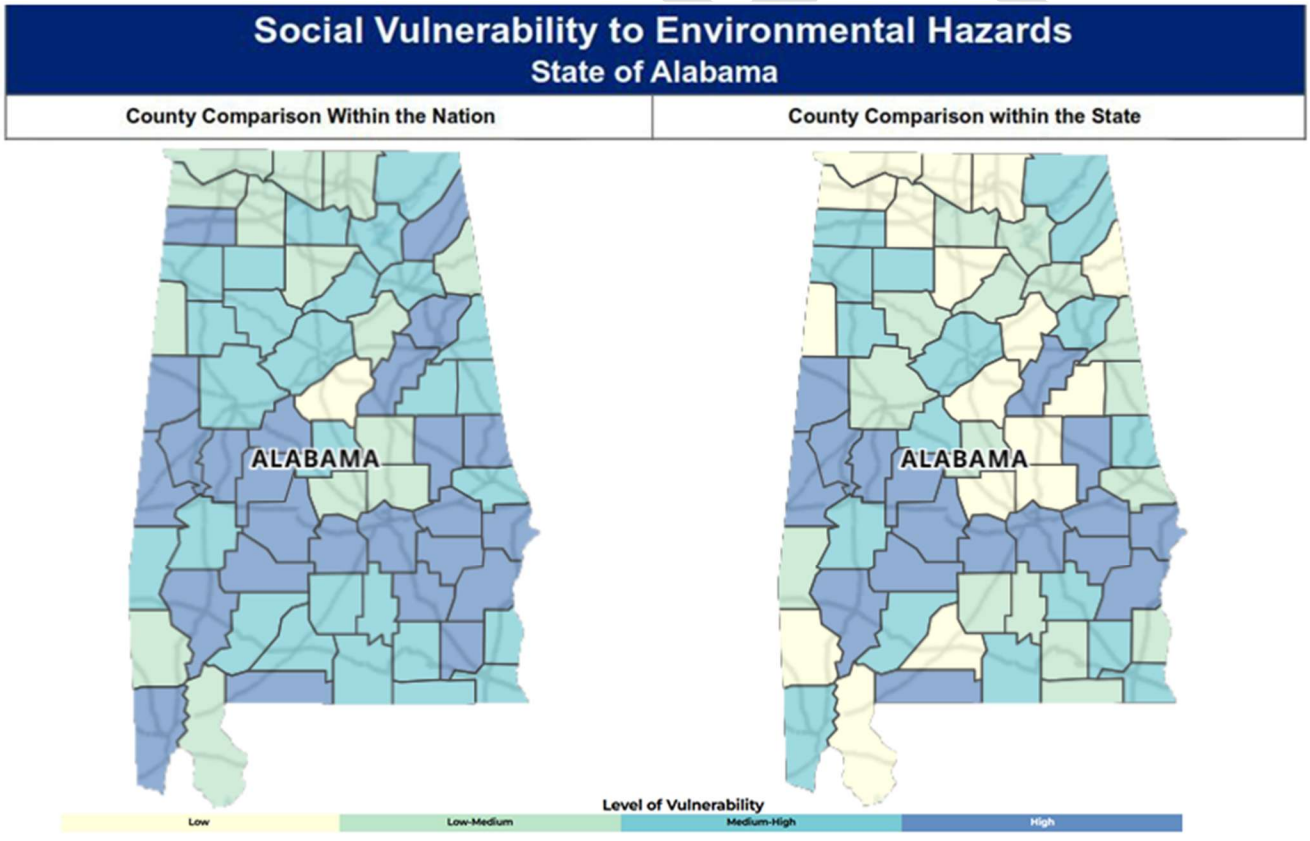
Source: U.S. Census Bureau: 2020 Decennial Census, 2023 American Community Survey (ACS) 1-year Estimates

According to the 2023 American Community Survey (ACS) estimates, 5.22 percent of the population is under age 5 and 21.32 percent of the population is over age 65 in unincorporated Baldwin County. There were 58,625 households with an average household size of 2.53 people.

The hazards and vulnerability research institute at the University of South Carolina developed the social vulnerability index (Sovi ®) to evaluate and rank the ability to respond to, cope with, recover from, and adapt to disasters. The index synthesizes 30 socioeconomic variables, which the research literature suggests contributing to reduction in a community's ability to prepare for, respond to, and recover from hazards. Sovi ® data sources include primarily those from the United States census bureau.

Figure 6 compares the social vulnerability of Baldwin County with counties in Alabama, as well as the United States. To visually compare the Sovi® scores at a national level, they are mapped using quantiles. Scores in the top 20% of the United States are more vulnerable counties (dark blue) and scores in the bottom 20% of the United States indicate the least vulnerable counties (yellow). Baldwin County is shown as having a medium social vulnerability index the medium index indicates that Baldwin County is generally able to cope and recover from disasters.

Figure 6 County Comparison for Social Vulnerability Index, 2022



SOURCE: HAZARDS AND VULNERABILITY RESEARCH INSTITUTE; FILE:///N:/6376171035_BALDWIN/05_REFERENCE/AL_1014.PDF

Table 11 provides additional demographic and economic indicators for Baldwin County. Statistics for unincorporated Baldwin County are calculated from the total values for Baldwin County less the values for the incorporated communities.

Table 11 Unemployment, Income, and Poverty Demographics, Baldwin County, AL, 2020

Jurisdiction	Civilian Labor Force 16 Years and Over	Median Household Income	Persons Below Poverty Level
Baldwin County, AL	149,569	$72,915	24,403
Bay Minette, City of	4069	$39,737	2067
Daphne, Town of	19,162	$86,479	1,622
Elberta, Town of	1070	$57,996	486
Fairhope, City of	13,236	$86,509	2,218
Foley, City of	11,940	$67,346	2,602
Gulf Shores, City of	10,194	$73,873	1,789
Loxley, Town of	1,840	$85,250	600
Magnolia Springs, Town of	606	$93,000	154
Orange Beach, City of	5206	$89,034	456
Perdido Beach, Town of	194	$71,429	40
Robertsdale, City of	4,527	$55,707	481
Silverhill, Town of	441	$58,510	23
Spanish Fort, City of	6,774	$101,574	649
Summerdale, Town of	731	$70,500	86
Unincorporated Baldwin County	75,579	$51,365	11,130

SOURCE: U.S. CENSUS, 2020 ACS, 5-YEAR ESTIMATES; 1 – VALUES ASSUMED TO BE THE SAME AS BALDWIN COUNTY

Economy/Industry

Table 12 presents the top employers and **Table 13** the top manufacturing employers in Baldwin County.

Table 12 Top Employers in Baldwin County

Company	Industry	Employees
Baldwin County Board of Education	Education	3,900
Wal-Mart	Retail	1,700
Infirmary Health	Medical Care	1,490
Collins Aerospace	Thrust Reversers, Cawlings, and Nacelle Components	1,026
Columbia Southern University	Education	1,050
Baldwin Health	Medical Care	860
Publix	Retail	830
Baldwin County Commission	Government	670
Marriott Grand Hotel	Hotel & Country Club	530
Brett/Robinson Gulf Corp.	Vacation Rental Management	520
S OWA	Entertainment & Retail	400
S.H. Enterprises	Vacation Rental Management	375
Ace Hardware Support Center	Hardware Distribution Support Center	380
Vulcan, Inc.	Aluminum & Steel Products	236

Source: Baldwin County Economic Development Alliance; https://baldwineda.com/data/top-employers/

Table 13 Top Manufacturing Employers in Baldwin County

Company	Industry	Employees
Collins Aerospace	Thrust Reversers, Cawlings, and Nacelle Components	1026
Ace Hardware Support Center	Hardware Distribution Support Center	380
Vulcan, Inc.	Aluminum & Steel Products	236
Quincy Compressors	Air Compressors	210
Segers Aerospace	Aerospace and Defense MRO	185
Bon Secour Fisheries	Seafood Processing	150
International Paper	Paper Products	135
Quality Filters	Air Filters	130
Ecovery	Metals Processing	130
Ascend Performance Materials	Medical Instruments	114

Source: Baldwin County Economic Development Alliance; https://baldwineda.com/data/top-employers/

Agriculture

According to the USDA census of agriculture, the area of agriculture land is increasing in Baldwin County, as well as the market value of crops. **Table 14** compares number of farms and land in farms (acres) as reported in the 2012, 2017, and 2022 US Agricultural Census.

Table 14 Baldwin County Agricultural Census Comparisons, 2012, 2017, and 2022

Commodity	2012	2017	2022	Percent Change 2012-2022
Farms (number)	989	842	853	-13.75%
Land in farms (acres)	192,320	174,803	180,784	-6%
Market Value – Crops ($1,000)	$115,652	$101,620	$123,196	6.52%
Market Value – Livestock ($1,000)	$19,910	$18763	$20,489	2.91%

Source: USDA Census of Agriculture, 2012, 2017, and 2022; https://www.agcensus.usda.gov/

Table 15 Production Quantity and The State Rank, Among The 67 Counties, For Agricultural Products in Baldwin County.

Commodity	Quantity ($)	State Rank
Grains, oilseeds, dry beans, & dry peas	15,344	9
Tobacco	0	-
Cotton and cottonseed	5,974	20
Vegetables, melons, potatoes, & sweet potatoes	7,454	4
Fruits, tree nuts, & berries	(D)	2
Nursery, greenhouse, floriculture, & sod	71,816	2
Cut Christmas trees and short rotation woody crops	(D)	2
Other crops and hay	20,537	2
Poultry and eggs	(D)	40
Cattle and calves	6,670	30
Milk from cows	-	-
Hogs and pigs	27	21
Sheep, goats, wool, mohair, and milk	136	18
Horses, ponies, mules, burros, and donkeys	174	14
Aquaculture	(D)	10
Other animals and other animal products	249	9

MITIGATION CAPABILITIES

This mitigation capability profile of unincorporated Baldwin includes an overview of the jurisdiction and its organizational structure; a description of staff, fiscal, and technical resources; and information regarding existing hazard mitigation capabilities such as adopted plans policies and regulations. The descriptions and capabilities assessments are based on available and applicable data, including information provided by Baldwin County collected during the planning process.

Baldwin County, Unincorporated Areas

Overview

Baldwin county has a four-member elected commission, as well as the following elected officers of: county coroner, district attorney, probate judge, revenue commissioner, sheriff, and district court judge, and county board of education. The Baldwin County government includes the following departments:

- County administration
- Animal shelter
- Archives and history
- Baldwin Rural Area Transportation System (BRATS public bus)
- Budget
- Building inspection
- Communications and information systems (cis)
- Council on aging
- Emergency management agency
- Finance and accounting
- Grants
- Highway department
- Juvenile detention
- Personnel department
- Planning and zoning
- Purchasing
- Sales and use tax / license inspection

Table 16 Baldwin County Administrative & Technical Resources 2025

Personnel Resources	Yes/No	Department/Position
Planner/Engineer with knowledge of land development/land management practices	YES	Planning & Zoning Department
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	YES	Building Inspection Department Highway Department
Planner/Engineer/Scientist with an understanding of natural hazards	YES	Planning & Zoning Department Building Inspection Department
Personnel skilled in GIS	YES	Communications and Information Systems (CIS) Department
Full time building official	YES	Building Inspection Department
Floodplain Manager	YES	Building Inspection Department
Certified Floodplain Manager (CFM)	YES	Building Inspection Department, Planning & Zoning & Emergency Management Agency
Emergency Manager	YES	Emergency Management Agency
Grant writer	YES	Emergency Management Agency
Natural Resource Planner	YES	Planning & Zoning Department

SOURCE: BALDWIN COUNTY'S DATA COLLECTION GUIDE COMPLETED 2025

Fiscal tools or resources that the county could potentially use to help fund mitigation activities include the following:

- Community development block grants
- DHS and FEMA grant resources
- Capital improvements project funding
- Authority to levy taxes for specific purposes
- Incur debt through general obligation bonds
- Incur debt through special tax bonds
- Incur debt through private activities

Existing Plans And Policies

By incorporating existing policies and plans, Baldwin County can create a flood hazard management strategy that is comprehensive, legally sound, and effective in reducing flood risks while promoting sustainable growth and resilience. Additional regulatory tools are presented in **Table 17** below:

Table 17 Baldwin County Regulatory Tools

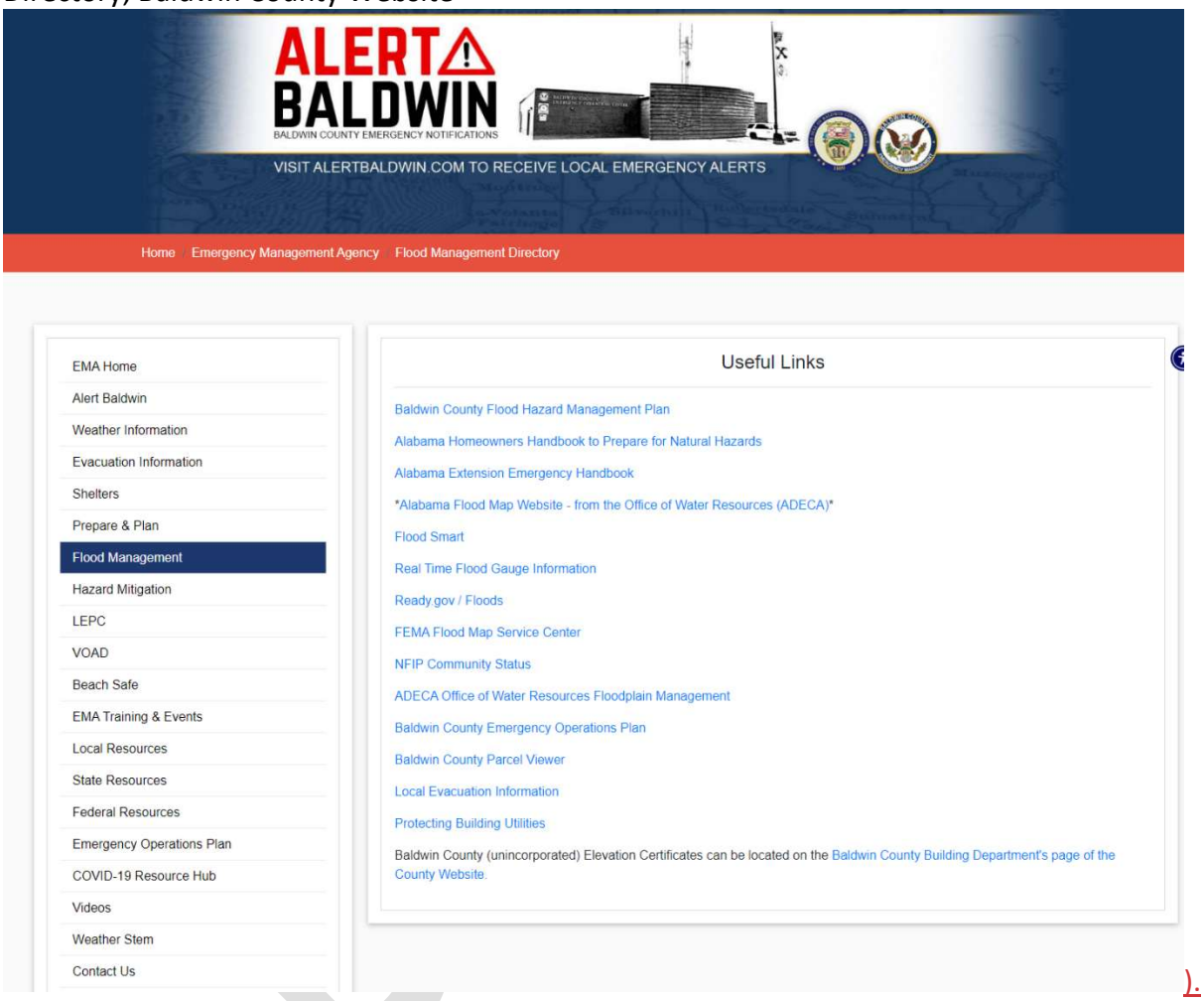
Regulatory Tool	Y/N	Ordinances, Codes, Plans
Master Plan	YES	Our Vision: A Citizen's Guide to Growth in the zoned areas of Baldwin County Our Vision - A Citizen's Guide to Growth (as approved July 18, 2023)
Zoning ordinance	YES	Zoning Ordinance (as amended November 21, 2023)
Growth management	YES	Our Vision - A Citizen's Guide to Growth (as approved July 18, 2023)
Subdivision ordinance	YES	Subdivision Regulations (Adopted Jan. 7, 2025)
Drainage Ordinance	YES	Zoning Ordinance, Article 13, Section 13.11 and 12 Subdivision Regulations, Article 5, Section 5.11
Historical Preservation Ordinance	YES	Zoning Ordinance, Article 11 Zoning Ordinance, Article 10, Section 10.3 Zoning Ordinance (as amended November 21, 2023)
Landscape Ordinance	YES	Zoning Ordinance, Article 17 Zoning Ordinance (as amended November 21, 2023)
Floodplain ordinance	YES	baldwin-county-floodplain-development-ordinance.pdf
Flood Land Disturbance Ordinance	YES	land-disturbance-ordinance-for-flood-prone-areas-or-territories.pdf Current Effective
Flood insurance study or other Engineering study for streams	YES	Current Effective April 19, 2019
Elevation certificates	YES	Building Inspection Department ELEVATION CERTIFICATES - AVAILABLE TO PUBLIC - OneDrive
Building code	YES	Adoption of 2018 International Code Councils Building Codes
BCEGS Rating	YES	4-Commercial & Industrial Buildings 4-One & Two-Family Dwellings
Fire department ISO rating	YES	3/3X
Stormwater Management Program (Urban Areas)	YES	Stormwater Management Program (SWMP) Plan, 2021-2026 MS4
Erosion or sediment control program	YES	Zoning Ordinance, Article 13, Section 13.12 Zoning Ordinance (as amended November 21, 2023) Subdivision Regulations, Article 5, Section 5.13 Subdivision Regulations (as amended September 19th, 2023)
Wetlands and Riparian Areas Conservation	YES	Zoning Ordinance, Article 11 Zoning Ordinance, Article 10, Section 10.4
Site plan review requirements	YES	Zoning Ordinance (as amended November 21, 2023)
Capital improvements plan	NO	
Economic development plan	NO	Baldwin County Economic Development Alliance https://baldwineda.com/
Local emergency operations plan	YES	EOP, 2023 eop_final_combined.pdf

Other mitigation actions

Baldwin county has several mitigation programs already established. The following are highlights from some of the departments:

Emergency Management Agency Activities

Emergency Planning - EMA researches, revises, prints and distributes hazard information, including a flood management directory ~~(~~(**Figure 7** shown below ~~).~~Figure 7 Flood Management Directory, Baldwin County Website



).

Training to Emergency Responders and Public Organizations - EMA will host/present training classes and/or presentations to response agencies, doctors, nurses and public organizations on topics such as assisting children in disasters, structural collapse, incident command, weather spotter and cert.

Stormready Certification

Citizen Preparedness Information - EMA is the administrator for the Baldwin County local emergency planning committee and hosts the website: https://baldwincountyal.gov/departments/emergency-management-agency

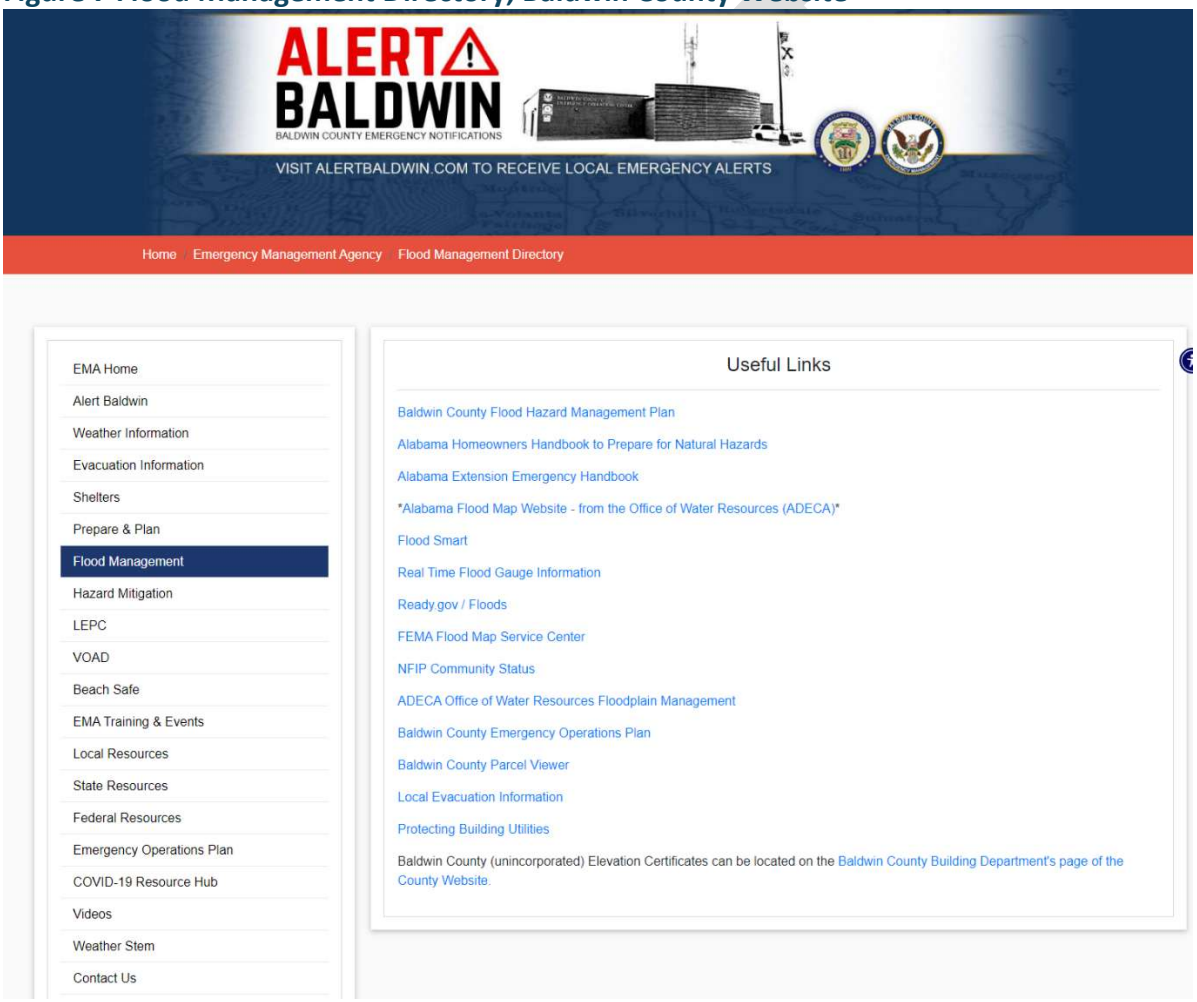
Participate In Emergency Exercises - EMA participates in numerous emergencies exercises every year.

Provide and maintain EOC facilities – The Emergency Operations Center is a central meeting point for the city and county mayors, police, fire, emergency medical services, American Red Cross and others to coordinate response and recovery efforts following a disaster.

Grant Administration - EMA administers several state and federal grants which provide emergency planning, training and equipment to emergency responders, hospitals and volunteers.

Duty Officer - a duty officer is on call 24 hours a day, 7 days a week.

Figure 7 Flood Management Directory, Baldwin County Website



Floodplain Administrator Activities

Baldwin County's Floodplain Administrator also provides the following public education and outreach services:

- Flood Insurance Program
- Flood Hazard Brochure 2025
- Coastal Barrier Resources System CBRA

- FLOOD HAZARD PROTECTION NEWSLETTER 2024
- Mandatory Purchase of Flood Insurance
- NOAA | COASTAL COUNTY SNAPSHOTS
- Baldwin_County_CRS_Statistics_2020
- CRS Mailouts
- Repetitive Loss Properties
- Real Estate & Insurance Companies
- Hurricane Tabloid

Stormwater Management Plan Activities

Baldwin County's Storm Water Management Program (SWMP) Plan summarizes the County's efforts to maintain compliance with the requirements of NPDES Permit ALR040042. The plan includes the following mitigation type efforts:

Local Partnerships for educational and outreach programs:

- Alabama Department of Environmental Management;
- Alabama Clean Water Partnership;
- Alabama Cooperative Extension System;
- City of Daphne;
- City of Fairhope;
- City of Spanish Fort;
- City of Foley;
- City of Robertsdale;
- Town of Magnolia Springs;
- Town of Silverhill;
- Town of Summerdale;
- City of Loxley;
- Town of Perdido Beach;
- Weeks Bay Preserve;
- Weeks Bay Watershed Project;
- Mobile Bay National Estuary Program;
- Wolf Bay Watershed Watch;
- Perdido Bay Watershed Planning;
- Baldwin County Environmental Advisory Board;
- Alabama Coastal Foundation; and,
- People Against a Littered State.

Workshops:

- Nonpoint Education for Municipal Officials (NEMO) - Mobile Bay National Estuary Program Video "Understanding the MS4 Process" is available.
- Erosion and Sediment Control - The County may evaluate and identify workshops that will be beneficial to city staff, professionals and the development community.

- Low Impact Development - The workshops that will be beneficial to the development community.

Public Engagement Activities:

- Baldwin County Water Festival is to educate students about all aspects of surface water and groundwater and other related natural resources
- Earth Day is an annual celebration during which worldwide events are held for the purpose of demonstrating support for environmental protection.

CHAPTER III FLOOD RISK ASSESSMENT

44 CFR Requirement §201.6(c)(2): [The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

The risk assessment process identifies, and profiles relevant flood hazards and assesses the exposure of lives, property, and infrastructure to these flood hazards. The goal of the risk assessment is to estimate the potential loss in the planning area, including loss of life, personal injury, property damage, and economic loss, from a flood hazard event. The risk assessment process allows the community to better understand their potential risk to flood hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future flood hazard events.

A Flood Hazard Management Plan was adopted in 2018. This risk assessment is an update to the risk assessment previously prepared. Updates to the risk assessment include the following:

- Identified hazards were re-evaluated and profiles were refined;
- Hazus 4.0, Alabama State Dataset was utilized to determine loss estimates;
- Hazus 4.0, results assessed vulnerability and loss estimates for flooding; and
- Critical facilities were updated with FMPC input.

The risk assessment followed the methodology described in the 2023 FEMA Local Mitigation Planning Policy Guide, which includes a five-step process:

- Step 1 -Identify Hazards
- Step 2 – Describe Hazards
- Step 3 - Identify Community Assets
- Step 4 - Analyze Risk
- Step 5 - Summarize Vulnerability

This chapter is divided into four parts: hazard identification, hazard description, vulnerability assessment, and Summary of Key Issues.

- **1 Hazard Identification** identifies the flood hazards that threaten the planning area and describes why some flood hazards have been omitted from further consideration.
- **2 Hazard Description** discusses the threat to the planning area and describes location, extent, previous occurrences of flood hazard events and the probability of future occurrence.
- **3 Vulnerability Assessment** assesses the planning area's total exposure to flood hazards, considering critical facilities and other community assets at risk, and assessing growth and development trends. Flood hazards that vary geographically across the planning area are addressed in greater detail.
- **4 Summary of Key Issues** provides a summary of the key issues or problems identified in the Risk Assessment.

Identify Hazard

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type…of all natural hazards that can affect the jurisdiction.

Review of State Hazard Mitigation Plan

The Floodplain Management Planning Committee (FMPC) reviewed data and discussed the impacts of each of the hazards of prime concern that were included and profiled in the 2023 update to the State of Alabama Hazard Mitigation Plan. The six flood-related hazards that were included in the State Plan are listed alphabetically below:

- Dam Failure;
- Flooding (riverine flooding, storm surge, flash floods);
- High Winds (hurricanes, tornadoes, windstorms);
- Sea Level Rise and Coastal Land Change;
- Sinkholes and Land Subsidence; and
- Tsunamis.

Data on the past impacts and future probability of flood hazards in the Baldwin County planning area were collected from the following sources:

- Alabama State Hazard Mitigation Plan (2023)
- Information on past hazard events from the Spatial Hazard Events and Losses Database for the United States (SHELDUS), a component of the University of South Carolina Hazards & Vulnerability and Research Institute
- Information on past extreme weather and climate events and projected trends from the National Oceanic and Atmospheric Administration's (NOAA) National Center for Environmental Information
- Disaster declaration history from the Federal Emergency Management Agency (FEMA), the Public Entity Risk Institute, and the USDA Farm Service Agency Disaster Declarations
- Information provided by members of the Floodplain Management Planning Committee
- Various articles and publications available on the internet (sources are indicated where data is cited)

Disaster Declaration History

One method used by the FMPC to identify hazards was to examine events that triggered federal and/or state disaster declarations. Federal and/or state declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. Should the disaster be so severe that both the local and state governments' capacities are exceeded, a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance.

The federal government may issue a disaster declaration through FEMA, the U.S. Department of Agriculture (USDA), and/or the Small Business Administration. FEMA also issues emergency declarations, which are more limited in scope and do not include the long-term federal recovery programs of major disaster declarations. Determinations for declaration type are based on scale and type of damages and institutions or industrial sectors affected.

Table 18 lists federal disaster and emergency declarations received by Baldwin County. Each of the disaster events affected multiple counties. Hurricanes/Tropical Storms and Flooding were the most prevalent disasters.

Table 18 Flood-Related Disaster Declaration History in Baldwin County, 1969-Present

DR #	Declaration Date	Disaster Description
Disaster Declarations		
280	1969-11-07	Hurricane Camille
369	1973-03-27	Tornadoes And Flooding
563	1978-08-09	Severe Storms and Flooding
598	1979-09-13	Hurricane Frederic
742	1985-09-07	Hurricane Elena
861	1990-03-21	Severe Storms, Tornadoes and Flooding
1070	1995-10-04	Hurricane Opal
1185	1997-07-25	Severe Storms, Flooding, And High Winds Associated with Hurricane Danny
1250	1998-09-30	Hurricane George - 18 SEP 98
1438	2002-10-09	Tropical Storm Isidore
1466	2003-05-12	Severe Storms, Tornadoes And Flooding
1549	2004-09-15	Hurricane Ivan
1593	2005-07-10	Hurricane Dennis
1605	2005-08-29	Hurricane Katrina
1789	2008-09-10	Hurricane Gustav
1797	2008-09-26	Severe Storms And Flooding Associated With Hurricane Ike
1835	2009-04-28	Severe Storms, Flooding, Tornadoes And Straight-Line Winds
1866	2009-12-22	Tropical Storm Ida
1971	2011-04-28	Severe Storms, Tornadoes, Straight-Line Winds, And Flooding
4082	2012-09-21	Hurricane Isaac
4349	2017-11-16	Hurricane Nate
4563	2020-09-20	Hurricane Sally
Emergency Declarations		
3074	1979-03-17	Flooding
3133	1998-09-28	Hurricane Georges
3214	2005-08-28	Hurricane Katrina
3237	2005-09-10	Hurricane Katrina Evacuation
3292	2008-08-30	Hurricane Gustav
3319	2011-04-27	Severe Storms, Tornadoes, And Straight-Line Winds
3389	2017-09-11	Hurricane Irma
3394	2017-10-08	Hurricane Nate

DR #	Declaration Date	Disaster Description
3407	2018-10-12	Hurricane Michael
3545	2020-09-14	Hurricane Sally
3618	2024-09-26	Hurricane Helene

SOURCE: FEMA OPEN DATASETS, HTTPS://WWW.FEMA.GOV/OPENFEMA-DATASET-DISASTER-DECLARATIONS-SUMMARIES-V1

It is also important to note that the federal government may issue a disaster declaration through the U.S. Department of Agriculture and/or the Small Business Administration, as well as through FEMA. The quantity and types of damage are the factors that determine whether such declarations are issued.

The U.S. Department of Agriculture (USDA) aids farmers and other rural residents, as the result of natural disasters. Agricultural-related disasters are quite common. One-half to two-thirds of the counties in the United States have been designated as disaster areas in each of the past several years. Agricultural producers may apply for low-interest emergency loans in counties named as primary or contiguous in a disaster designation.

USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, or by an Indian Tribal Council leader. Primary and contiguous counties designations for Baldwin County for 2014 through 2024 were as follows:

- 2014 – Contiguous County – 04/04/2014-05/02/2014, Excessive rain
- 2015 – Contiguous County – 09/01/2015-11/202015, Excessive rain, wind, flooding
- 2016 – No flood-related designation, 3 drought events noted for Baldwin County
- 2017 – Primary County – 05/01/2017-06/30/2017, Excessive rainfall, winds, flooding, flash flooding, and Tropical Storm Cindy
- 2018 – Contiguous County – 9/3/2018- 9/6/2018, Significant rainfall, wind, and flooding due to Tropical Storm Gordon
- 2020 – Primary County – 04/14/2020- N/A, One drought event reported
- 2020 – Contiguous County – 06/07/2020- 06/10/2020, Excessive rainfall and flash flooding due to Tropical Storm Cristobal
- 2020 – Primary County – 09/15/2020-09/16/2020 Excessive wind, flash flooding, and excessive rainfall caused by Hurricane Sally
- 2020 – Contiguous County – 10/28/2020- 10/29/2020 Significant rainfall, wind, and flooding Hurricane Zeta
- 2021 – Primary County – 08/29/2021- 8/30/2021 Excessive rainfall and flooding caused by Tropical Storm Ida
- 2023 – Primary County – 03/18/2023- 03/20/2023 One freezing temperature event reported
- 2023 – Primary County – 09/12/2023- N/A One drought event reported
- 2024 – Contiguous County – 12/01/2023- N/A One drought event reported

The Small Business Administration provides disaster assistance to families and businesses through their Disaster Assistance Program. The mission of this program is to offer financial assistance to those who are trying to rebuild their homes and businesses in the aftermath of a disaster. By offering low-interest loans, the SBA is committed to long-term recovery efforts. SBA is also committed to mitigation and has additional loan programs to help reduce future losses.

An SBA declaration may be requested by the State Governor. When the Governor's request for assistance is received, a survey of the damaged area(s) is conducted with State and local officials, and the results are submitted to the Administrator for a decision. When the Administrator of SBA declares an area, both primary and adjacent counties are eligible for the same assistance.

Hazards Identified

After review of the hazards in the Alabama State Hazard Mitigation Plan, the local Baldwin County Hazard Mitigation Plan, the previous Flood Hazard Management Plan, and the disaster declaration history, the FMPC identified six flood hazards that significantly affect the planning area. These hazards are listed below in **Table 19**, the "X" indicates if the hazard was included in the planning document. Each of these hazards is profiled in further detail in the next section.

Table 19 Hazards Identified for Each Participating Jurisdiction

Hazard	Baldwin County Flood Hazard Management Plan 2025	Alabama State Hazard Mitigation Plan 2023	Baldwin County Hazard Mitigation Plan 2021	Baldwin County Flood Hazard Management Plan 2018
Flood: 100-/500-Year	X	X	X	X
Flood: Stormwater/Localized	X	X	X	X
Hurricane and Tropical Storms (including storm surge)	X	X	X	X
Coastal Bank Erosion	X	Included as a component of Flooding		X
Dam/Levee Failure	X	X	X	X
Changing Future Conditions and Sea Level Rise	X	X		X
Tsunami	X	X	X	X

Describe Hazard Profile

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

Methodology

Each hazard identified in Chapter 3 Hazard Identification is profiled individually in this section. The level of information presented in the profiles varies by hazard based on the information available. With each update of this plan, new information will be incorporated to provide for better evaluation and prioritization of the hazards that affect the planning area.

The sources used to collect information for these profiles include those mentioned in Chapter 3 as well as those cited individually in each hazard section.

Detailed profiles for each of the identified hazards include information categorizedas follows:

Hazard Description

This section consists of a general description of the hazard and the types of impacts it may have on a community.

Geographic Location

This section describes the geographic location of the hazard in the planning area. Where available, the extent, or potential "size" of the hazard is discussed in this section. Where available, maps are utilized to indicate the specific locations within the planning area that are vulnerable to the subject hazard.

- ***Community Wide (3):*** 50-100% of planning area
- ***Partial (2):*** 10-50% of planning area
- ***Minimal (1):*** Less than 10% of planning area

Previous Occurrences

This section includes information on historic incidents and their impacts based upon the sources described in Chapter 3 Hazard Identification and the information provided by the FMPC.

Probability of Future Occurrence

Where applicable, the frequency of past events is used to gauge the likelihood of future occurrences. Where possible, the probability or chance of occurrence was calculated based on historical data. Probability was determined by dividing the number of events observed by the number of years and multiplying by 100. This gives the percent chance of the event happening in any given year. An example would be three droughts occurring over a 30-year period, which suggests a 10 percent chance of a drought occurring in any given year.

- ***Very High (5):*** Occurs annually, 100% probability in next year
- ***High (4):*** Occurs every 2-3 years; Between 30 and 100% probability in next year or at least one chance in ten years
- ***Moderate (3):*** Occurs every 3-10 years; Between 10 and 30% probability in next year or at least one chance in next 100 years
- ***Low (2):*** Occurs every 10 years; Between 1% and 10% probability in next 100 years
- ***Very Low (1):*** Rare; less than 1% probability

Magnitude/Severity

The magnitude of the impact of a hazard event (past and perceived) is related directly to the vulnerability of the people, property, and the environment it affects. This is a function of when the event occurs, how the location affected the resilience of the community, and the effectiveness of the emergency response and disaster recovery efforts.

- Devastating (4):
  - Devastating casualties, business losses and structure damage
  - Complete shutdown of facilities for 30 or more days, more than 50 percent of property is severely damaged
- Significant (3):
  - Potential for some casualties and significant, but less than devastating, business losses and structure damage
  - Complete shutdown of critical facilities for at least two weeks, 25–50 percent of property is severely damaged
- Moderate (2):
  - Moderate potential for economic losses and structure damage
  - Complete shutdown of critical facilities for more than one week, 10–25 percent of property is severely damaged
- Slight (1):
  - Slight or minimal potential for economic losses and structure damage
  - Shutdown of critical facilities and services for 24 hours or less, less than 10 percent of property is severely damaged

Changing Future Conditions

This section presents potential changes to each hazard that are expected to occur due to variations in environment and climate. Predictions about the changes are contingent upon available research; therefore, some hazards have limited or unknown information.

It is difficult to predict the scope, severity, and pace of changing future conditions and the impacts posed by more intense storms, frequent heavy participation, heat waves, drought, and extreme flooding; none-the-less, according to the FEMA Climate Change Adaptation Policy Statement, they can significantly change the probabilities and magnitudes of hazards faced by communities.

Hazard Summary

At the conclusion of each hazard profile, a hazard summary table is provided which includes the following elements: probability of future occurrence, potential magnitude, and spatial extent. The ratings of these elements were then used to calculate a planning significance rating. The assigned value, ratings, and defined parameters are provided below.

Planning Significance

Significance was measured in general terms and focused on key criteria such as frequency and resulting damage, which includes deaths and injuries, as well as property and economic damage.

Based on the above methodology, **Table 20** provides the ratings and planning significance for the flood hazards analyzed in this plan.

Table 20 Planning Significance Scores

Hazard	Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Flood: 100-/500-Year	Partial	Very High	Significant	High
Hurricane and Tropical Storms (including storm surge)	Community-Wide	Moderate	Significant	High
Flood: Stormwater/Localized	TBD	TBD	TBD	Moderate
Coastal Bank Erosion	Minimal	Very High	Moderate	Moderate
Changing Future Conditions and Sea Level Rise	Minimal	High	Slight	Moderate
Dam/Levee Failure	Minimal	Very Low	Slight	Low
Tsunami	Minimal	Very Low	Slight	Low

Flooding

Description

Flooding is defined by the rising and overflowing of a body of water onto normally dry land. Flooding can result from an overflow of inland or tidal waters or an unusual accumulation or runoff of surface waters from any source.

Certain health hazards are also common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself.

Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm and industrial chemicals. Pastures and areas where farm animals are kept, or their wastes are stored can contribute polluted waters to the receiving streams.

Floodwaters also saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as E.coli and other disease-causing agents.

The second type of health problem arises after most of the water has gone. Stagnant pools can become breeding grounds for mosquitoes, and wet areas of a building that have not been properly cleaned breed mold and mildew. A building that is not thoroughly cleaned becomes a health hazard, especially for small children and the elderly.

Another health hazard occurs when heating ducts in a forced air system are not properly cleaned after inundation. When the furnace or air conditioner is turned on, the sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If the County water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third problem is the long-term psychological impact of having been through a flood and seeing one‘s home damaged and personal belongings destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes can be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

Sources and Types of Flooding

Flooding within Baldwin County can be attributed to three sources: 1) tidal flooding resulting from hurricanes and tropical storms; 2) riverine flooding resulting from heavy and prolonged rainfall over a given watershed which causes the capacity of the main channel to be exceeded; and 3) flash flooding resulting from heavy rainfall that overburdens the drainage system within the community.

- ***Coastal (Tidal) Flooding:*** All lands bordering the coast are prone to tidal flooding. Coastal land such as sand bars, barrier islands and deltas provide a buffer zone to help protect human life and real property relative to the sea much as flood plains provide a buffer zone along rivers and other bodies of water. Coastal floods usually occur as a result of abnormally high tides or tidal waves, storm surge and heavy rains in combination with high tides, tropical storms and hurricanes.

The primary factors contributing to coastal flooding in Baldwin County are its location in a hurricane prone area, its openness to Gulf of Mexico storm surges and unfavorable, shallow bathymetry extending far offshore. Many of the large streams and sounds near the coast have wide mouths and are bordered by extensive areas of low marsh. In addition, the terrain at the coast is generally too low to provide an effective barrier. The offshore ocean depths are shallow for great distances, capable of generating extremely high storm surges with potential devastating impact in Baldwin County, particularly if driven at times of high tide.

- ***Riverine Flooding:*** Riverine flooding is defined as an event when a watercourse exceeds its "bank-full" capacity. Riverine floods result from precipitation overlarge areas. This type of flood occurs in river systems whose tributaries may drain large geographic areas and include many independent river basins. Riverine flooding generally occurs as a result of prolonged rainfall, or rainfall that is combined with soils already saturated from previous rain events. The duration of riverine floods may vary from a few hours to many days.

Factors that directly affect the amount of flood runoff include precipitation, intensity and distribution, the amount of soil moisture, seasonal variation in vegetation, snowdepth, and water-resistance of the surface areas due to urbanization.

The area of low-lying ground adjacent to a river, formed mainly of river sediments and subject to flooding is defined as the floodplain. The area inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year is defined as the special flood hazard area (SFHA). The SHFA or 1-percent annual flood is the national standard to which communities regulate their floodplains through the National Flood Insurance Program.

- ***Flash or Rapid Flooding:*** Flash flooding is the result of heavy, localized rainfall, possibly from slow-moving intense thunderstorms that cause small streams and drainage systems to overflow. Flash flood hazards caused by surface water runoff are most common in urbanized cities, where greater population density generally increases the amount of impervious surface (e.g., pavement and buildings) which increases the amount of surface water generated. Flooding can occur when the capacity of the stormwater system is exceeded or if conveyance is obstructed by debris, sediment and other materials that limit the volume of drainage.

Flooding and Floodplains

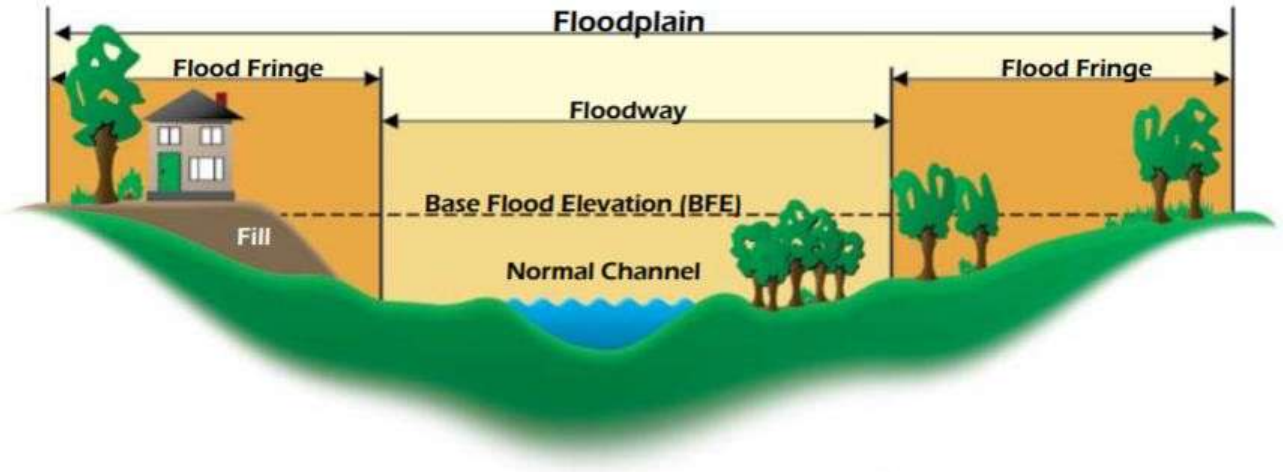
The area adjacent to a channel is the floodplain, as shown in **Figure 8**. A floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current. Floodplains are made when floodwaters exceed the capacity of the main channel or escape the channel by eroding its banks

.

When this occurs, sediments (including rocks and debris) are deposited that gradually build up over time to create the floor of the floodplain. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream.

Figure 8 Flood Management Directory, Baldwin County Website

Characteristics of a Floodplain



SOURCE: NFIP GUIDEBOOK*, 2009*

In its common usage, the floodplain most often refers to that area that is inundated by the 100-year flood, the flood that has a 1% chance in any given year of being equaled or exceeded. The

100-year flood is the national minimum standard to which communities regulate their floodplains through the National Flood Insurance Program (NFIP). The

500-year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of

natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

The 100-year flood, which is the minimum standard used by most federal and state agencies, is used by the NFIP as the standard for floodplain management and to determine the need for flood insurance. Participation in the NFIP requires adoption and enforcement of a local floodplain management ordinance which is intended to prevent unsafe development in the floodplain, thereby reducing future flood damages.

Participation in the NFIP allows for the federal government to make flood insurance available within the community as a financial protection against flood losses. Since floods have an annual probability of occurrence, have a known magnitude, depth and velocity for each event, and in most cases, have a map indicating where they will occur, they are in many ways often the most predictable and manageable hazard.

Regulated floodplains are illustrated on inundation maps called Flood Insurance Rate Maps (FIRMs). It is the official map for a community on which FEMA has delineated both the SFHAs and the risk premium zones applicable to the community. SFHAs represent the areas subject to inundation by the 100-year flood event. Structures located within the SFHA have a 26-percent chance of flooding during the life of a standard 30-year mortgage. Flood-prone areas in Baldwin County were identified using the most current Flood Insurance Study (FIS) and associated Flood Insurance Rate Maps (FIRMs) developed by FEMA, which became effective on April 19, 2019. **Table 21** below, titled "Mapped Flood Insurance Zones," provides a summary of the different types of flood insurance zones.

Table 21 Mapped Flood Insurance Zones

Zone	Description
VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
AE	Base Flood Elevations determined.
A	No Base Flood Elevations determined.
AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevation determined.
AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities are also determined.
AR	Special Flood Hazard Area was formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
A99	Area to be protected from 1% annual chance flood by a federal flood protection system under construction; no Base Flood Elevations determined.
X (shaded)	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
X (unshaded)	Areas determined to be outside the 0.2% annual chance floodplain.
D	Areas in which flood hazards are undetermined, but possible.

SOURCE: BALDWIN COUNTY, ALABAMA FIS AND FIRM 2019

Geographic Location

Partial - The mapped flood insurance zones for Baldwin County are presented in **Figure 9**

This area includes:

- SFHA - 353.6 square miles
- Floodway – 20.3 square miles
- Coastal High Hazard Area – 10.4 square miles

Figure 9 Baldwin County FIRM Flood Zones

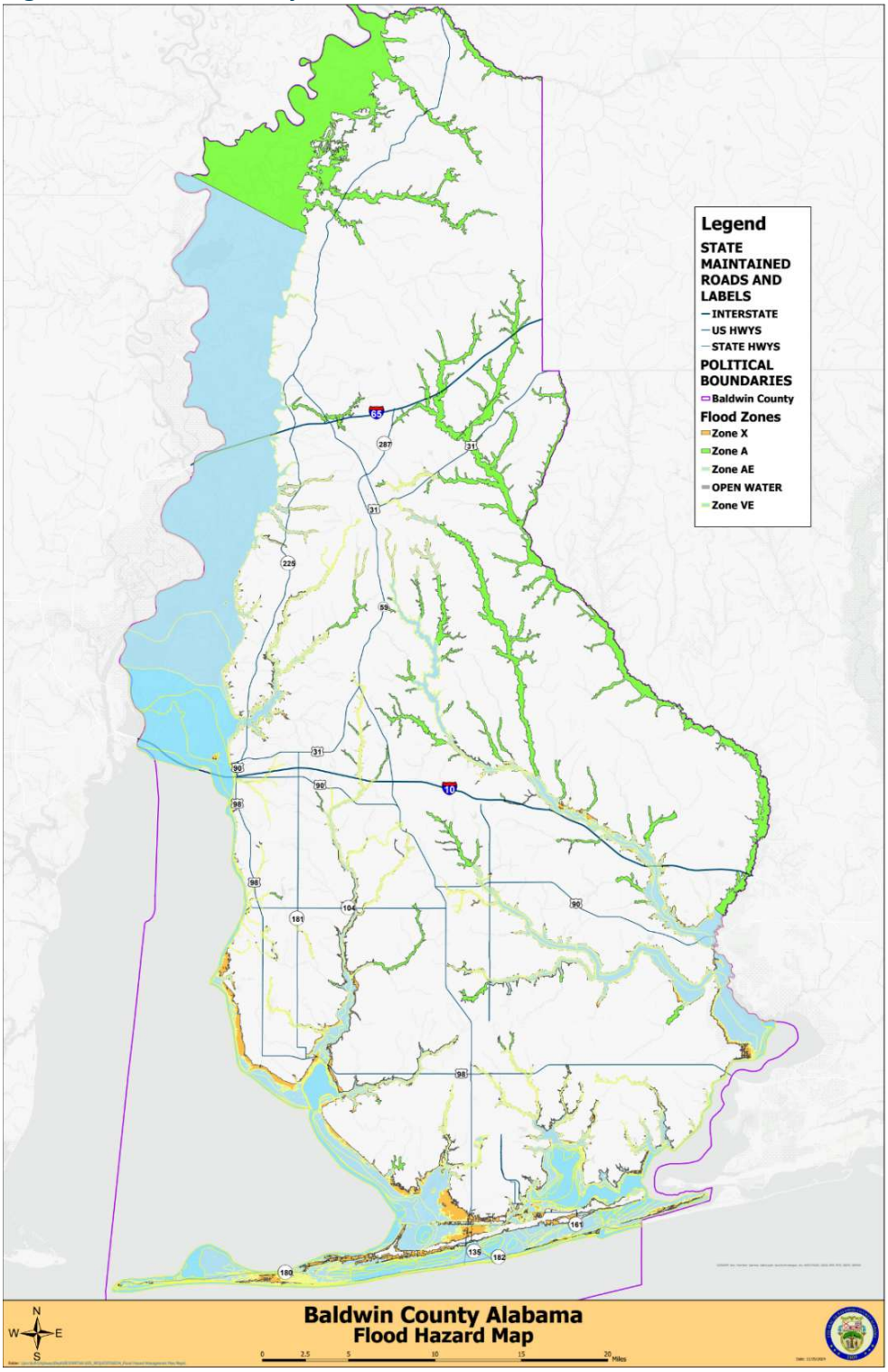
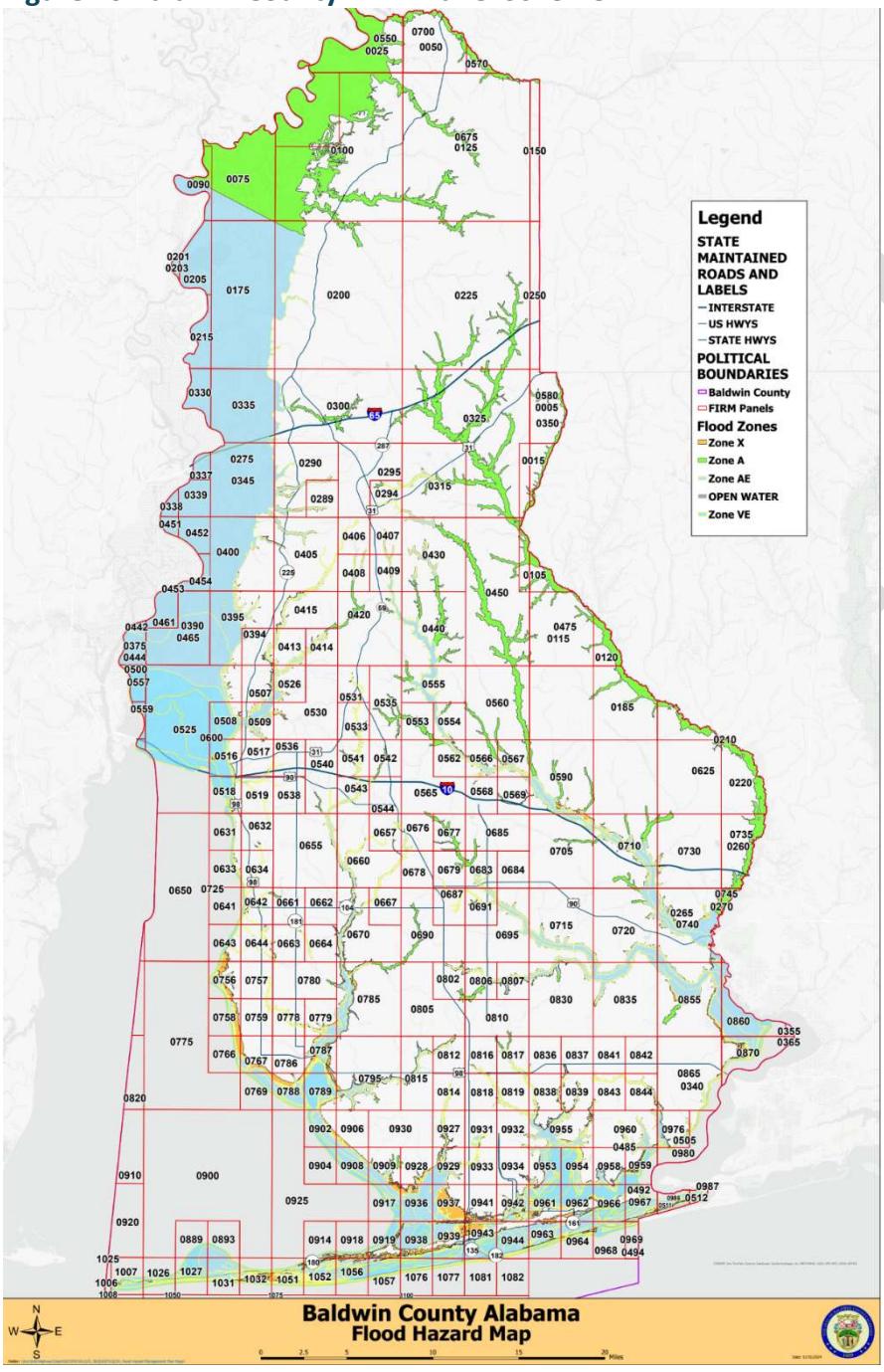


Figure 10 reflects the effective FIRM panel scheme for Baldwin County.

The total land area of Baldwin County is 1503.24 square miles. The total area identified as a flood hazard area (384.3 sq. mi.) is 25.5-percent of the total land area. The FMPC determined the spatial extent to be partial, 10 to 50-percent of the planning area.

Figure 10 Baldwin County FIRM Panel Scheme



All streams within Baldwin County, as previously identified, are subject to flooding and backwater flooding. Backwater flooding is defined as upstream flooding caused by downstream conditions such as channel restriction and/ or high flow in a downstream confluence stream. The primary effect of flooding on these streams appears to be inundation, although velocities will become significant to persons and structures under more extreme flooding situations. Calculated floodplain velocities range from 0.2 to 6.5 feet per second (fps). Velocities greater than 5.0 fps which is considered to be of dangerous magnitude. **Table 22** outlines the critical depths and velocities that will harm residents and structures during a flood event.

Table 22 Critical Flood Depths and Velocities

Depth (threat to life)	In stagnant backwater areas (zero velocity), depths in excess of about 1m (3.3ft) are sufficient to float young children, and depths above 1.4m (4.6ft) are sufficient to float teenage children and many adults.
Velocity (threat to life)	In shallow areas, velocities in excess of 1.8m/s (5.9 ft/s) pose a threat to the stability of many individuals.
Depth and Velocity (threat to life)	The hazards of depth and velocity are closely linked as they combine to effect instability through an upward buoyant force and a lateral force. A product of less than or equal to 0.4m2/s (43 ft2/s) defines a low hazard provided the depth does not exceed 0.8m (2.6ft) and the velocity does not exceed 1.7m/s (5.6 ft/s).
Vehicular access (emergency access)	Most automobiles will be halted by flood depths above 0.3-0.5m (1.0-1.7ft). A maximum flood velocity of 3m/s (9.8 ft/s) would be permissible, providing that flood depths are less than 0.3m (1.0ft). A depth of 0.9-1.2m (2.9-3.9 ft) is the maximum depth for rapid access of large emergency vehicles.
Structural Integrity (structures above ground)	A depth of 0.8m (2.6ft) is the safe upper limit for the above ground/super structure of conventional brick veneer, and certain types of concrete block buildings. The structural integrity of elevated structures is more a function of flood velocities (e.g. Erosion of foundations, footings or fill) than depth. The maximum velocity to maintain structural stability depends on soil type, vegetation cover, and slope but ranges between 0.8-1.5m/s (2.6-4.9 ft/s)
Fill (stability)	In general, fill may become susceptible to erosion/instability at depths of 1.8- 2.4m (5.9-7.9ft).

SOURCE: TECHNICAL GUIDE - RIVER AND STREAM SYSTEMS: FLOODING HAZARD LIMIT, ONTARIO MINISTRY OF NATURAL RESOURCES, 2002

The NFIP utilizes the 100-year flood as a basis for floodplain management. The FIS defines the probability of flooding as flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 100-year period (recurrence intervals). Or considered another way, properties within a 100-year flood zone have a one percent probability of being equaled or exceeded during any given year. Mortgage lenders require that owners of properties with federally backed mortgages located within SFHAs purchase and maintain flood insurance policies on their properties. Consequently, newer and recently purchased properties in the community are insured against flooding. Due to the risk of flooding from hurricanes, all property owners within Baldwin County, even if the property is not located in a SFHA, should be encouraged to purchase and maintain flood insurance policies.

Previous Occurrences

Table 23 presents a comprehensive record of flood events since 2014, compiled from the NCEI database and reports provided by FMPC members.

Table 23 Previous Flood Events, 2014 - 2024

Location	Date	Event Type	Injuries / Death	Property Damage	Crop Damage
POINT CLEAR	3/28/2014	Flood	0/0	0	0
TAYLORS CAMP	4/14/2014	Flash Flood	0/0	100,000	0
TAYLORS CAMP	4/14/2014	Flash Flood	0/0	25,000	0
LILLIAN	5/2/2014	Flood	0/1	0	0
ROMAR BEACH	2/23/2016	Flash Flood	0/0	0	0
BON SECOUR	8/12/2016	Flood	0/0	0	0
BELFOREST	1/2/2017	Flash Flood	0/0	600,000	0
ELSANOR	6/7/2017	Flash Flood	0/0	0	0
MARLOW	10/22/2017	Flash Flood	0/0	50,000	0
OAK	10/28/2017	Flash Flood	0/0	0	0
TURKEY BRANCH	9/5/2018	Flash Flood	0/0	0	0
ELSANOR	9/5/2018	Flash Flood	0/0	0	0
MALBIS	9/5/2018	Flash Flood	0/0	0	0
SEMINOLE	9/5/2018	Flood	0/0	0	0
LILLIAN	12/1/2018	Flash Flood	0/0	0	0
BALDWIN COASTAL	7/12/2019	Coastal Flood	0/0	0	0
FT MORGAN	9/16/2020	Flash Flood	0/0	0	0
BARNWELL	9/16/2020	Flash Flood	0/0	0	0
MIFLIN	5/5/2021	Flash Flood	0/0	0	0
ORANGE BEACH	7/6/2021	Flash Flood	0/0	0	0
FOLEY	7/16/2021	Flash Flood	0/0	0	0

Location	Date	Event Type	Injuries / Death	Property Damage	Crop Damage
FOLEY	7/16/2021	Flash Flood	0/0	0	0
GULF SHORES	7/16/2021	Flash Flood	0/0	0	0
JOSEPHINE	9/15/2021	Flash Flood	0/0	0	0
PERDIDO BEACH	9/15/2021	Flash Flood	0/0	250,000	0
MARLOW	10/4/2021	Flash Flood	0/0	0	0
ROSINTON	10/4/2021	Flash Flood	0/0	0	0
BON SECOUR	8/24/2022	Flash Flood	0/0	0	0
FOLEY	8/25/2022	Flash Flood	0/0	0	0
OAK	5/17/2023	Flash Flood	0/0	0	0
LOXLEY	6/16/2023	Flash Flood	0/0	0	0
MAGNOLIA SPRGS	6/19/2023	Flash Flood	0/0	0	0
FOLEY	6/19/2023	Flash Flood	0/0	0	0
BARNWELL	6/19/2023	Flash Flood	0/0	0	0
MARNOLIA SPRGS	6/19/2023	Flash Flood	0/0	0	0
SUMMERDALE	5/13/2024	Flash Flood	0/0	0	0

THE FOLLOWING PROVIDES DETAILS ON FLOOD EVENTS DETAILED IN THE NCEI DATABASE AND FROM MEMBERS OF THE FMPC

The following section presents six detailed examples of flooding occurrences, sourced from the NCEI database and reports from FMPC members.

April 14, 2014- Heavy rain caused Highway 90 just east of Highway 59 to flood. Numerous roads closed in Fairhope, Robertsdale and Silverhill. Highway Department placed warning barricades up across roads experiencing high water. One person was rescued from a residence due to flooding.

January 2, 2017- Significant flash flooding occurred, especially in the Foley area, due to 5 to 7 inches of rain falling the span of only a couple of hours. A water rescue had to be performed on Fernwood Circle due to the rapid rise of Sandy Creek. Numerous roads in the central and southern half of the county were flooded and closed, with several sustaining damages due to the flooding.

October 22, 2017- The rapid rise of the Fish River resulted in significant flooding from County 32 to Highway 104. County Road 32 was flooded just east of the bridge. Over 10 water rescues were performed from County Road 32 north to Highway 104. Multiple cars were under water.

December 1, 2018- Thunderstorms developed ahead of a strong cold front moving across the southeast. The storms produced 5 to 10 inches of rain across extreme southeastern Baldwin

County near the Florida state line. This resulted in isolated flash flooding. Fast moving water across several roads was reported near County Road 99 and Highway 98 in Lillian.

July 12, 2019- A weak area of low pressure moved southward into the northeast Gulf on July 9th and become better developed as it tracked southwest and westward just to south of the marine area. The system become a Tropical Storm on July 11th and briefly a Hurricane on July 13th before making landfall near Intercoastal City, Louisiana as a weak Category 1 hurricane. The system brought coastal flooding, gusty winds and heavy rain to the area. Water reported over Pelican Point at the mouth of Weeks Bay.

September 15, 2021- Over 6 inches of rain in just a couple of hours resulted in significant flash flooding in parts of the Lillian and Seminole areas. In Lillian, fast moving water over Highway 98 washed cars off the road. A water rescue had to be performed at the Lillian Post Office due to a person being trapped in their vehicle. County Road 99 at Pearson Branch Bridge was closed due to flooding. In Seminole, a portion of Liatrus Lane near Juniper Road caved in with a six-to-10-foot sink hole.

According to the USDA's Risk Management Agency, insured crop losses in Baldwin County as a result of excessive moisture from 2014 to 2024 totaled $7,240,769.59. Historical crop insurance claims as a result of flooding are detailed in.

Table 24 Claims Paid in Baldwin County for Crop Loss as a Result of Excessive Moisture/Precipitation/Rain, 2014-2024

Year	Crop	Hazard	Claims Paid
2014	Corn, Cotton, Oats, Peanuts, Pecans, Soybeans, Wheat, And All Other Crops	Excess Moisture/Precip/Rain	$780,300.66
2015	Corn, Cotton, Oats, Peanuts, Soybeans, Wheat, And All Other Crops	Excess Moisture/Precip/Rain	$884,409.86
2016	Corn, Oats, Peanuts, Pecans, Potatoes, And Wheat	Excess Moisture/Precip/Rain	$214,257.25
2017	Corn, Cotton, Peanuts, Pecans, Soybeans, Wheat, And All Other Crops	Excess Moisture/Precip/Rain	$1,378,869.82
2018	Corn, Peanuts, Potatoes, And Soybeans	Excess Moisture/Precip/Rain	$259,025.00
2019	Corn, Cotton, Oats, Peanuts, Soybean, Wheat	Excess Moisture/Precip/Rain	$172,778.00
2020	Peanuts	Excess Moisture/Precip/Rain	$16,336.00

Year	Crop	Hazard	Claims Paid
2021	Corn, Cotton, Peanuts, Pecans, Potatoes, Soybeans, And All Other Crops	Excess Moisture/Precip/Rain	$1,396,986.00
2022	Corn, Cotton, Peanuts, Pecans, Potatoes, Soybeans	Excess Moisture/Precip/Rain	$1,809,785.00
2023	Corn, Oats, Peanuts, Potatoes, Soybeans	Excess Moisture/Precip/Rain	$214,035.00
2024	Peanuts, Potatoes	Excess Moisture/Precip/Rain	$113,987.00
TOTAL			$7,240,769.59

SOURCE: USDA RISK MANAGEMENT AGENCY, 2024 HTTPS://WWW.RMA.USDA.GOV/

PROBABILITY OF FUTURE OCCURRENCES

Very High - Based on data from FEMA, the NCEI database and local accounts, from 1996 to 2017, there were 50 records of flood or flash flood events over a 22-year period. The average number of flood and flash flood events calculates to 2.3 per year.

MAGNITUDE/SEVERITY

Significant - The floodplain extends into some populated areas of the planning area indicating that some property damage from riverine flooding will occur during larger events. The most frequent type of flooding and damages are as a result of the frequent flash flood events. These are especially problematic in areas where development increases the rate of water flow and decreases the ability for water to be absorbed into the ground.

CHANGING FUTURE CONDITIONS

As previously noted in Chapter 2, precipitation along the northern Gulf Coast has increased annually and in summer. Increases in rainfall frequency and intensity are likely to put additional stress on natural hydrological systems and stormwater systems. Flood- prone areas should be prepared for a potential increase in facility closures and/or damages, as well as an increase in public demand for flood response and assistance.

Natural features that experience repeated flooding may manifest changes in the form of stream bank instability and changing shoreline, floodplain, and wetland boundaries.

Baldwin County may also wish to plan for the potential loss of cropland and damage to both private property and public infrastructure such as bridges.

The environmental impacts of flooding include erosion, surface and groundwater contamination, and reduced water quality. The threat of more frequent flood events may thus

be a concern particularly for areas of the County which depend on rivers and/or the coastline for tourism. Rural communities may experience increases in well contamination and road washouts, while urban areas may be particularly vulnerable to flash flooding as heavy rain events quickly overwhelm the ability of a more impermeable environment to absorb excess stormwater.

Flood Hazard Summary

Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Partial	Very High	Significant	High

Flooding – Stormwater/Localized

Description

Localized stormwater flooding can also occur throughout Baldwin County. Localized stormwater flooding occurs when heavy rainfall and an accumulation of runoff overburden the stormwater drainage system. The cause of localized flooding within Baldwin County can be attributed to a number of factors, including its low elevation, relatively flat terrain, close proximity to the coast, tides, abundance of water features, and the amount of developed and impervious land, which limits ground absorption and increases surface water runoff. Localized flooding may be also caused by the following maintenance related issues:

- ***Clogged Inlets*** – debris covering the asphalt apron and the top of grate at catch basin inlets may contribute to an inadequate flow of stormwater into the system which may cause flooding near the structure. Debris within the basin itself may also reduce the efficiency of the system by reducing the carrying capacity.
- ***Blocked Drainage Outfalls*** – debris blockage or structural damage at drainage outfalls may prevent the system from discharging runoff, which may lead to a back-up of stormwater within the system.
- ***Improper Grade*** – poorly graded asphalt around catch basin inlets may prevent stormwater from entering the catch basin as designed. Areas of settled asphalt may create low spots within the roadway that allow for areas of ponded water.

Geographic Location

Community Wide – Stormwater infrastructure is maintained by the Baldwin County Highway Department and encompasses over 1,600 miles of dirt, gravel, and paved roads. Additionally, all

subdivision plan submittals must include stormwater design calculations as described in the "Baldwin County Highway Department Stormwater Calculations, Submittal Requirements" and include written narrative that describes in detail the existing and proposed drainage patterns and characteristics of the proposed development as well as the proposed method of stormwater management to be used.

Previous Occurrences

Areas of localized flooding, as provided by the Baldwin County Highway Department, are presented in Figure 11 Localized Flooding Map Figure **11** and **Table 25** include roadway locations that have experienced damage from previous flood events such as road, bridge, culvert, and abutment washouts.

Figure 11 Localized Flooding Map

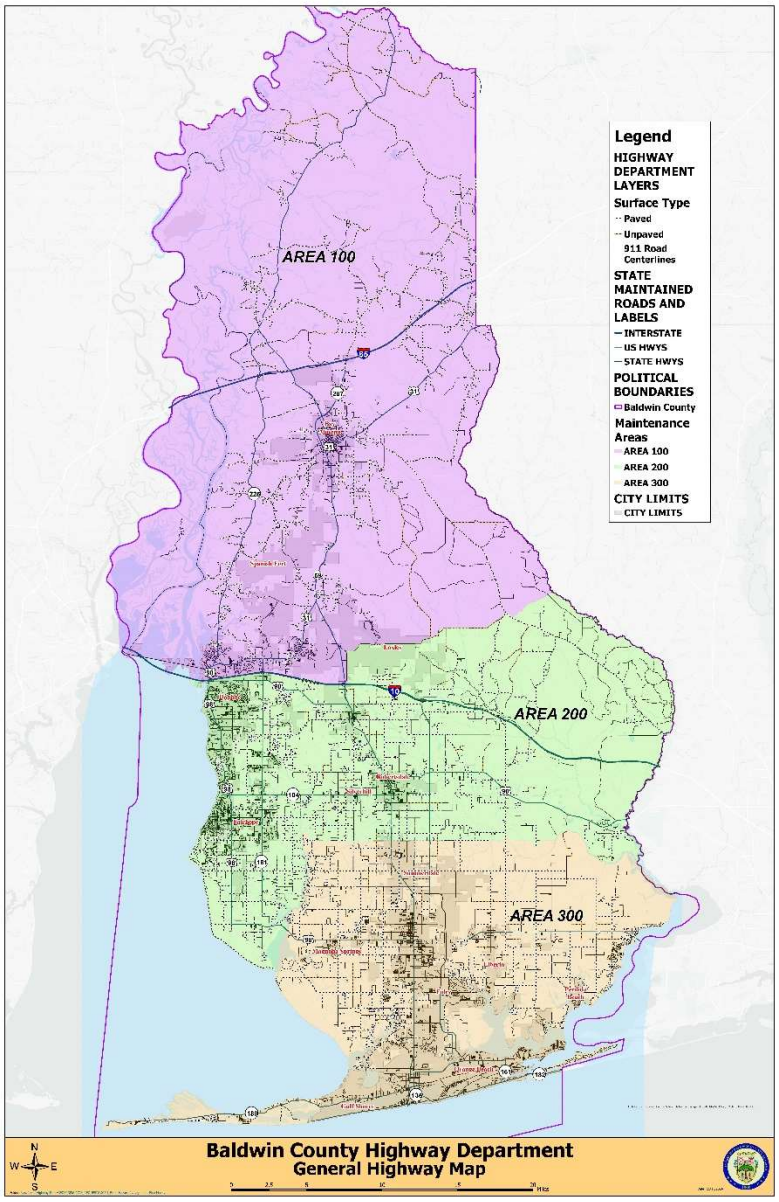


Table 25 Localized Flooding Table

ROADWAY	DESCRIPTION	ROADWAY	DESCRIPTION
ARD RD	S OF BREWER RD	COUNTY RD 36	*1,050 FT E OF 59*
BOOTHE RD	N OF TWIN BEECH RD AT COWPEN CREEK	COUNTY RD 36	*E OF BRYANT LN*
BOYNTON RD	AT 10097	COUNTY RD 38	*W OF COMMUNITY LN*
BRINKS WILLIS RD	AT 20512	COUNTY RD 48	*W OF COUNTY RD 9*
CHAROLAIS RD	E OF GRANTHAM RD	COUNTY RD 48	*E OF BLUBERRY LN*
COUNTY RD 12 S	W OF COUNTY RD 65	COUNTY RD 48	*W OF JACKSON LN*
COUNTY RD 12 S	300 FT E ROY WATERS RD	COUNTY RD 48	*BETWEEN SNARR RD & JACKSON LN*
COUNTY RD 13	S OF 32 AT THOROUGHBRED RUN	COUNTY RD 49	*AT CAMELLIA ROAD*
COUNTY RD 16	BETWEEN 17252-17746	COUNTY RD 49 S	*AT 16313*
COUNTY RD 19	AT CARVER RD	COUNTY RD 52	*E OF ROCKWELL RD*
COUNTY RD 24	E OF SR 181	COUNTY RD 52	*AT SILVER CREEK CULVERT*
COUNTY RD 24	E OF COUNTY RD 13	COUNTY RD 54	*BETWEEN HILL RD & FORLAND RD*
COUNTY RD 24	W OF GREENO	COUNTY RD 54	*W OF CR 49 & PERONE CREEK*
COUNTY RD 26	BETWEEN 27001-27553	COUNTY RD 55	*N OF RHODES LN*
COUNTY RD 26	AT 15847	COUNTY RD 64	*W OF COUNTY RD 65*
COUNTY RD 28	W OF MIKKELSEN RD	COUNTY RD 65	*S OF ACCESS DR*
COUNTY RD 28	W OF GEORGE YOUNCE RD	COUNTY RD 68	*E OF PHILLIPS PLACE*
COUNTY RD 28	800 FT W OF COUNTY RD 55	COUNTY RD 69	*E OF COUNTY RD 69*
COUNTY RD 28	300 FT W OF COUNTY RD 55	COUNTY RD 71	*N OF COUCH PLANT RD*
COUNTY RD 28	200 FT E OF RED STAR DR	COUNTY RD 71 EXT	*BETWEEN 18501-18897*
COUNTY RD 28	500 FT E COUNTY RD 9	COUNTY RD 73	*S OF COUNTY RD 32*
COUNTY RD 32	500 FT E OF SR 181	COUNTRY RD 8	*1500 FT E OF HWY 59*
COUNTY RD 32	BETWEEN COUNTY RD 3 & 98	COUNTY RD 85	*N OF WALTER WALLACE RD*
COUNTY RD 32	E COUNTY RD 13	COUNTY RD 87	*AT 12149*
COUNTY RD 32	CULVERT ON UNNAMED CREEK	COUNTY RD 87	*E OF ROSE RD*
COUNTY RD 32	W OF COUNTY RD 83	COUNTY RD 87	*S OF MERCHANT LN*
COUNTY RD 32	E OF RESMONDO DR	COUNTY RD 87	*N BLACK WATER BRIDGE*
COUNTY RD 9	N OF MILLER LN	KLEINSHMIDT RD	*E OF COUNTY RD 83*
COUNTY RD 9	AT POLECAT CREEK	LEHMAN RD	*W OF HARMS RD*
COUNTY RD 91	AT 12181	MAGNOLIA SPR HWY	*AT 10597*

ROADWAY	DESCRIPTION	ROADWAY	DESCRIPTION
COUNTY RD 91	N OF W MAIDMONT LN	MAGNOLIA SPR HWY	*AT MAREM DR*
COUNTY RD 93	AT 13161	MALKOSKIE RD	*BETWEEN 29167-29799*
COUNTY RD 95	N OF TOTSCH LN	MCLEOD BLVD	*AT FERNWOOD & MCLEOD*
COUNTY RD 95	S OF HWY 98	MIFLIN CREEK RD	*AT MIFLIN RD*
COUNTY RD 95	S OF BURKHARDT LN	MIFLIN RD	*W MIFLIN CREEK RD*
COUNTY RD 97	AT 12291	OLD BATTLES RD	*TRIPLE PIPE OF GARRISON BLVD*
COUNTY RD 99	AT PETERSON BRANCH BRIDGE	OLD BATTLES RD	*W OF SECTION ST*
COUNTY RD 99	N OF COYLE LN	RADA RD	*S OF W BLVD*
COUNTY RD 99	90 FT N OF BUENA VISTA DR	RIVER PARK RD	*N CHAMPION RD*
E SILVERHILL AVE	E OF HUBBARD RD	SANBORN AVE	*BETWEEN 20300-20398*
E RIVER RD N	250 FT N OF HEIDELBERG RD	SCENIC 98	*BETWEEN 17583-17221*
FEELY RD	BETWEEN 26575-26537	SECTION ST	*S OF BATTLES RD*
FISH RIVER RD	200 FT S OF MANNICH LN	SELLERS LN	*AT 20447*
FISH TRAP RD	BETWEEN 27815-28155	SOLIDERS CREEK RD	*BETWEEN 9001-9329*
GEAN RD	E OF ALBRITTON RD	STUCKI RD	*N OF COUNTY RD 20*
HAMMOCK RD	BETWEEN 9001-9499	STUCKI RD	*BETWEEN 11300-11520*
HEIDELBERG RD	BETWEEN 19058-19398	TWIN BEECH RD	*CULVERT W OF COUNTY RD 13*
HEIDELBERG RD	525 FT N OF BETWEEN 300-401	TWIN BEECH RD	*E OF COUNTY RD 13*
JUNIPER LN	OFF COUNTY RD 9	VAUGHN RD	*AT 19403*
JUNIPER ST N	N OF SELLERS LN	W MAIDMONT RD	*AT 31401*
KENDRICK RD	E OF COUNTY RD 65	WOLF FIELD RD	*S OF FISH TRAP RD*
KICHLER CIR N	W OF COUNTY RD 87	WOERNER RD	*W OF COUNTY RD 83*
KICHLER CIR W	BETWEEN 13401-13829	WOODLAND LN	*500 FT N OF HWY 98 IN LILLIAN*

Probability of Future Occurrences

Very High - Due to the low elevations, flat terrain, a consistent level of annual precipitation and the tidal influence on drainage resulting from heavy rainstorms, tropical storms, and hurricanes, it is highly likely that unmitigated properties will continue to experience localized flooding.

Magnitude/Severity

Moderate – Stormwater/localized flood events result as land loses its ability to absorb rainfall as it is converted from fields or woodlands to roads, buildings, and parking lots. Urbanization increases runoff two to six times over what would occur on undeveloped terrain. During periods of urban flooding, streets can become swift moving rivers.

The FMPC determined that the magnitude/severity of this hazard would have moderate potential for economic losses and structure damage.

Changing Future Conditions

Climate change and sea level rise have the potential to affect localized flooding in Baldwin County. The intensity of individual rainfall events is likely to increase, which may overwhelm stormwater drainage systems.

FLOODING: STORMWATER/LOCALIZED HAZARD SUMMARY

Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Community-Wide	Very High	Moderate	Moderate

Hurricane and Tropical Storms

Description

A hurricane is a type of tropical cyclone or severe tropical storm that forms in the southern Atlantic Ocean, Caribbean Sea, Gulf of Mexico, and in the eastern Pacific Ocean. A typical cyclone is accompanied by thunderstorms, and in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface. All Atlantic and Gulf of Mexico coastal areas are subject to hurricanes. The Atlantic hurricane season lasts from June to November, with the peak season from mid-August to late October.

Hurricanes evolve through a life cycle of stages from birth to death. While hurricanes pose the greatest threat to life and property, tropical storms and depressions also can be devastating. Floods from heavy rains and severe weather, such as tornadoes, can cause extensive damage

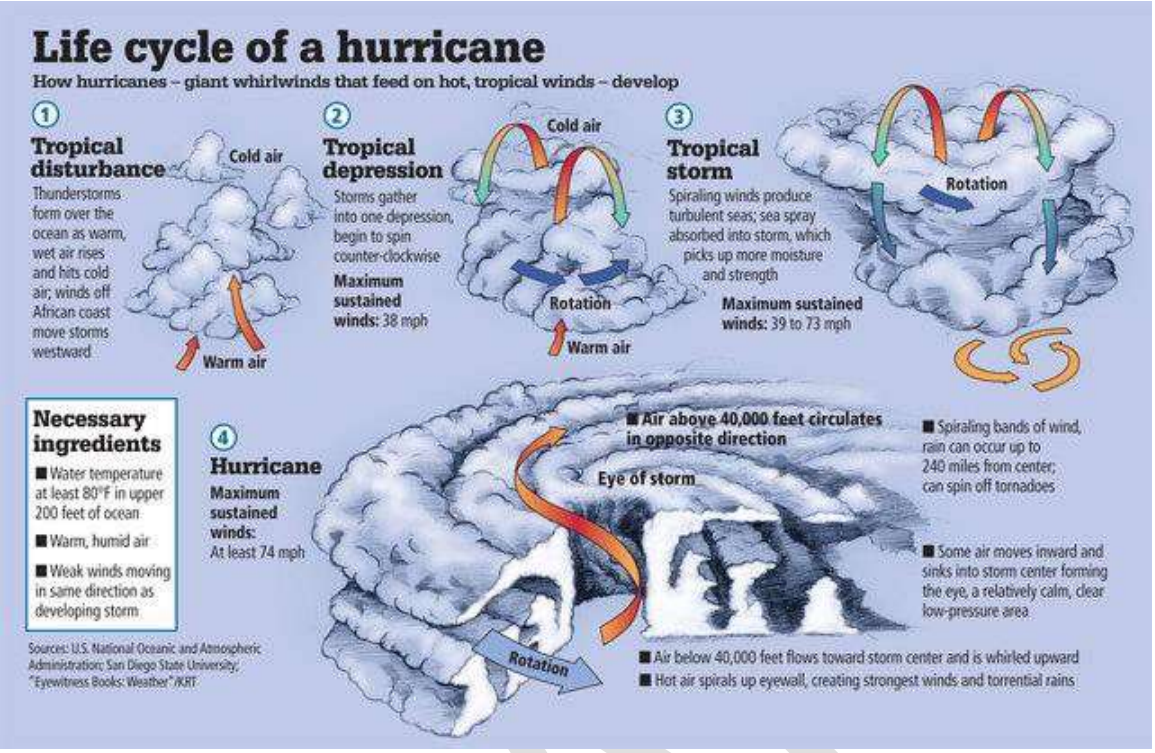
and loss of life. A tropical disturbance can grow to a more intense stage through an increase in sustained wind speeds. The progression of a tropical disturbance is described below and can be seen in

Figure 12 Life Cycle Of A Hurricane.

- ***Tropical Disturbance*** - A discrete tropical weather system of apparently organized convection -- generally 100 to 300 nmi in diameter -- originating in the tropics or subtropics, having a non-frontal migratory character, and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.
- ***Tropical Depression -*** a tropical cyclone in which the maximum 1-minute sustained surface wind is 33 knots (38 mph) or less. When viewed from a satellite, tropical depressions appear to have little organization. However, the slightest amount of rotation can usually be perceived when looking at a series of satellite images. Instead of a round appearance similar to hurricanes, tropical depressions look like individual thunderstorms that are grouped together.
- ***Tropical Storm -*** a tropical cyclone in which the maximum 1-minute sustained surface wind ranges from 34 to 63 knots (39 to 73 mph) inclusive. As the storm transitions from tropical depression to tropical storm, the storm itself becomes more organized and begins to become more circular in shape – resembling a hurricane.
- ***Hurricane -*** A hurricane is a tropical cyclone in which the maximum sustained surface wind is 74 mph or more. Hurricanes are classified by intensity into one of five categories on the Saffir-Simpson Hurricane Wind Scale as shown in

- **Figure** 12. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures.

Figure 12 Life Cycle Of A Hurricane



SOURCE: NOAA, SAN DIEGO STATE UNIVERSITY; "EYEWITNESS BOOKS: WEATHER"

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. **Table 26** describes the characteristics of each category storm from the Saffir-Simpson Hurricane Wind Scale.

Table 26 Saffir-Simpson Hurricane Wind Scale, 2012

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

SOURCE: NOAA NATIONAL HURRICANE CENTER; HTTPS://WWW.NHC.NOAA.GOV/ABOUTSSHWS.PHP

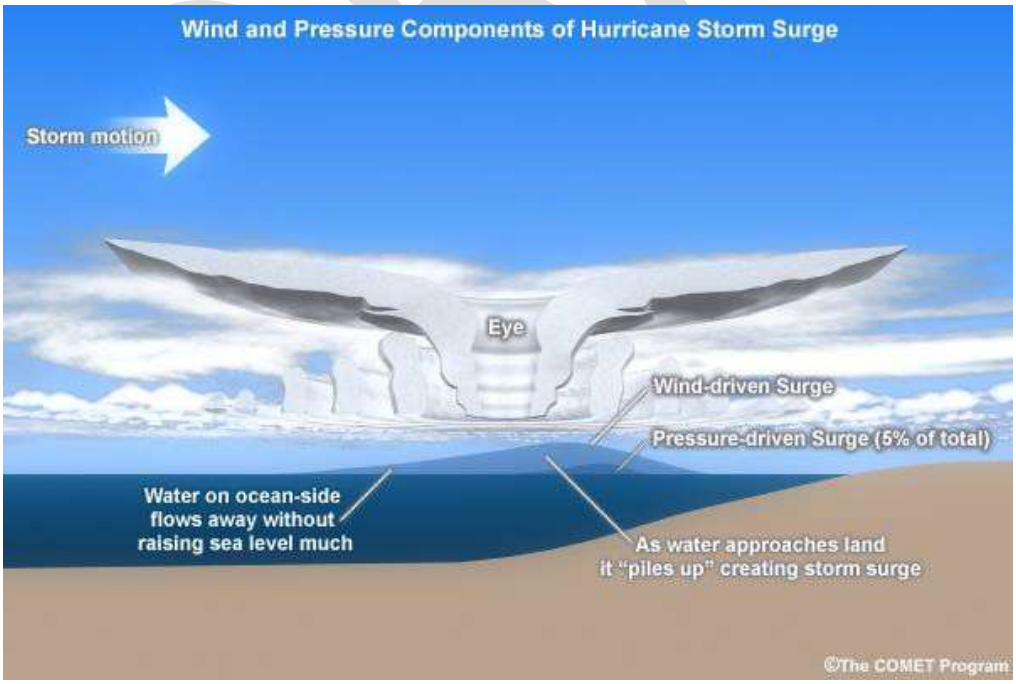
Hurricanes can cause catastrophic damage to coastlines and several hundred miles inland. Hurricanes can produce winds exceeding 157 miles per hour as well as tornadoes and microbursts. Additionally, hurricanes can create storm surges along the coast and cause extensive damage from heavy rainfall. Floods and flying debris from the excessive winds are often the deadly and destructive results of these weather events. Flash flooding can also occur due to intense rainfall.

Storm Surge

The greatest potential for loss of life related to a hurricane is from the storm surge. Storm surge is simply water that is pushed toward the shore by the force of the winds swirling around the storm as shown in **Figure 13 Components of Hurricane Storm Surge**. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level to heights impacting roads, homes and other critical infrastructure. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides.

The maximum potential storm surge for a particular location depends on a number of different factors. Storm surge is a very complex phenomenon because it is sensitive to the slightest changes in storm intensity, forward speed, size (radius of maximum winds- RMW), angle of approach to the coast, central pressure (minimal contribution in comparison to the wind), and the shape and characteristics of coastal features such as bays and estuaries. Other factors which can impact storm surge are the width and slope of the continental shelf. A shallow slope will potentially produce a greater storm surge than a steep shelf.

Figure 13 Components of Hurricane Storm Surge



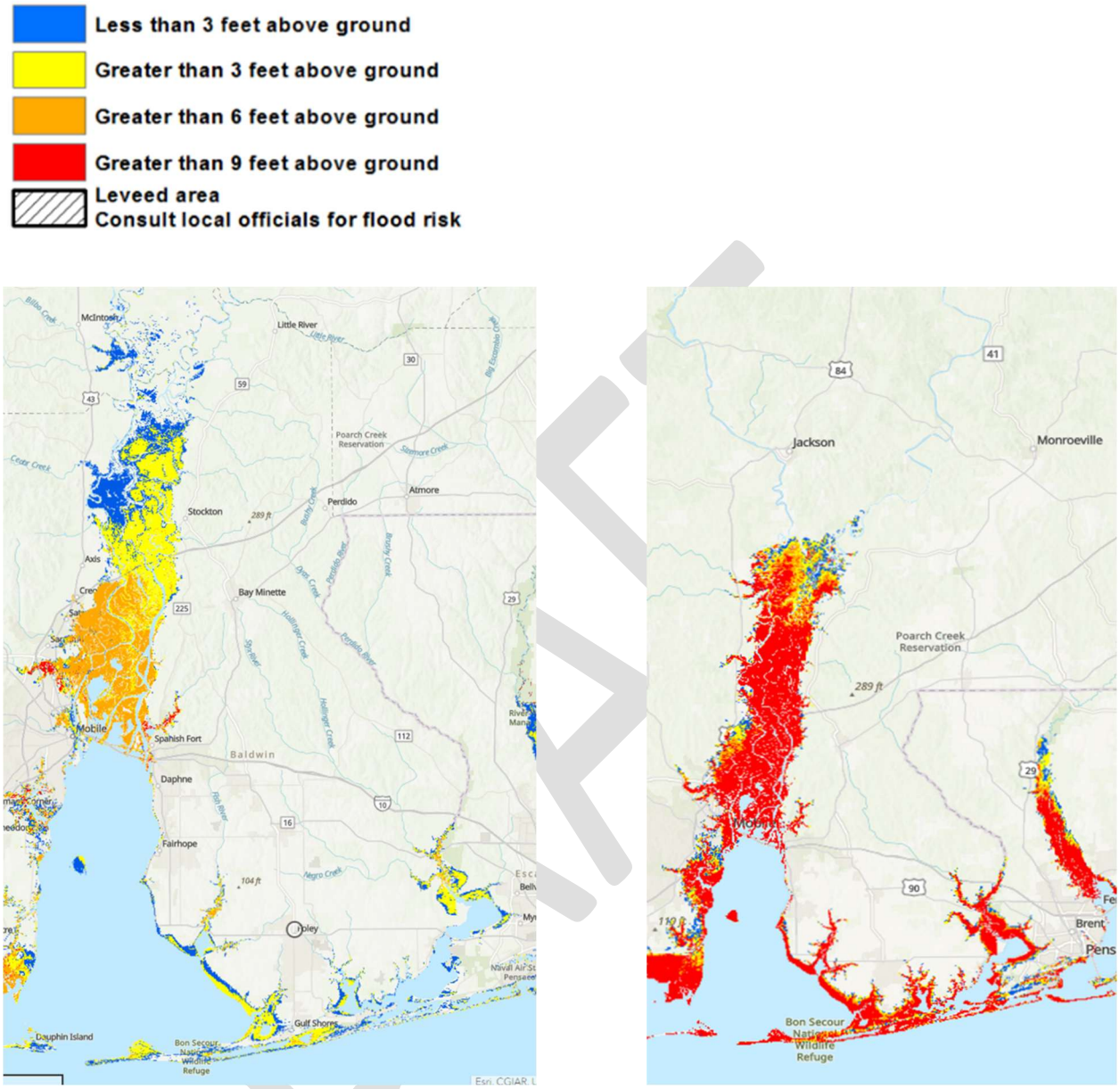
Storm Surge Mapping

The Sea, Lake and Overland Surges from Hurricanes (SLOSH) model is a computerized numerical model developed by the National Weather Service (NWS) to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes by taking into account the atmospheric pressure, size, forward speed, and track data. These parameters are used to create a model of the wind field which drives the storm surge. The SLOSH model consists of a set of physics equations which are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads, levees and other physical features.

Anticipated SLOSH model surge elevations for Category 1-5 hurricanes are shown for Baldwin in

Figure 14. The feature set depicting surge zones in this figure was created using data derived from National Hurricane Center SLOSH model runs on all the NOAA SLOSH basins throughout Alabama. The runs create outputs for all different storm simulations from all points of the compass. Each direction has a MEOW (maximum envelope of water) for each category of storm (1-5), and all directions combined result in a MOMs (maximum of maximums) set of data. The MOMs are used in this surge model.

Figure 14 Storm Surge for Category 1 and 5 Hurricanes



Geographic Location

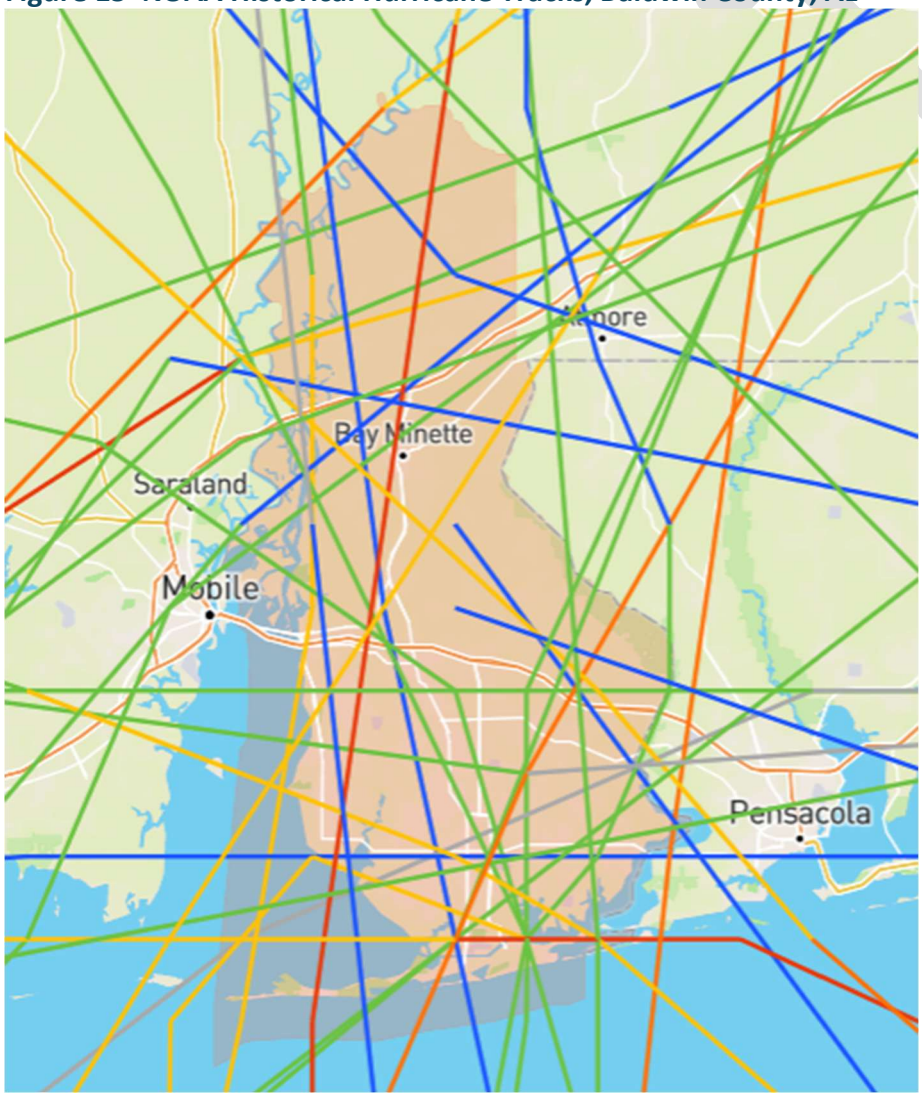
Community-wide - All of unincorporated Baldwin County is subject to the risk of hurricane winds. The coastal areas are at a greater risk for high winds and storm surge, as presented in **Figure 14**.

Table 27 Components of Hurricane Storm Surge

Location	Date	Event Type	Injuries/ Deaths	Property Damage	Crop Damage
UPPER BALDWIN (ZONE)	07/18/1997	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	07/18/1997	Hurricane (typhoon)	0/1	$60,500,000	$2,500,000
UPPER BALDWIN (ZONE)	09/01/1998	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	09/01/1998	Hurricane (typhoon)	0/0	$5,000	$0
UPPER BALDWIN (ZONE)	09/25/1998	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	09/25/1998	Hurricane (typhoon)	0/0	$82,000,000	$0
LOWER BALDWIN (ZONE)	09/21/2000	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	09/21/2000	Tropical Storm	0/0	$0	$0
LOWER BALDWIN (ZONE)	08/04/2001	Tropical Storm	0/0	$40,000	$0
UPPER BALDWIN (ZONE)	08/04/2001	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	09/12/2002	Tropical Storm	0/0	$0	$0
LOWER BALDWIN (ZONE)	09/12/2002	Tropical Storm	0/0	$40,000	$0
LOWER BALDWIN (ZONE)	09/24/2002	Tropical Storm	0/0	$2,000,000	$0
UPPER BALDWIN (ZONE)	09/24/2002	Tropical Storm	0/0	$0	$0
LOWER BALDWIN (ZONE)	10/02/2002	Hurricane (typhoon)	0/0	$75,000	$0
UPPER BALDWIN (ZONE)	10/02/2002	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	09/13/2004	Hurricane (typhoon)	0/0	$0	$0
UPPER BALDWIN (ZONE)	09/13/2004	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	10/09/2004	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	10/09/2004	Tropical Storm	0/0	$0	$0
LOWER BALDWIN (ZONE)	06/10/2005	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	06/10/2005	Tropical Storm	0/0	$1,500,000	$0
LOWER BALDWIN (ZONE)	07/05/2005	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	07/05/2005	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	07/09/2005	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	07/09/2005	Hurricane (typhoon)	0/0	$0	$0
UPPER BALDWIN (ZONE)	07/10/2005	Hurricane (typhoon)	0/0	$0	$0
UPPER BALDWIN (ZONE)	08/27/2005	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	08/27/2005	Hurricane (typhoon)	0/0	$0	$0
LOWER BALDWIN (ZONE)	08/23/2008	Tropical Depression	0/0	$0	$0

Location	Date	Event Type	Injuries/ Deaths	Property Damage	Crop Damage
UPPER BALDWIN (ZONE)	08/23/2008	Tropical Depression	0/0	$0	$0
LOWER BALDWIN (ZONE)	08/31/2008	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	08/31/2008	Tropical Storm	0/0	$0	$0
LOWER BALDWIN (ZONE)	09/01/2008	Tropical Storm	0/0	$0	$0
UPPER BALDWIN (ZONE)	09/01/2008	Tropical Storm	0/0	$0	$0
LOWER BALDWIN (ZONE)	08/28/2012	Tropical Storm	0/0	$0	$0

Figure 15 NOAA Historical Hurricane Tracks, Baldwin County, AL



SOURCE: NOAA NATIONAL HURRICANE CENTER; HTTPS://COAST.NOAA.GOV/HURRICANES/

PROBABILITY OF FUTURE OCCURRENCES

High - Based on data from FEMA, the NCEI database, and local accounts, between 1996 and 2017, Alabama experienced 19 recorded tropical storm or hurricane events over a 21-year period, averaging approximately 0.9 events per year. From 2018 to 2024, 12 tropical storm or hurricane events were recorded over a 7-year period, increasing the average to approximately 1.7 events per year. This trend suggests a rise in the frequency of tropical storms and hurricanes impacting the state in recent years.

Magnitude/Severity

Significant - Hurricanes can cause catastrophic damage along coastlines and inland, with winds exceeding 157 mph, often leading to structural destruction, downed power lines, and widespread disruption. These storms can also produce tornadoes, microbursts, and storm surges, causing severe coastal and inland flooding. Heavy rainfall increases the risk of flash flooding, while flying debris and rising waters pose major threats to life and property. Recent trends indicate stronger storms with more intense rainfall, heightening risks to infrastructure, public safety, and the environment.

Changing Future Conditions

Baldwin County, Alabama, remains highly vulnerable to hurricanes due to its coastal location along the Gulf of Mexico. Historically, the county has endured significant storms, including Hurricane Ivan (2004), Hurricane Katrina (2005), and Hurricane Sally (2020). Data from the National Oceanic and Atmospheric Administration (NOAA) indicates that Baldwin County experiences severe hurricanes approximately every 5–10 years. However, recent climate trends suggest an increase in both storm intensity and frequency, driven by rising sea surface temperatures and changing atmospheric conditions. Warmer ocean waters provide more energy for hurricanes, leading to stronger winds, higher storm surges, and increased rainfall, exacerbating flood risks for coastal and inland communities.

Climate change is also influencing storm behavior, with a trend toward slower-moving hurricanes that prolong exposure to extreme wind, storm surge, and heavy rainfall. This was evident in Hurricane Sally, which stalled over the region, causing extensive flooding and damage. Future hurricanes affecting Baldwin County are likely to bring similar challenges, including more intense storms, heavier rainfall, and greater inland flooding. These evolving risks highlight the importance of proactive mitigation efforts, such as improved infrastructure resilience, updated floodplain management, and enhanced emergency preparedness, to reduce the long-term impacts of hurricanes on the county's residents and economy.

Hurricane/Tropical Storm Hazard Summary

Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Community-Wide	High	Significant	High

Coastal Bank Erosion

Description

Coastal bank erosion in Baldwin County, Alabama, is a persistent issue driven by natural forces such as storms, flooding, strong wave action, and sea-level rise, as well as human activities like shoreline modifications and development. Severe storms, including Hurricane Frederic in 1979, have historically accelerated erosion by washing away dune fields and altering the coastal landscape. While some dunes have started to recover, gaps in the primary dune line remain, leaving certain areas vulnerable to further erosion. The continued loss of sand and beach structures threatens homes, businesses, and public infrastructure, with significant long-term economic and environmental consequences.

To mitigate erosion, Baldwin County has implemented various measures, including beach renourishment projects. These projects involve pumping sand from nearshore areas onto the beaches, increasing dune heights, planting vegetation, and constructing sand fences to stabilize the shoreline. Partially funded by federal and state agencies, these efforts help sustain the ecological and cultural benefits of Alabama's coast while protecting communities from the impacts of coastal erosion. Despite these efforts, erosion rates remain highly localized, with some areas experiencing severe sand loss from single storm events. As Baldwin County continues to face the challenges of coastal erosion, long-term strategies focused on sustainable shoreline management and climate resilience will be essential for protecting the region's coastal resources.

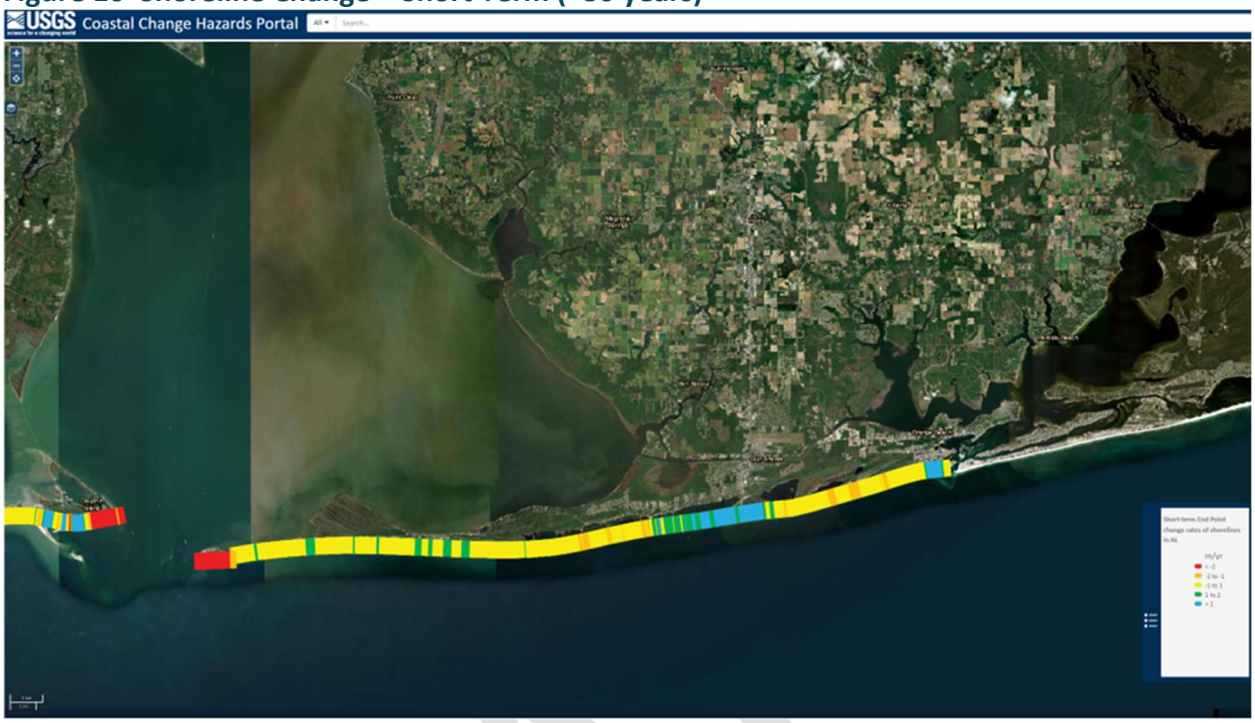
Geographic Location

Minimal - The total area identified as a coastal high hazard area (10.4 sq. mi.) is less than 10-percent of the planning area, 1,503.24 square miles.

Previous Occurrences

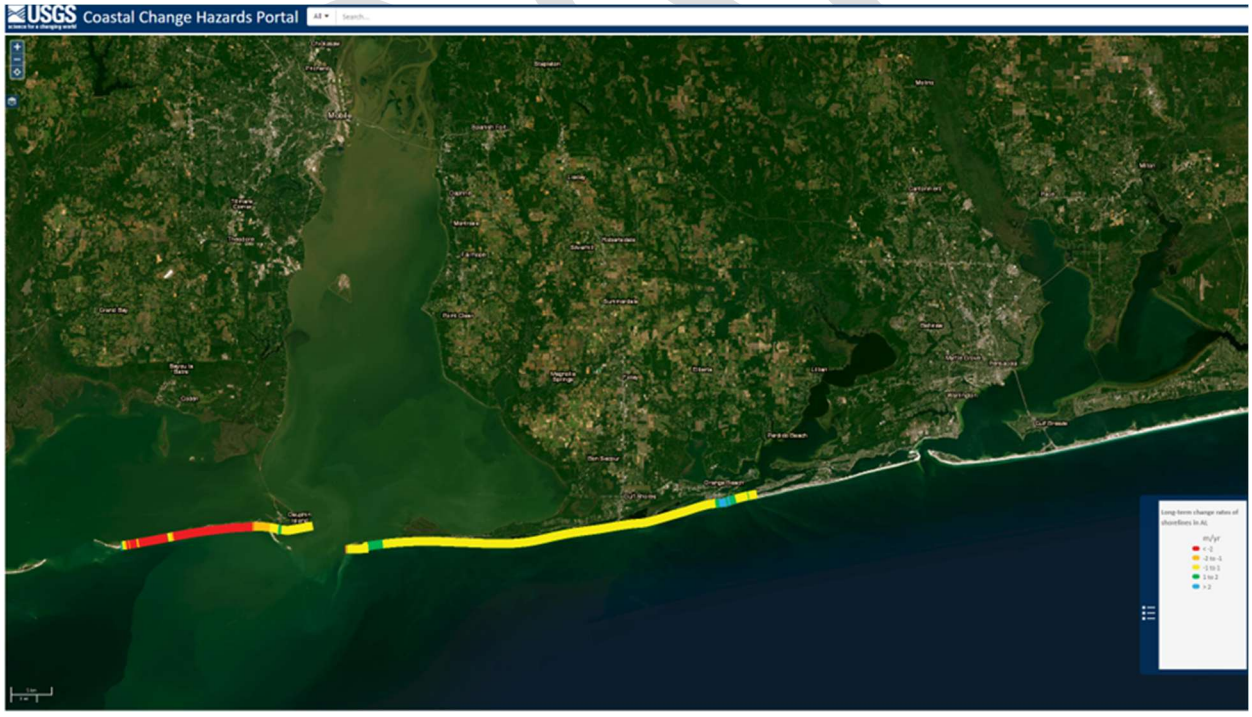
Figure 16 and **Figure** 17 depict Baldwin County's short-term (<30 years) rates of shoreline change for open-ocean, sandy shorelines from 1970-2001; and long-term (78+ years) rates of shoreline change for open-ocean shorelines from the 1800's to 2017, respectively.

Figure 16 Shoreline Change – Short Term (~30 years)



SOURCE: USGS COASTAL CHANGE HAZARDS PORTAL; HTTPS://MARINE.USGS.GOV/COASTALCHANGEHAZARDSPORTAL/

Figure 17 Shoreline Change – Long Term (~150 years)



SOURCE: USGS COASTAL CHANGE HAZARDS PORTAL; HTTPS://MARINE.USGS.GOV/COASTALCHANGEHAZARDSPORTAL/

Probability of Future Occurrences

Very High - The Gulf Coast's combination of large waves, storm surges, and low-lying coastal areas makes it highly susceptible to significant coastal erosion during storms. The U.S. Geological Survey (USGS) assesses the probabilities of coastal changes due to collision (when waves reach the base of the dune), overwash (when waves and surge exceed the dune crest elevation), and inundation (when the dune crest and beach are completely submerged).

For a direct landfall of a Category 1 hurricane, 100% of Baldwin County's beaches are very likely to experience dune erosion due to collision, 69% are vulnerable to overwash, and 4% are likely to be inundated. In the event of a Category 3 hurricane landfall, 100% of the county's beaches are expected to undergo dune erosion, 100% are susceptible to overwash, and 74% are likely to face inundation. For a Category 5 hurricane landfall, there is a 100% probability of coastal change due to collision, overwash, and inundation.

These statistics underscore the critical need for comprehensive coastal management and mitigation strategies in Baldwin County to address the high probability of future coastal erosion events.

Magnitude/Severity

Moderate - Baldwin County's coastal beaches serve as a natural barrier, protecting inland communities, infrastructure, and natural resources from ocean forces. However, this dynamic environment continuously changes due to winds, waves, and currents. During flood events, large waves can erode beaches, and storm surges may push the erosive force further inland, intensifying damage. Structures near dunes are particularly vulnerable to wave attack and erosion. The FHMP committee rates this hazard as moderate, with potential for economic losses and structural damage. With rising sea levels and stronger storms, continued investment in coastal resilience strategies, such as beach nourishment and dune restoration, remains essential.

Changing Future Conditions

Sea-level rise will raise all tide levels, from low tide to storm surge. Wave action at higher tide levels may cause erosion of sandy beaches as well as the banks of tidally influenced rivers. Higher storm surges, which may be accompanied by stronger storm winds, could wash over the tops of sand dunes, flooding the burrows of dune-nesting animals. The combined effects of wind and waves could damage dunes, leaving the beachfront more vulnerable. (*SOURCE: USGS COASTAL CHANGE HAZARDS PORTAL)*

COASTAL BANK EROSION HAZARD SUMMARY

Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Minimal	Very High	Moderate	Moderate

Dam Failure

Description

A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams are typically constructed of earth, rock, concrete, or mine tailings. A dam failure is the collapse, breach, or other failure resulting in downstream flooding.

A dam impounds water in the upstream area, referred to as the reservoir. Theamount of water impounded is measured in acre-feet. An acre-foot is the volume of water that covers an acre of land to a depth of one foot. As a function of upstream topography, even a very small dam may impound or detain many acre-feet of water. Two factors influence the potential severity of a full or partial dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream.

The failure of dams could result in injuries, loss of life, or damage to property, the environment, and the economy. Dams often serve multiple purposes, one of which may be flood control. Severe flooding and other storms can increase the potential that dams will be damaged and fail as a result of the physical force of the flood waters or overtopping.

Dams are usually engineered to withstand a flood with a computed risk of occurrence.If a larger flood occurs, then that structure will likely be overtopped. If during the overtopping, the dam fails or is washed out, the water behind is released as a flash flood. Failed dams can create floods that are catastrophic to life and property, in part because of the tremendous energy of the released water.

The hazard potential for dam failure is classified according to the following definitions accepted by the Interagency Committee on Dam Safety:

- **High Hazard Dam**—A dam located in an area where failure could result in any of the following: extensive loss of life, damage to more than one home, damage to industrial or commercial facilities, interruption of a public utility serving a large number of customers, damage to traffic on high-volume roads that meet the requirements for hazard class C dams or a high-volume railroad line, inundation ofa frequently used recreation facility serving a relatively large number of persons, or two or more individual hazards described for significant hazard dams
- **Significant Hazard Dam**—A dam located in an area where failure could endanger a few lives, damage an isolated home, damage traffic on moderate volume roads that meet certain requirements, damage low-volume railroad tracks, interrupt the use or service of a utility serving a small number of customers, or inundate recreation facilities, including campground areas intermittently used for sleeping and serving a relatively small number of persons
- **Low Hazard Dam**—A dam located in an area where failure could damage onlyfarm or other uninhabited buildings, agricultural or undeveloped land including hiking trails, or traffic on low-volume roads that meet the requirements for low hazard dams

Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which causes most failures;
- Inadequate spillway capacity, resulting in excess overtopping flows;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross section of the dam and abutments;
- Improper design, including the use of improper construction materials and construction practices;
- Negligent operation, including failure to remove or open gates or valves during high flow periods;
- Failure of upstream dams on the same waterway;
- Landslides into reservoirs, which cause surges that result in overtopping;
- High winds, which can cause significant wave action and result in substantial erosion; and
- Earthquakes, which typically cause longitudinal cracks at the tops of embankments and weaken the entire structures.

GEOGRAPHIC LOCATION

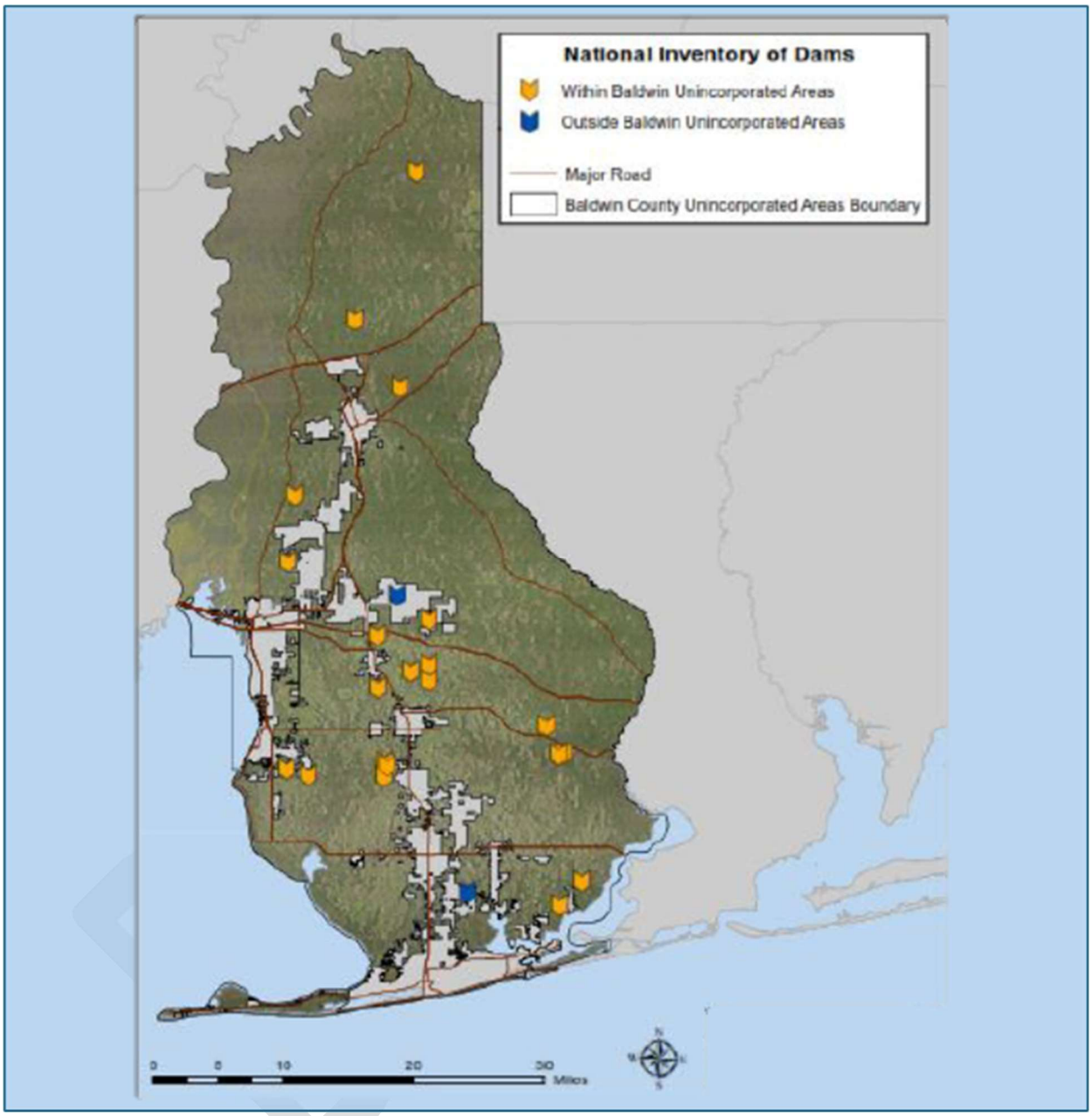
According to the National Inventory of Dams, there are 20 dams located within the unincorporated areas of Baldwin County. All of the dams are privately owned and not regulated nor inspected by a state authority. **Table 28** provides a summary of the dams located in Baldwin County, while **Figure 18** presents a mapped visualization of their locations.

Table 28 Dams Located Within Baldwin County, 2024

Dam	River	National Dam Inventory Identification Number
Baroco Lake Dam No.	Tr Solider Creek	AL01377
Bob Place	Tr Blackwater River	AL00027
Branchland Lake Dam	Cowpen Creek Offstream	AL 01373
Calvin Childers Lake	Tr Polecat Creek	AL 01372
Calvin Childers Lake	Tr Polecat Creek	AL01371
Childres Dam	Tr Blackwater River	AL01984
Cook Lake Dam	Tr Blackwater River	AL 01376
Cooper Number One	Mill Creek	AL00029
Corte Dam	Fly Creek	AL01985
Crosby Lumber	Tr McCurtin Creek	AL00036
Deep South Girl Scouts	Aikin Creek	AL01986
J P Bertolli	Tr Styx River	AL00031
John Q Kendrick	Tr Styx River	AL00035
Lake Bobo	Tr Joes Creek	AL01987
Miles Neumann	Tr Spring Br	AL01988
Patterson	Seven Miles Creek	AL00032
Paul Childress Lake	Tr Blackwater River	AL01375
Raynague	Perone Branch	AL00030
Stacey Lake Dam	Tr Whitehouse Creek	AL01370
Wynn Brothers Lake	Tr Polecat Creek	AL01374

SOURCE: USACE NATIONAL INVENTORY OF DAMS, HTTP://NID.USACE.ARMY.MIL

Figure 18 Dams Located within Unincorporated Baldwin County, 2024



Previous Occurrences

There have been no reported previous occurrences of dam failure in or impacting the planning area.

Probability Of Future Occurrences

Predicting the probability of dam failure is challenging, as it is usually a secondary effect of other hazards. However, based on past performance during flooding events, the FMPC has determined that the risk of this hazard is “very low.”

Magnitude/Severity

Although there have been no documented failures of dams that could impact the planning area and the probability of failure is low, if failure were to occur, people and structures in the inundation path would be at risk. There is only one dam in the planning area categorized as significant hazard. All other dams are low hazard dams where failure could damage only farm or other uninhabited buildings, agricultural or undeveloped land including hiking trails, or traffic on low-volume roads. The FMPC determined that the magnitude/severity of this hazard is “slight.”

Changing Future Conditions

While dam failure is primarily influenced by factors such as design flaws, inadequate maintenance, and structural deterioration, future climate conditions may indirectly impact failure risks. Projections indicate an increase in extreme rainfall and flooding events, which could place additional stress on dam infrastructure, potentially raising the likelihood of failure. Regular inspections and proactive maintenance will be essential in mitigating these risks.

Dam Failure Hazard Summary

Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Minimal	Very Low	Slight	Low

Changing Future Conditions and Sea Level Rise

Description

Climate change refers to long-term shifts in temperature, precipitation, and other climate patterns, which can be identified through statistical analysis of changing trends over decades or longer. These changes may result from natural processes, such as variations in solar cycles and volcanic activity, or from human activities, particularly the release of greenhouse gases like carbon dioxide (CO_2) into the atmosphere (IPCC, 2021). While Earth's climate has naturally fluctuated over geologic time, the rapid warming observed in recent decades is largely attributed to human influences. This warming is occurring on a global scale, affecting ecosystems, weather patterns, and sea levels, underscoring the need for climate resilience and adaptation strategies.

Geographic Location

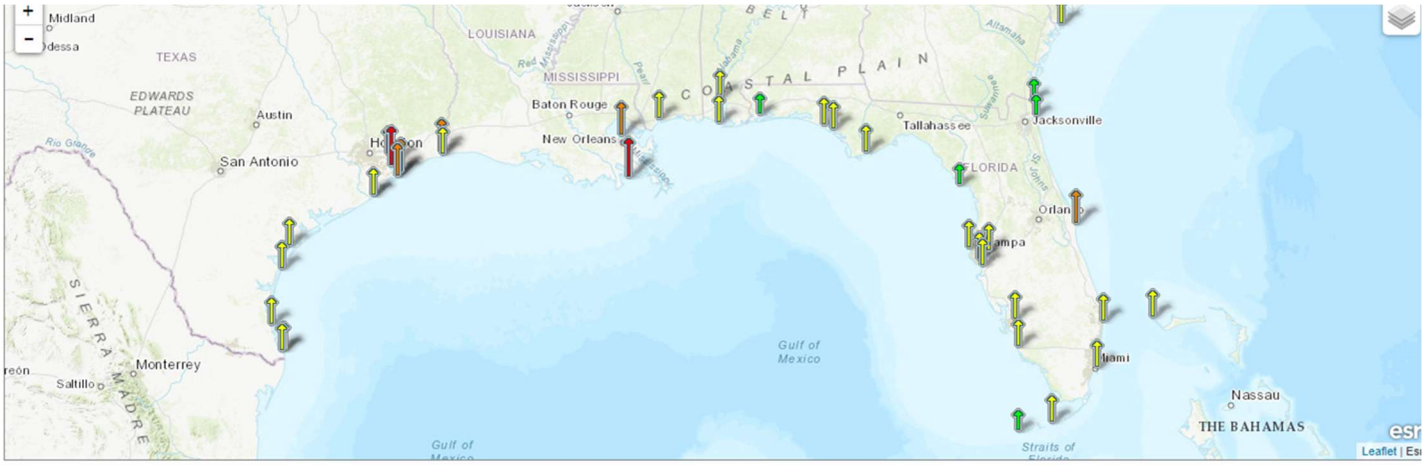
Minimal - The total area identified as a coastal high hazard area (10.4 sq. mi.) is less than 10-percent of the planning area, 1,503.24 square miles.

Previous Occurrences

There are generally two primary mechanisms driving global sea level rise. The first is directly attributed to increasing global temperatures, which warm ocean waters and cause thermal expansion. The second is the melting of land-based ice, which adds water to the oceans. A combination of these two factors is likely responsible for rising sea levels, which can be further exacerbated at the local level by erosion and land subsidence. Historical data shows a strong correlation between global temperature increases and sea level rise.

The Center for Operational Oceanographic Products and Services has been measuring sea level for over 150 years, with tide stations operating along all U.S. coasts. Changes in Mean Sea Level (MSL), whether an increase or decrease, have been computed at 128 long-term water level stations, each with a minimum of 30 years of observations. These measurements are averaged monthly to remove short-term influences, such as storm surges, ensuring an accurate trend analysis. **Figure 19** illustrates regional trends in sea level for the Gulf Coast from NOAA.

Figure 19 Gulf / Atlantic Coast Sea Level Trends



The map above illustrates relative sea level trends , with arrows representing the direction and magnitude of change. Click on an arrow to access additional information about that station.

Relative Sea Level Trends

mm/yr (feet/century)

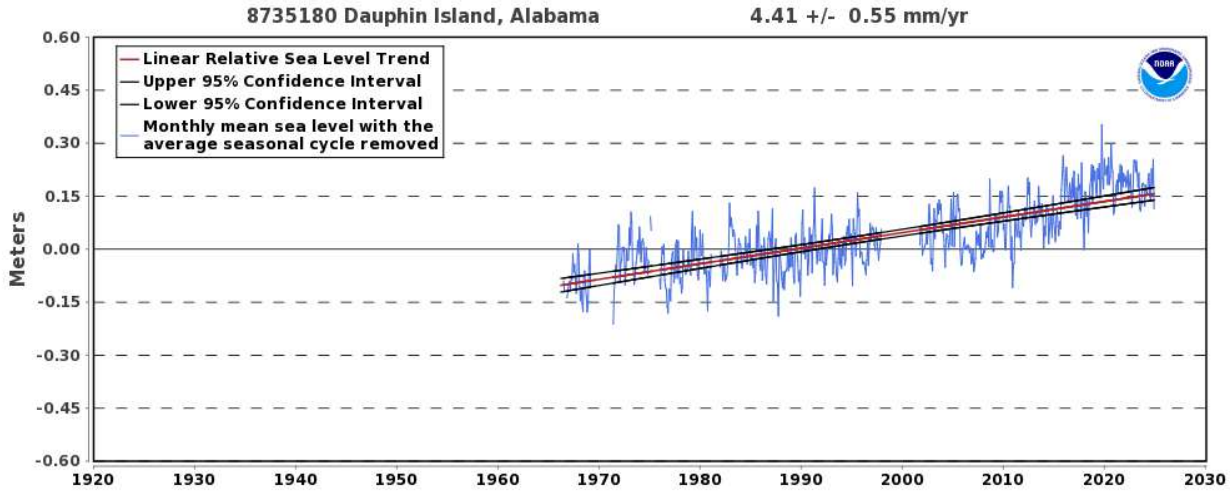
Above 9 (Above 3)	6 to 9 (2 to 3)	3 to 6 (1 to 2)	>0 to 3 (0 to 1)	-3 to 0 (-1 to 0)	-6 to -3 (-2 to -1)	-9 to -6 (-3 to -2)	Below -9 (Below -3)

The Center for Operational Oceanographic Products and Services has been measuring sea level for over 150 years, with tide stations of the National Water Level Observation Network operating on all U.S. coasts. Changes in RSL, eith a rise or fall, have been computed at 142 long-term water level stations using a minimum span of 30 years of observations at each location. These measurements have been averaged by month which removes the effect of high frequency phenomena in order to compute an accurate linear sea level trend. The trend analysis has also been extended to 240 global tide stations using data from the Permanent Service for Mean Sea Level (PSMSL). This work funded in partnership with the NOAA OAR Climate Observation Division.

SOURCE: NOAA TIDES & CURRENTS, HTTPS://TIDESANDCURRENTS.NOAA.GOV/SLTRENDS/

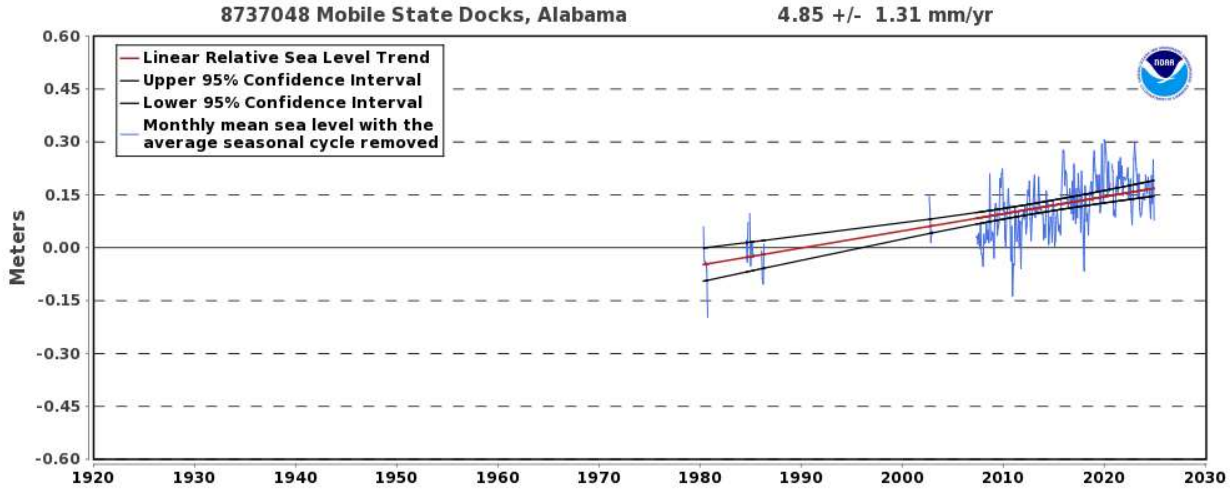
Figure 20 displays the monthly mean sea level trend at NOAA's Dauphin Island station, while **Figure 21** represents the trend at the Mobile State Docks station in Alabama. Seasonal fluctuations caused by coastal ocean temperatures, salinity, winds, atmospheric pressure, and ocean currents have been removed for accuracy. The mean sea level trend is as follows: Dauphin Island, Alabama is 4.41 millimeters per year, with a 95% confidence interval of ±0.55 mm/year, based on data from 1966 to 2023. This equates to an approximate increase of 1.45 feet over 100 years. Mobile State Docks is 4.85 millimeters/year with a 95% confidence interval of +/- 1.31 mm/yr based on monthly mean sea level data from 1980 to 2023 which is equivalent to a change of 1.59 feet in 100 years.

Figure 20 Relative Sea Level Trend, Dauphin Island, Alabama



SOURCE: NOAA TIDES &CURRENTS, https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8735180

Figure 21 Relative Sea Level Trend, Mobile State Docks

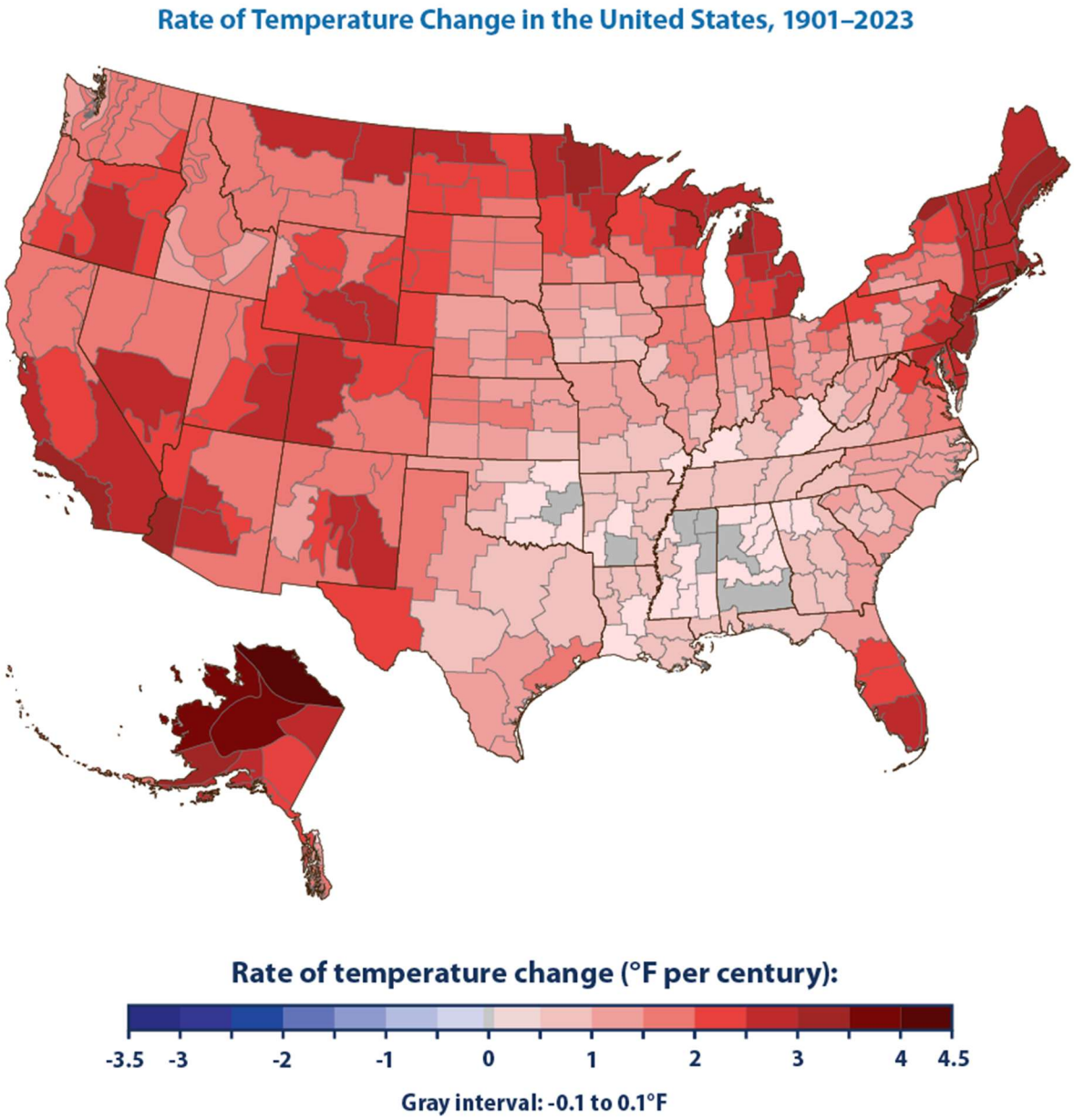


SOURCE: NOAA TIDES & CURRENTS, HTTPS://TIDESANDCURRENTS.NOAA.GOV/SLTRENDS/SLTRENDS_STATION.SHTML?ID=8737048

Since 1901, the average surface temperature across the contiguous 48 states has risen at an average rate of 0.14°F per decade, with warming accelerating since 1981 at approximately 0.32°F per decade. The past decade has been the warmest on record, with 2024 ranking as the warmest year in U.S. history, averaging 55.5°F—3.5°F above the 20th-century average. Global trends reflect this pattern, with the average temperature increasing at a rate of 0.14°F per decade since 1880, doubling to 0.32°F per decade since the early 1980s. **Figure 22** below illustrates the rate of temperature change across the United States, highlighting regional

variations in warming. Data from NOAA and the EPA indicate that the North, West, and Alaska have experienced the most significant temperature increases, while some areas in the Southeast have seen less pronounced warming.

Figure 22 Rate of Temperature Change in the United States, 1901-2023



SOURCE: EPA CLIMATE CHANGE INDICATORS, HTTPS://WWW.EPA.GOV/CLIMATE-INDICATORS/CLIMATE-CHANGE-INDICATORS-US-AND-GLOBAL-TEMPERATURE

Probability Of Future Occurrences

High - Sea level rise is a certainty along the Alabama coast, with accelerating trends observed in recent decades. According to NOAA, mean sea level at Dauphin Island and Mobile State Docks has risen by approximately 1.18 and 1.21 feet, respectively, over the past 100 years, with projections indicating an additional 0.98 to 2.3 feet of rise by 2050 under intermediate to high scenarios. Sea level rise is driven by global temperature increases, hydrologic cycle changes, ice sheet melt, and storm frequency and intensity, all of which contribute to long-term coastal change.

While uncertainties exist due to natural variability, climate model limitations, and human mitigation efforts, scientific consensus affirms that sea level rise is a continuing trend, not an endpoint. Baldwin County should integrate the most recent projections into long-term planning to address flooding risks, infrastructure vulnerabilities, and coastal ecosystem impacts. As new climate data and modeling capabilities emerge, regular reassessments will be essential to ensure effective adaptation and resilience strategies.

Magnitude/Severity

Slight – Sea-level rise throughout the 21st century is expected to increase the frequency and severity of coastal flooding, erosion, and land submergence in low-lying areas like Baldwin County. According to the IPCC Sixth Assessment Report (2021-2023) and NOAA's Sea Level Rise Technical Report (2022), recent projections indicate a faster-than-expected rise due to accelerating ice melt and ocean thermal expansion. These changes will place additional stress on coastal infrastructure, freshwater supplies, and natural ecosystems.

Rising sea levels may exacerbate saltwater intrusion into aquifers, disrupt gravity-based stormwater and septic systems, and elevate storm surge risks, leading to increased damage to infrastructure, economic losses, and public health concerns. Additionally, population growth, urbanization, and economic development are expected to amplify human pressures on coastal ecosystems, further heightening vulnerability. Without proactive adaptation measures such as improved stormwater management, shoreline stabilization, and resilient infrastructure, Baldwin County will face greater challenges in mitigating the long-term impacts of sea-level rise.

Sea Level Rise Hazard Summary

Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Minimal	High	Slight	Moderate

Tsunami

Description

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteor impacts, or onshore slope failures can cause this displacement. Tsunamis radiate outward in all directions from the point of origin and can move across entire ocean basins. When a tsunami reaches the coast, it can cause dangerous coastal flooding and powerful currents that can last for several hours or days.

Tsunamis can be generated in all of the world's oceans, inland seas, and in any large body of water. They have caused damage and deaths in coastal areas all around the world. However, certain areas are particularly prone to tsunamis due to their proximity to tsunami sources, the depth and shape of the ocean floor near the coast (bathymetry), and coastal elevation and features (topography).

Geographic Location

Minimal - The U.S. Gulf Coast is not located near a subduction zone, which is a particularly active seismic zone, where large earthquakes can produce damaging waves that threaten nearby and distant coasts. Additionally, there has not been much tsunami or seismic activity recorded in the region. However, according to the national tsunami hazard assessments conducted for the National Tsunami Hazard Mitigation Program by NOAA, evidence suggests a tsunami is possible. In 1918, an earthquake off Puerto Rico produced the only tsunami on record for the Gulf Coast. The geography of the Gulf may reduce the impact of most distant tsunamis. Geologic evidence in the Gulf of Mexico points to underwater landslides as the region's likeliest tsunami source.

Previous Occurrences

Of the 754 confirmed events in the Global Historical Tsunami Database between 1900 and 2015, approximately 78% occurred in the Pacific Ocean (around the geologically active "Ring of Fire"), 8% in the Atlantic Ocean and Caribbean Sea, 6% in the Mediterranean Sea, 5% in the Indian Ocean, and 1% in other seas. **Figure 23** presents the location of historic tsunami events and the associated cause.

There have been no reported previous occurrences of tsunami events in or impacting the planning area.

Figure 23 Historic Tsunami Events and Causes

Cause of the Tsunami:

Effects of the Tsunami:	Volcanic Eruption	Landslide	Unknown/ Miscellaneous	Earthquake Magnitude >=9	>=8	>=7	>=6	<6 or ?
Very Many Deaths (~1001 or more deaths)	▲	■	?	●	●	●	●	●
Many Deaths (~101 to 1000 deaths)	△	□	?	○	○	○	○	○
Some Deaths (~51 to 100 deaths)	▲	■	?	●	●	●	●	●
Few Deaths (~1 to 50 deaths)	▲	■	?	●	●	●	●	●
No Deaths / Unknown	△	□	?	○	○	○	○	○

SOURCE: NOAA, NATURAL HAZARDS VIEWER, HTTPS://MAPS.NGDC.NOAA.GOV/VIEWERS/HAZARDS/?LAYERS=0

Probability Of Future Occurrences

Very Low - The tsunami hazard assessment for the United States indicates that while tsunamis can impact any U.S. coastline, the level of risk varies by region. For the Gulf Coast, the probability is classified as very low (see **Table 29:** Qualitative Tsunami Hazard Assessment). This classification is based on historical records through 2015, geological evidence, and the region's distance from major tsunami sources, all of which help inform future risk projections.

Table 29 Qualitive Tsunami Hazard Assessment

Region	Hazard Level
Pennsylvania, Delaware, Virginia, North Carolina, Georgia, Florida (Gulf coast), Alabama, Mississippi, Louisiana, Alaska Arctic coast	Very Low
Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland, South Carolina, Florida (Atlantic coast), Texas	Low
None	Moderate
Puerto Rico, Virgin Islands, Washington, Oregon, Guam, Northern Mariana Islands, American Samoa	High
California, Alaska, Hawaii	Very High

Magnitude/Severity

Slight - If a tsunami were to reach the Baldwin County coastline, the relatively shallow shoreline relief and densely populated coastal areas would expose coastal communities to significant losses. However, for the unincorporated areas of Baldwin County, less than 10-percent of the planning area is located within the coastal high hazard area.

Changing Future Conditions

Scientific research suggests that large-scale environmental changes, such as the melting of ice caps and rising sea levels, could redistribute weight on the Earth's crust, potentially influencing seismic activity over long timescales. However, no conclusive studies establish a direct link between climate change and an increase in earthquake or tsunami frequency. While some early research explores potential connections, earthquakes and tsunamis remain primarily driven by geological processes unrelated to climate change.

Tsunami Hazard Summary

Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Minimal	Very Low	Slight	Low

Hazard Profiles Summary

Table 30 summarizes the results of the hazard profiles and how each hazard varies by jurisdiction. This assessment was used by the FMPC to prioritize those hazards of greatest significance to each jurisdiction, enabling the jurisdictions to focus resources where they are most needed and develop the mitigation strategy accordingly.

Table 30 Planning Significance Scores

Hazard	Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Flood: 100-/500-Year	Partial	Very High	Significant	High
Hurricane and Tropical Storms (including storm surge)	Community- Wide	Moderate	Significant	High
Flood: Stormwater/Localized	TBD	TBD	TBD	Moderate
Coastal Bank Erosion	Minimal	Very High	Moderate	Moderate
Changing Future Conditions and Sea Level Rise	Minimal	High	Slight	Moderate
Dam/Levee Failure	Minimal	Very Low	Slight	Low
Tsunami	Minimal	Very Low	Slight	Low

Vulnerability Assessment

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

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

Requirement §201.6(c)(2)(ii)(B) :[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

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

Requirement §201.6(c)(2)(ii): (As of October 1, 2008) [The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

Methodology

The vulnerability assessment further defines and quantifies populations, buildings, critical facilities, and other community assets at risk to natural hazards. The vulnerability assessment for this plan followed the methodology described in the FEMA publication *Understanding Your Risks—Identifying Hazards and Estimating Losses* (2002).

The vulnerability assessment was conducted based on the best available data and the significance of the hazard. Data to support the vulnerability assessment was collected from the following sources:

- FEMA's HAZUS loss estimation software
- Written descriptions of assets and risks provided by participating jurisdictions
- Existing plans and reports
- Personal interviews with FMPC members and other stakeholders
- Other sources as cited

The Vulnerability Assessment is divided into four parts:

- **Community Assets** first describes the assets at risk in Baldwin County, including the total exposure of people and property; critical facilities and infrastructure; natural, cultural, and historic resources; and economic assets.
- **Vulnerability by Hazard** describes the vulnerability to each hazard identified and profiled in Chapter 3. This vulnerability analysis includes a vulnerability overview for

each hazard. For hazards of high and moderate significance, the vulnerability analysis includes evaluation of vulnerable buildings, infrastructure, and critical facilities; estimated losses and a description of the methodology used to estimate losses; discussion of future development in relation to hazard-prone areas.

- **Future Land Use and Development** discusses development trends, including population growth, housing demand, and future projects.
- **Summary of Key Issues** summarizes the key issues and conclusions identified in the risk assessment process.

Identify Community Assets

This section assesses the population, structures, critical facilities and infrastructure,and other important assets in the planning area that may be at risk to natural hazards.

Total Exposure of Population and Structures

As previously noted in Chapter 2 Population/Demographics, the total population for unincorporated Baldwin County was estimated at 103,662 for 2020 and 143,920 for 2023.

Critical Facilities and Infrastructure

Of significant concern with respect to any disaster event is the location of critical facilities in the planning area. Critical facilities are often defined as those essential services and facilities in a major emergency which, if damaged, would result in severe consequences to public health and safety or a facility which, if unusable or unreachable because of a major emergency, would seriously and adversely affect the health, safety, and welfare of the public. Critical facilities presented within **Table 31**.

Table 31 2018 Inventory of Critical Facilities and Infrastructure

Facility	Name	Address / Parcel Number
Airport	BARIN WOLF	01003011502
Communication	WEAR-TV CH 3	01003010904
Communication	WPMI CH 15	01003010904
Communication	WALA-TV CH 10	01003010703
Communication	WMPV-TV CH 21	01003010904
Communication	WBPG CH 55	01003010904
Communication	WHBR CH 33	01003010904
Communication	WKRG-TV CH 5	01003010703
Communication	WJTC CH 44	01003010904
Communication	WDLT 660	01003010800
Communication	WDXZ 1000	01003010905
Communication	WBLX-FM CH 225	01003010904
Communication	WYOK CH 281	01003010904
Communication	WMXC CH 260	01003010703
Communication	WJLQ CH 264	01003010904

Facility	Name	Address / Parcel Number
Communication	WNSP CH 288	01003010300
Communication	WBHY-FM CH 203	01003010703
Communication	WXBM-FM CH 274	01003010904
Communication	WPCS CH 208	01003010904
Communication	WRKH CH 241	01003010703
Communication	WKSJ-FM CH 235	01003010904
Communication	WTKX-FM CH 268	01003010904
Communication	WHIL-FM CH 217	01003010703
Communication	WABB-FM CH 248	01003010703
Communication	WMEZ CH 231	01003010904
Electric Power	BALDWIN COUNTY ELECTRIC COOP.	200 WEST 22ND STREET
Ferry Facility	Fort Morgan	
Fire Station	Huggerlanding/ Oyster Bay Volunteer Fire	4590 CO RD 6
Fire Station	Rabun Volunteer Fire Department	47860 Rabun RD
Fire Station	Barnwell Volunteer Fire & Rescue Departm	13319 CO RD 13
Fire Station	Gateswood Volunteer Fire Department	33014 ST HWY 112
Fire Station	Styx River Volunteer Fire Department	23350 Dunbar RD
Fire Station	Stapleton Fire Department	36276 State Highway 59
Fire Station	Belforest Volunteer Fire Search & Rescu	25490 HWY 54 W
Fire Station	Fish River Marlow Fire & Rescue Departme	13355 CO RD 32
Fire Station	Bon Secour Volunteer Fire Department	7392 HWY 65
Fire Station	Josephine Volunteer Fire Department	6824 CO RD 95
Fire Station	Lillian Volunteer Fire Department	34180 Widell AVE
Hazardous Materials	BALDWIN POLE & PILING CO. INC.	OLD PENSACOLA HWY.
Hazardous Materials	BALDWIN POLE & PILING CO. INC.	OLD PENSACOLA HWY.
Hazardous Materials	BALDWIN POLE & PILING CO. INC.	OLD PENSACOLA HWY.
Natural Gas	RIVIERA UTILITIES	AZALEA RD OFF HWY 59
Police Station	Baldwin County Sheriff	18126 County Rd 54
Port Facility	Alliance Resources Co., Oswell Loading F	South Carlton, AL Oil Fields.
Port Facility	Kimberly-Clark Corp., Dixie Wood Yard Ba	Foot of County Road 84.
Port Facility	Tensaw River Docks and Storage Yard Whar	Foot of County Road 7.
Potable Water	SPANISH FORT WATER SYSTEM INC	WELL 4 TREATMENT PLT HWY 31
Runway	00323.4*A AL09/27	
School	CENTRAL CHRISTIAN SCHOOL	17395 Highway 104 West
School	THE ACADEMY AT MISSION SAMARIA	32586 SEMINOLE ROAD WEST
School	BAYSHORE CHRISTIAN SCHOOL	23050 US HIGHWAY 98
School	SILVERHILL CHRISTIAN ACADEMY	PO BOX 207
School	BEREAN BAPTIST CHRISTIAN SCHOO	P.O. BOX 237
School	FAITH PRESBYTERIAN CHR SCH	18632 BERNER ROAD
School	VAUGHN SCHOOL	55260 COUNTY ROAD 21

Facility	Name	Address / Parcel Number
School	PERDIDO ELEMENTARY SCHOOL	23589 COUNTY ROAD 47
School	DELTA ELEMENTARY SCHOOL	10251 WHITE HOUSE FORK RD
School	STAPLETON SCHOOL	35500 BALDWIN AVE
School	PINE GROVE ELEMENTARY SCHOOL	43980 PINE GROVE RD
School	SPANISH FORT HIGH SCHOOL	ONE PLAZA DE TOROS
School	ELSANOR SCHOOL	23440 US HIGHWAY 90
School	ROSINTON SCHOOL	19757 COUNTY ROAD 64
School	CENTRAL BALDWIN MIDDLE SCHOOL	24545 STATE HIGHWAY 59
School	DAPHNE EAST ELEMENTARY SCHOOL	26651 COUNTY ROAD 13
School	FAIRHOPE HIGH SCHOOL	18800 GREENO RD
School	J LARRY NEWTON SCHOOL	9761 COUNTY ROAD 32
School	BALDWIN COUNTY ALTERNATIVE SCHOOL	6925 TWIN BEECH RD
School	SWIFT CONSOLIDATED ELEMENTARY SCHOOL	6330 BON SECOUR HWY
School	MAGNOLIA SCHOOL	1 JAGUAR LOOP
School	ELBERTA ELEMENTARY SCHOOL	25820 HIGHWAY 98
Wastewater Facility	ADOT I 10 WELCOME CENTER LAG	ALABAMA DEPARTMENT OF TRANSPOR
Wastewater Facility	LAKE FOREST WASTE WATER TREATMENT PLANT	29280 COUNTY ROAD 11
Wastewater Facility	LANDING INCORPORATION THE WWTP	LANDING INCORPORATION THE
Wastewater Facility	LILLIAN SEWER CO LLC WWTF	LILLIAN SEWER COMPANY LLC
Wastewater Facility	POLLUTION CONTL SYS FT MORGAN	
Wastewater Facility	TENSAW ISLAND LAND SHORES WWTP	TENSAW ISLAND LAND OWNERS ASSC

SOURCES: FEMA HAZUS, BALDWIN COUNTY, AL

Other Assets

Assessing the vulnerability of the planning area to disaster also involves inventorying the natural, historic, cultural, and economic assets of the area. This is important for the following reasons:

- The planning area may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- If these resources are impacted by a disaster, knowing about them ahead of time allows for more prudent care in the immediate aftermath, when the potential for additional impacts is higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- Natural resources can have beneficial functions that reduce the impacts of natural hazards, such as wetlands and riparian habitat, which help absorb and attenuate floodwaters.
- Losses to economic assets (e.g., major employers or primary economic sectors) could have severe impacts on a community and its ability to recover from disaster.

In the planning area, specific assets include the following:

Cultural Resources:

- Baldwin County Heritage Museum
- Historic Fort Morgan
- Blakely State Park

Economic Assets: (major manufacturing employers)

- Collins Aerospace
- Ace Hardware Support Center
- Vulcan, Inc.
- Quincy Compressors
- Segars Aerospace
- Bon Secour Fisheries
- International Paper
- Quality Filters
- Ecovery
- Ascend Performance Materials

Historic resources:

- There are 24 properties on the National Register of Historic Places in unincorporated Baldwin County. For a specific listing of properties and additional details, go to https://www.nps.gov/nr/research/

Natural Resources:

- Bicentennial Park, a 367-acre area in North Baldwin County
- Live Oak Landing Park, a 175-acre Baldwin County Park on the banks of the Tensaw River
- There are 25 known species in the planning area with state endangered, threatened, recovery, or candidate status. The list of such species includes 3 birds; 2 clams, 2 fish; 2 flowering plant; 5 mammals; 1 Amphibian; 1 Insect and 9 reptiles. For the list of species and their status, go to https://www.fws.gov/program/ecological-services

- Bon Secour National Wildlife Refuge – this 7,157-acre national wildlife refuge is located within both Baldwin and Mobile Counties and serves as a resting and feeding area for migratory birds and as a sanctuary for native flora and fauna. The refuge is one of the largest undeveloped parcels of land on the Alabama coast.

HTTPS://WWW.FWS.GOV/MEDIA/BSNWR-ILLUSTRATED-TRAIL-MAP-0

Analyze Risk

Overview

Planning Significance: High

Flood damage is directly related to the depth of flooding by the application of a depth damage curve. In applying the curve, a specific depth of water translates to a specific percent damage to the structure, which translates to the same percentage of the structure's replacement value. SFHAs for Baldwin County are shown in **Table 32 Content Replacement Values**.

Building counts by FEMA flood zone were determined using a spatial intersection of the building footprints provided by the Baldwin County and the effective FEMA flood zones provided in the Baldwin County FIRM Database 04/19/2019. In order to determine the correct occupancy class for each parcel, the land use codes provided in the Baldwin County parcel data were translated into FEMA Hazus specific occupancy classes (i.e. RES1, COM4, EDU2, etc.). These were translated to ensure the correct depth damage function was applied to the parcel based on its occupancy class to ensure a more accurate damage assessment of the parcel.

Structure value estimations were also obtained from the Baldwin County parcel data. Content value estimations for each structure are based on FEMA Hazus methodologies of estimating value as a percent of improved structure values by property type.

Table 33 Estimated Building Damage & Content Loss shows the breakdown of the different property types in Baldwin County and their estimated content replacement value percentages.

Structures at Risk

The loss estimate for flood is based on the total of the improved building value and the contents value. Land value is not included in any of the loss estimates as generally the land is not subject to loss from floods. It is important to note that information on those properties mitigated (e.g., floodproofed or elevated) in the SFHA was not available for analysis, thus the resulting flood damage loss estimates could be lower than actual figures. Once the potential value of affected parcels was calculated, damage factors were applied to obtain loss estimates by flood zone.

Table 32 Content Replacement Values

Property Type	Content Replacement Values
Residential	50%
Agriculture	100%
Commercial	100%
Government	100%
Religious	100%
Industrial	150%

Table 33 Estimated Building Damage & Content Loss shows the building count, total value, estimated damages and loss ratio for buildings that fall within the 100-year floodplain by flood zone and land use type. The loss ratio is the loss estimate divided by the total potential exposure (i.e., total of improved and contents value for all buildings located within the 100-year floodplain) and displayed as a percentage of loss. FEMA considers loss ratios greater than 10% to be significant and an indicator a community may have more difficulties recovering from a flood.

Table 33 Estimated Building Damage & Content Loss

Occupancy Type	Total Number of Buildings	Total Value (Bldg & Content)	Estimated Building Damage	Estimated Content Damage	Estimated Total Damage	Loss Ratio
AE						
Residential	4044	$1,843,705,285	$692,973,918	$417,302,768	$1,110,276,686	60.2%
Commercial	70	$66,022,556	$13,515,521	$18,442,342	$31,957,863	48.4%
Agriculture	74	$13,640,184	$4,610,576	$5,262,179	$9,872,755	72.4%
Government	13	$6,106,952	$2,821,136	$1,777,164	$4,598,300	75.3%
Industrial	12	$3,349,362	$241,459	$683,365	$924,824	27.6%
Religious	17	$4,749,112	$1,784,118	$1,218,041	$3,002,159	63.2%
Total	4230	$1,937,573,451	$715,946,728	$444,685,859	$1,160,632,587	59.9%
A						
Residential	139	$5,186,276	$402,357	$224,949	$627,306	12.1%
Commercial	1	$26,000	$7	$13	$20	0.1%
Agriculture	23	$790,440	$4,016	$16,264	$20,280	2.6%
Government	0	$0	$0	$0	$0	0.0%
Industrial	0	$0	$0	$0	$0	0.0%

Occupancy Type	Total Number of Buildings	Total Value (Bldg & Content)	Estimated Building Damage	Estimated Content Damage	Estimated Total Damage	Loss Ratio
Religious	0	$0	$0	$0	$0	0.0%
Total	163	$6,002,716	$406,380	$241,226	$647,606	10.8%
VE						
Residential	533	$307,214,204	$115,488,859	$64,414,997	$179,903,856	58.6%
Commercial	3	$14,665,200	$7,332,600	$7,331,700	$14,664,300	100.0%
Agriculture	1	$477,000	$238,500	$238,500	$477,000	100.0%
Government	0	$0	$0	$0	$0	0.0%
Industrial	1	$110,600	$0	$0	$0	0.0%
Religious	3	$694,200	$329,310	$208,260	$537,570	77.4%
Total	541	$323,161,204	$123,389,269	$72,193,457	$195,582,726	60.5%
500-Year						
Residential	1386	299698445	93611015	50200675	$143,811,690	48.0%
Commercial	15	2076532	163182	555644	$718,826	34.6%
Agriculture	63	6750262	797752	1557987	$2,355,739	34.9%
Government	1	2440000	245030	1220000	$1,465,030	60.0%
Industrial	4	750300	10500	24203	$34,703	4.6%
Religious	1	411600	20669	108798	$129,467	31.5%
Total	1470	$312,127,139	$94,848,148	$53,667,307	$148,515,455	47.6%

Population At Risk

A separate analysis was performed to determine the population at risk to the individual FEMA flood zones. Using GIS, the FIRM flood zones were intersected with the building footprint layer. Those residential buildings that intersected the flood zones were counted and multiplied by the 2020 Census Bureau household factor for unincorporated Baldwin County (2.62) as shown in **Table 34.**

Table 34 Estimated Population at Risk

Flood Zone	Residential Property Count	Population at Risk
AE	4,950	12,524
A	725	1,834
VE	339	858
500-Year	5,137	12,997
TOTAL	11,151	28,213

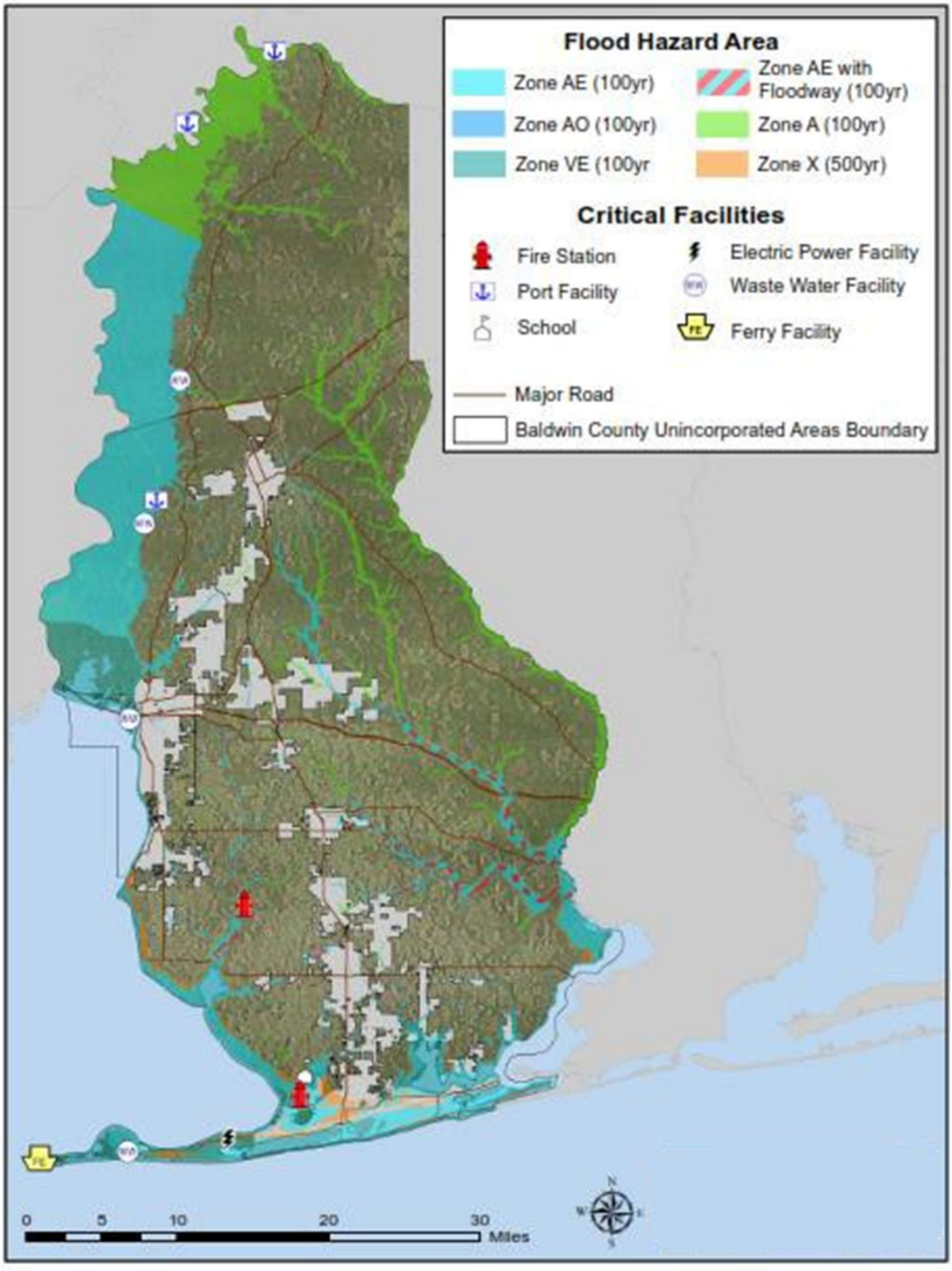
Critical Facilities at Risk

A separate analysis was performed to determine critical facilities located in the 100- and 500-year floodplains. Using GIS, the FIRM flood zones were overlayed on the critical facility location data. **Table 35** outlines the critical facilities located within the 100- and 500-year floodplains by facility type.

Table 35 2018 Inventory of Critical Facilities and Infrastructure

Facility	Name
Fire Station	Huggerlanding/ Oyster Bay Volunteer Fire
Fire Station	Fish River Marlow Fire & Rescue Departme
Fire Station	Volunteer Fire Departments
Port Facility	Alliance Resources Co., Oswell Loading F
Waste Water Facility	POLLUTION CONTL SYS FT MORGAN
Waste Water Facility	TENSAW ISLAND LAND SHORES WWTP
Waste Water Facility	LANDING INCORPORATION THE WWTP
Waste Water Facility	East Baldwin WWTP
School	SWIFT CONSOLIDATED ELEMENTARY SCHOOL
School	Perdida Elementary
School	Elsanor Elementary
School	Rosinton Elementary
School	Stapleton Elementary

Figure 24 Critical Facilities in the SFHA in Baldwin County 2018



Flood Insurance Analysis

One valuable source of information on flood hazards is current flood insurance data for active policies and past claims. Flood insurance is required as a condition of federal aid or a mortgage or loan that is federally insured for a building located in a FEMA flood zone.

Baldwin County has been a participant in the NFIP since January 1973 and has achieved a Class 7 flood insurance rating through participation in the NFIP's Community Rating System which rewards all policyholders in unincorporated County with a 15- percent reduction in their flood insurance premiums. **Table 36** and **Table 37** reflect NFIP policy and claims data for the County categorized by structure type, flood zone, Pre-FIRM and Post-FIRM.

Table 36 Policy and Claims Data by Structure Type, 2024

Structure Type	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
Single Family	3651	$3,018,263.00	$1,127,005,000.00	10,003	$233,381,673.04
2-4 Family	218	$143,409.00	$53,260.00	395	$9,001,083.75
All Other Residential	2411	$502,578.00	$558,157,000.00	359	$33,582,964.05
Non-Residential	120	$435,485.00	$56,090,000.00	460	$22,382,244.00
Total	6,400	$4,099,735.00	$1,794,512,000.00	11,217	$298,347,965.41

Table 37 NFIP Policy and Claims Data by Flood Zone, 2024

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
AE Zones	4,258	$2,676,154.00	$1,156,794,000.00	6,928	$188,311,883.10
A Zones	5	$8,703.00	$1,328,000.00	201	$6,602,665.88
VE Zones	152	$228,930.00	$36,559,000.00	2330	$33,677,385.64
D Zones	0	$0	$0	82	$1,416,665.90
B, C & X Zone	0	$0	$0	0	$0
Standard	1,985	$1,859,948.00	$599,831,000.00	927	$47,972,697.52
Preferred	0	$0	$0	749	$20,423,281.20
Total	6,400	$4,099,735.00	$1,794,512,000.00	11,217	$298,404,879.24

Table 38 NFIP Policy and Claims Data Pre/Post FIRM, 2024

Flood Zone	Policies in Force	Total Premium	Insurance in Force	Number of Closed Paid Losses	Total of Closed Paid Losses
AE Zones	4258	$2,676,154	$1,156,794,000	6928	$188,311,883.10
A Zones	5	$8703	$1,328,000	201	$6,602,665.88
VE Zones	152	$228,930	$36,559,000	2330	$33,677,685.64
D Zones	0	$0	$0	82	$1,416,665.90
B, C & X Zone	0	$0	$0	0	$0
Standard	1985	$1,185,948	$599,831,000	927	$47,972,697.52
Preferred	0	$0	$0	749	$20,423,281.20
Total	6400	$4,099,735	$1,794,512,000	11,217	$20,801,522.69

Table 39 Community Repetitive Loss

	AE, A1-30, AO, AH, A	VE,V1-30,V	B, C,X	TOTAL
RL Buildings Total	1774	655	382	2828
RL Buildings Insured	301	31	59	391
RL Losses total	3115	1261	599	5011
RL Losses Insured	509	78	95	682
RL Payments total	$110,632,700.68	$21,936,338.37	$34,130,180.66	$167,769,879.78
Building	$90,521,579.01	$20,030,594.48	$28,075,329.59	$139,432,089.52
Contents	$20,111,121.67	$1,905,743.89	$6,054,851.07	$28,337,790.26
RL Payments Insured	$20,492,010.10	$783,594,48.00	$5,212,178.70	$26,487,783.28
Building	$16,961,062.42	$731,655.25	$4,089,226.84	$21,781,944.51
Contents	$3,530,947.68	$51,939.23	1,122,951.86	$4,705,838.77

Repetitive Loss Analysis

A repetitive loss property is a property for which two or more flood insurance claims of more than $1,000 have been paid by the NFIP within any 10-year period since 1978. An analysis of repetitive loss was completed by Baldwin County to examine repetitive loss properties against FEMA flood zones.

According to 2023 NFIP records, there are a total of 410 unmitigated repetitive loss properties within unincorporated Baldwin County. There are 50 properties are classified as severe repetitive loss. **Table 38** details repetitive loss building counts, FEMA flood zones and total payment for the unmitigated properties.

Figure 25 illustrates the designated repetitive loss areas within Baldwin County.

Agricultural Impacts

In addition, USDA crop insurance claims as a result of flood and excessive moisture damage has averaged $854,410 per year from 2014 to 2024 and total $7,240,769.59 forthe period.

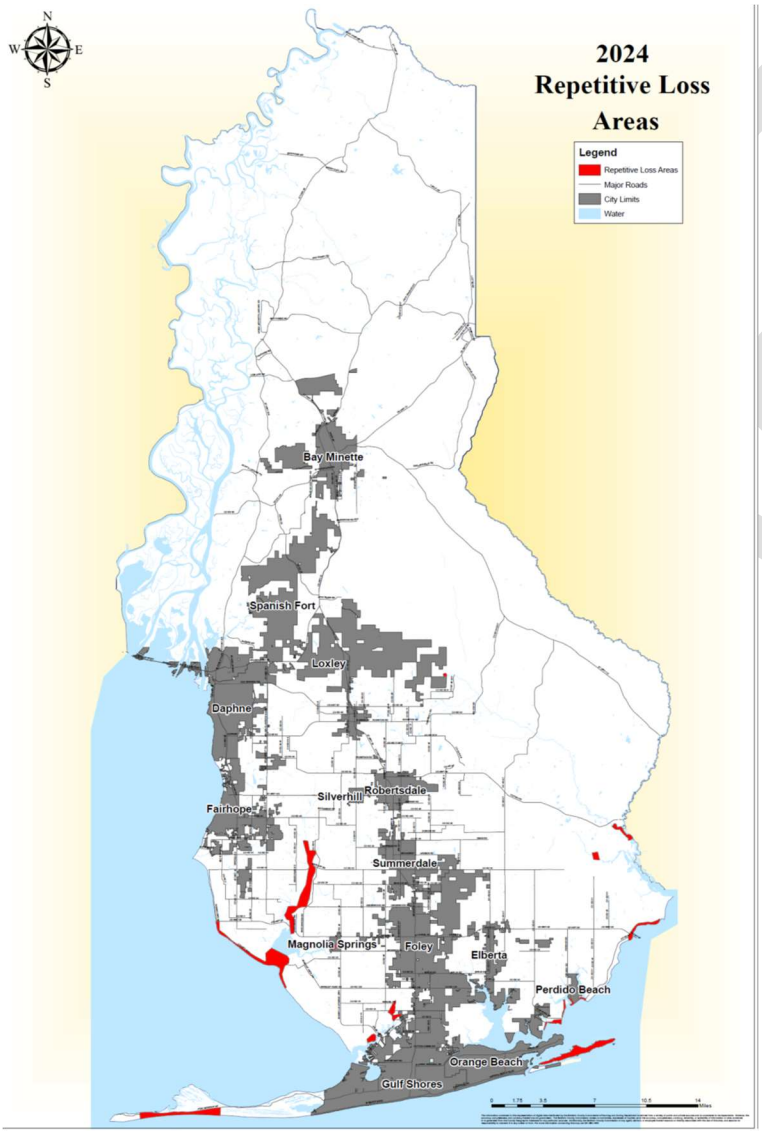
Table 40 Claims Paid in Baldwin County for Crop Loss as a Result of Flood/Excessive Moisture/Rain (2014 – 2024)

Year	Crop	Hazard	Claims Paid
2014	Corn, Cotton, Oats, Peanuts, Pecans, Soybeans, Wheat, and all other Crops	Excess Moisture/Precip/Rain	$780,300.66
2015	Corn, Cotton, Oats, Peanuts, Soybeans, Wheat, and all other crops	Excess Moisture/Precip/Rain	$884,409.86
2016	Corn, Oats, Peanuts, Pecans, Potatoes, and Wheat	Excess Moisture/Precip/Rain	$214,257.25
2017	Corn, Cotton, Peanuts, Pecans, Soybeans, Wheat, and all other crops	Excess Moisture/Precip/Rain	$1,378,869.82
2018	Corn, Peanuts, Potatoes, and Soybeans	Excess Moisture/Precip/Rain	$259,025.00
2019	Corn, Cotton, Oats, Peanuts, Soybean, Wheat	Excess Moisture/Precip/Rain	$172,778.00
2020	Peanuts	Excess Moisture/Precip/Rain	$16,336.00
2021	Corn, Cotton, Peanuts, Pecans, Potatoes, Soybeans, and all other crops	Excess Moisture/Precip/Rain	$1,396,986.00
2022	Corn, Cotton, Peanuts, Pecans, Potatoes, Soybeans	Excess Moisture/Precip/Rain	$1,809,785.00
2023	Corn, Oats, Peanuts, Potatoes, Soybeans	Excess Moisture/Precip/Rain	$214,035.00
2024	Peanuts, Potatoes	Excess Moisture/Precip/Rain	$113,987.00
		Total	$7,240,769.59

Future Development

Future development within floodplains will inherently increase risk in those areas. As a participant in the National Flood Insurance Program, Baldwin County enforces floodplain management regulations to mitigate potential impacts of new construction. However, despite these mitigation efforts, evacuation may still be required during rising water events. Additionally, extreme flooding that exceeds mitigated levels could still result in significant damage.

Figure 25 Repetitive Loss



Stormwater/Localized Flooding Vulnerabilities

Overview

Planning Significance: Moderate

Potential Losses to Existing Development

Localized flooding occurs at various times throughout the year with several areas of primary concern to unincorporated Baldwin County. Localized flooding and ponding affect streets and property. Localized flooding locations, as identified by the Highway department, correlate with unmitigated repetitive loss properties.

Future Development

The risk of localized flooding to future development can be minimized by accurate recordkeeping of repetitive localized storm activity and an evaluation of regional drainage issues. Mitigating the root causes of the localized flooding or choosing not to develop in areas that often are subject to localized flooding will reduce future risks of losses due to this hazard.

Hurricane and Tropical Storms Vulnerability

Overview

Planning Significance: High

Potential Losses to Existing Development

Tropical weather systems produce heavy rainfall that can cause severe flooding not only in areas directly impacted by the storm but also hundreds of miles inland. Large, slow-moving hurricanes and tropical storms are particularly capable of generating widespread urban and riverine flooding. Additionally, strong offshore winds can push ocean water into river mouths, worsening overbank flooding in inland areas.

Beyond the destructive forces of wind, rain, and lightning, hurricanes also generate storm surges that can elevate sea levels by 25 feet or more in the most intense storms. As a hurricane approaches land, its powerful winds push water toward the coast. Upon reaching the shallow waters of the continental shelf, this water accumulates and leads to a rapid rise in sea levels. Initially, the water level increases gradually, but as the storm's eye nears, the surge intensifies dramatically. Even after the storm passes, receding storm surge waters can cause further damage as they erode shorelines and reshape coastal landscapes.

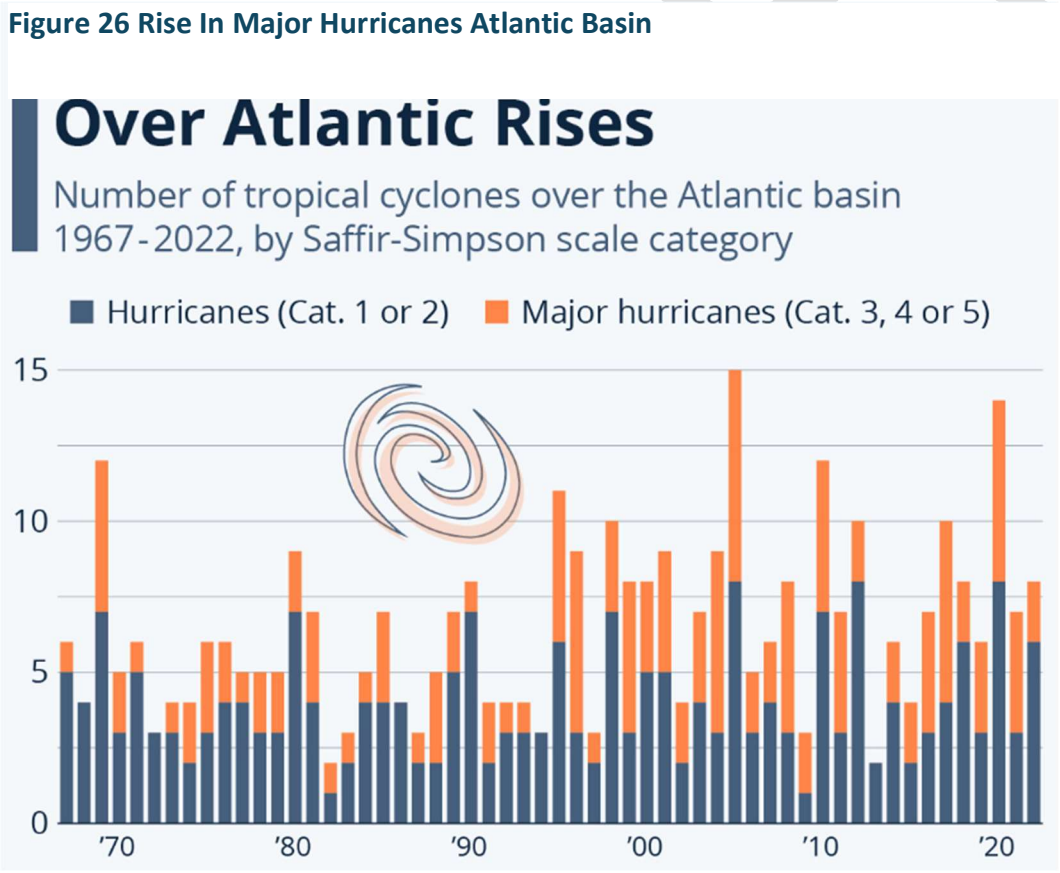
Hurricanes also have a significant impact on natural resources, particularly beaches and coastal ecosystems. The combination of strong winds, waves, and storm debris results in severe coastal erosion. Beaches often require replenishment following major storms to restore their natural protective barriers. More importantly, sand dunes—the first line of defense against coastal storms and erosion—must be preserved to minimize future damage. Dunes absorb storm surge impacts, prevent or delay inland flooding, and act as sand reservoirs that help restore beaches after storms. Without these natural defenses, storm surge and shoreline erosion can lead to

significant property loss. The vulnerability of Baldwin County to coastal erosion is discussed in Chapter 3: *Coastal Bank Erosion.*

The Atlantic hurricane season runs from June 1 to November 30, covering the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico. The progression of a typical hurricane season follows a pattern of increasing tropical activity, with peak storm development typically occurring between mid-August and late September.

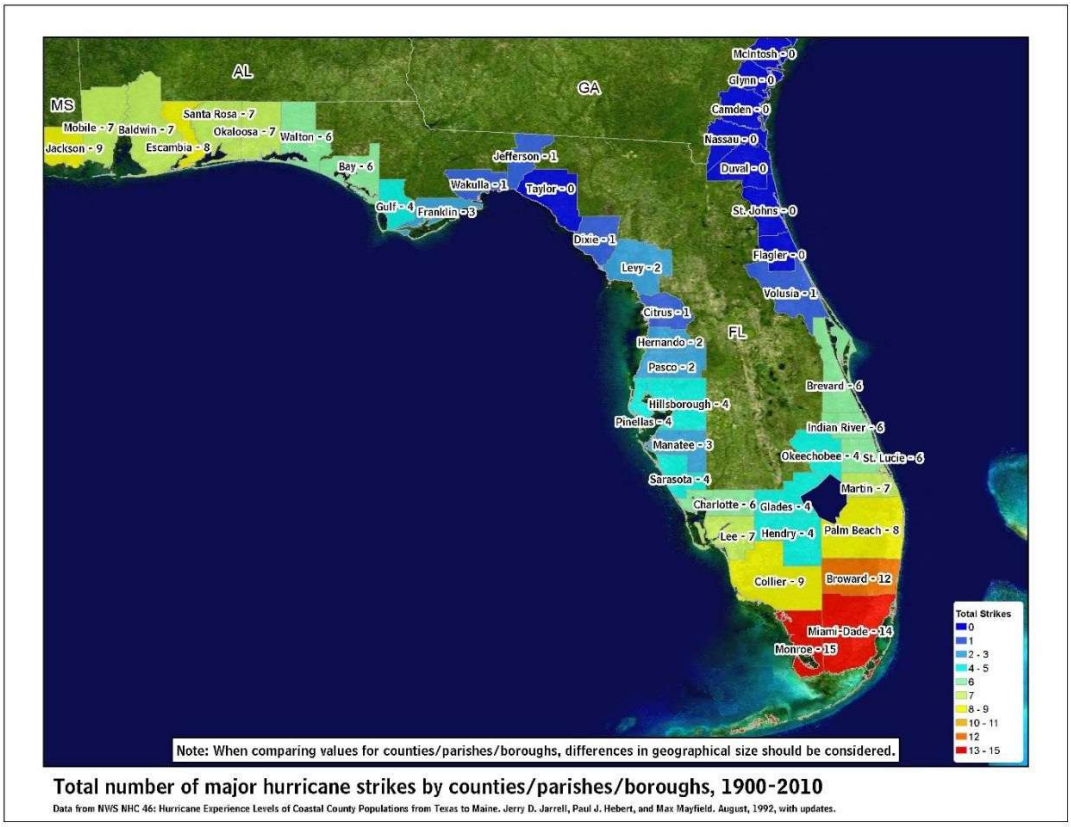
To assess hurricane surge impacts, an analysis was conducted by overlaying Baldwin County's building footprint data with hurricane surge model outputs. Surge data was derived from the National Hurricane Center's SLOSH (Sea, Lake, and Overland Surges from Hurricanes) model, which simulates storm surge heights based on various storm scenarios. The analysis utilized Maximum of Maximums (MOMs) data, which represents the worst-case surge scenario by combining the highest surge values from multiple model simulations. Inputs for the model included elevation data from LIDAR, SLOSH basin outputs, and contiguous shoreline or sea polygons. These data layers help identify areas at the greatest risk of storm surge inundation, supporting mitigation efforts and long-term resilience planning.

Figure 26 Rise In Major Hurricanes Atlantic Basin



HTTPS://WWW.STATISTA.COM/CHART/11009/HURRICANES-OVER-THE-ATLANTIC-BASIN/

Figure 27 Total Number of Major Hurricane Strikes by County 1900 - 2010Total Number of Major Hurricane Strikes by County, 1900-2010



SOURCE: NOAA; HTTPS://WWW.NHC.NOAA.GOV/CLIMO/IMAGES/STRIKES_EGULF_MJR.JPG

Table 41 provides a summary of assets at risk to hurricane surge based on each hurricane category. The assets at risk estimate for each hurricane category is based on the total of improved and contents value. The value of land is not included in the loss estimates as generally the land is not subject to loss from hurricane and tropical storm damage.

Table 41 Assets at Risk To Category 1 Storm Surge 2018

Occupancy Type	Total Number of Buildings	Total Building Value	Total Content Value	Total Value
Category 1				
Residential	1,262	$353,820,402	$176,910,198	$530,730,600
Commercial	30	$5,433,492	$5,433,492	$10,866,984
Agriculture	20	$2,795,482	$2,771,182	$5,566,664
Government	3	$1,320,000	$1,320,000	$2,640,000
Industrial	8	$862,360	$1,265,896	$2,128,256
Religious	3	$347,100	$347,100	$694,200
Total	**1,326**	**$364,578,836**	**$188,047,868**	**$552,626,704**
Category 2				
Residential	4,192	$1,263,542,548	$631,771,257	$1,895,313,805
Commercial	57	$14,274,487	$14,274,487	$28,548,974
Agriculture	63	$6,160,520	$6,089,620	$12,250,140
Government	15	$2,738,144	$2,738,144	$5,476,288
Industrial	12	$1,024,416	$1,508,980	$2,533,396
Religious	20	$2,693,878	$2,693,878	$5,387,756
Total	**4,359**	**$1,290,433,993**	**$659,076,366**	**$1,949,510,359**
Category 3				
Residential	5,811	$1,732,673,460	$866,336,699	$2,599,010,159
Commercial	94	$30,850,055	$30,850,055	$61,700,110
Agriculture	92	$8,873,437	$8,622,237	$17,495,674
Government	23	$4,592,301	$4,592,301	$9,184,602
Industrial	23	$6,115,164	$9,089,356	$15,204,520
Religious	22	$2,796,234	$2,796,234	$5,592,468
Total	**6,065**	**$1,785,900,651**	**$922,286,882**	**$2,708,187,533**
Category 4				
Residential	6,170	$1,929,595,755	$964,797,847	$2,894,393,602
Commercial	114	$38,129,818	$38,129,818	$76,259,636
Agriculture	101	$9,322,387	$8,932,187	$18,254,574
Government	24	$4,907,201	$4,907,201	$9,814,402
Industrial	31	$7,180,039	$10,522,068	$17,702,107
Religious	22	$2,796,234	$2,796,234	$5,592,468
Total	**6,462**	**$1,991,931,434**	**$1,030,085,355**	**$3,022,016,789**
Category 5				
Residential	6,275	$1,983,932,355	$991,966,145	$2,975,898,500
Commercial	118	$56,335,980	$56,335,980	$112,671,960
Agriculture	105	$9,489,382	$9,099,182	$18,588,564

Population at Risk

A separate analysis was performed to determine the population at risk to the individual hurricane inundation zones. Using GIS, the FIRM flood zones were intersected with the building footprint layer. Those residential buildings that intersected the hurricane inundation zones were counted and multiplied by the 2010 Census Bureau household factor for unincorporated Baldwin County (2.62) as shown in **Table 42**

Table 42 Estimated Population at Risk 2018

Hurricane Category	Residential Property Count	Population at Risk
Category 1	5,811	15,225
Category 2	4,192	10,983
Category 3	5,811	15,225
Category 4	6,170	16,165
Category 5	6,275	16,441

SOURCE: BALDWIN PARCEL DATA, U.S. CENSUS BUREAU (2010)

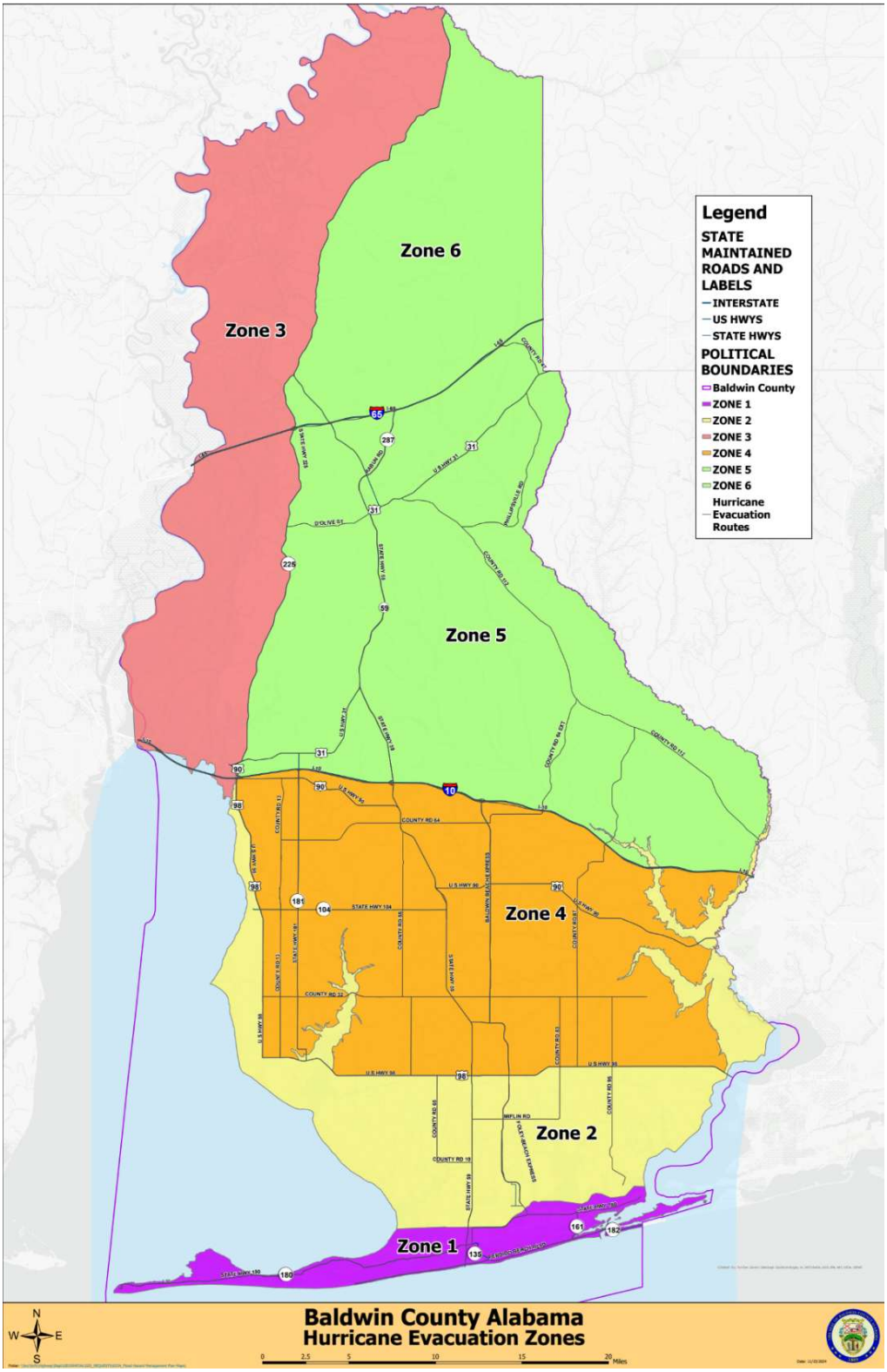
Evacuation Zones

Baldwin County has five hurricane evacuation zones as shown in **Figure 28** When evacuation orders are given, residents and visitors are encouraged to move further inland or move to higher ground. Once an evacuation order is issued all major roadway networks within Baldwin County will be considered evacuation routes for local travel.

Future Development

Any future development within the County would be at risk for hurricanes and tropical storms, with those located near the coastline at risk to associated storm surge. Since Baldwin County participates in the National Flood Insurance Program, enforcement of the floodplain management regulations will ensure mitigation of future construction within flood inundation areas. Hurricane/tropical winds are addressed through the Baldwin County Building Codes including the Wood Frame Construction Manual for 110 mph, 120 mph, and 130 mph winds.

Figure 28 Hurricane Evacuation Zones



Coastal Bank Erosion Vulnerability

Overview

Planning Significance: Moderate

Potential Losses to Existing Development

The severity of coastal erosion is typically measured through a quantitative assessment of shoreline change over time, expressed in feet or meters per year. Erosion rates vary based on shoreline characteristics, including sediment composition, wave action, and the presence of natural or artificial protective structures. These rates are primarily influenced by episodic events such as storms but are also shaped by long-term factors like sea-level rise and human activity. Understanding these rates is essential for land use planning and hazard management to identify areas of critical concern. Coastal erosion remains an ongoing issue in Baldwin County, as discussed in Chapter 3: *Coastal Bank Erosion*, and is expected to continue in the future.

Future Development

The vulnerability of sandy beaches is expected to change due to increasing storm intensity, rising sea levels, and human interventions that modify beach configurations. Efforts such as beach nourishment and shoreline stabilization may help mitigate erosion, but long-term resilience will depend on adaptive management strategies and sustainable development practices.

Changing Future Conditions and Sea Level Rise Vulnerability

Overview

Planning Significance: Moderate

Potential Losses to Existing Development

Baldwin County, with its proximity to the Gulf Coast and tidally influenced rivers, is increasingly vulnerable to the impacts of climate change and sea level rise. Climate-driven hazards such as hurricanes, storm surge, and flooding are projected to become more frequent and severe due to rising global temperatures and changing atmospheric patterns. What is currently considered a 50-year flood event may occur as frequently as every 10 years in the future.

The vulnerability assessment discussions in *Chapter 3: Flooding, Hurricanes, and Coastal Erosion* outline the county's current exposure to these hazards. This section focuses specifically on the direct impacts of sea level rise using the most current available data. Potential consequences include increased flooding frequency, damage to critical infrastructure, rising public costs for flood mitigation, and economic losses due to property devaluation and tax revenue reductions.

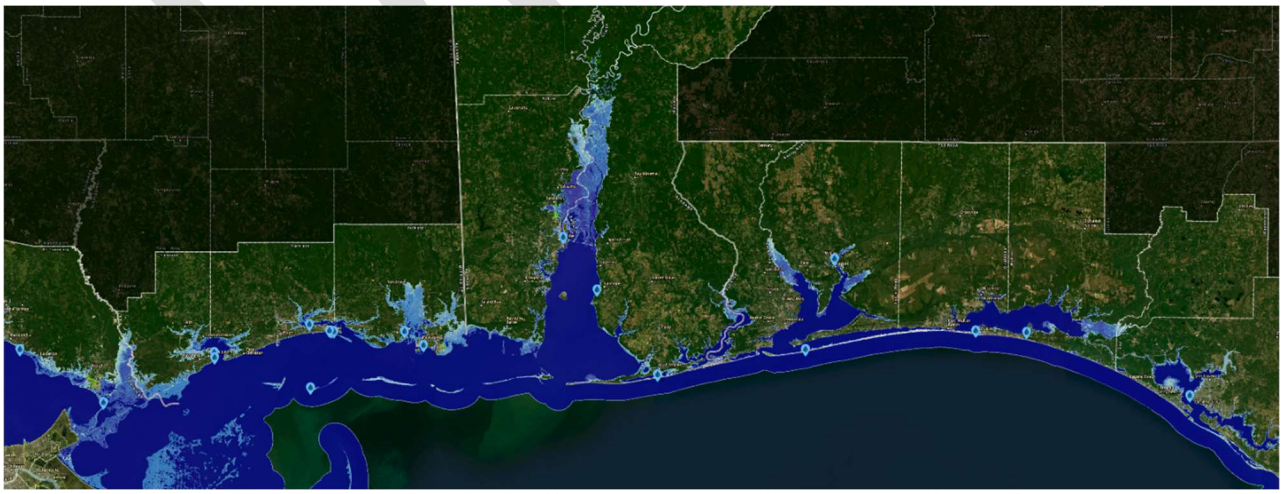
Potential Impacts of Sea Level Rise on Baldwin County

Sea level rise may significantly affect property and infrastructure, including:

- Roads and bridges, leading to increased maintenance costs and accessibility issues
- Utility infrastructure, including wastewater and stormwater systems, which may be compromised by saltwater intrusion
- Erosion hazard zones, exacerbating shoreline retreat and loss of protective dunes
- The built environment, particularly residential and commercial properties, which face increased flood risk
- Natural resources, including wetlands and estuaries, which may be lost or degraded due to saltwater intrusion
- Recreational facilities, such as parks and beach access points, which may be permanently submerged or require costly modifications
- Public water supplies, as saltwater intrusion threatens groundwater sources
- Property values and tax revenues, as inundation and increased flood risk reduce land usability and economic viability

NOAA Coastal Services Center provides a sea level rise and coastal flooding impacts viewer in order to assess how sea level rise will impact coastal communities. **Figure 29** reflects the impact of three feet of sea level rise on Baldwin County using the coastal flooding impacts viewer provided by NOAA. The sea levels represent inundation at high tide, and areas that are hydrologically connected are shown in shades of blue (darker blue= greater depth). The low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. The shaded area is unmapped. **Figure 29** provides an exposure analysis based on the elevation of land that structures are located on relative to local high tide. The results do not factor in structure elevation.

Figure 29 Impact of 3-Ft of Sea Level Rise, Baldwin County



SOURCE: NOAA, SEA LEVEL RISE VIEWER, HTTPS://COAST.NOAA.GOV/DIGITALCOAST/TOOLS/SLR.HTML

Future Development

As sea level rise increases the baseline for waves, tides, and storm surge, future coastal floods are expected to become more frequent and severe. Any future development within coastal high-risk flood zones (VE zones) would elevate risk in these areas. Since Baldwin County participates in the National Flood Insurance Program, enforcement of floodplain management regulations will help mitigate risks for future construction. However, even with proper mitigation, structures in flood-prone areas may still require evacuation, and extreme flooding events could exceed mitigation levels, leading to potential damages.

Communities may be able to reduce sea level rise impacts by establishing defenses, accommodating floods, or relocating some development, at uncertain cost.

Table 43 Sea Level Rise and Coastal Flood Exposure, Baldwin County

Elevation relative to local high tide line (Mean Higher High Water)											
	Unit	**< 1ft**	**< 2ft**	**< 3ft**	**< 4ft**	**< 5ft**	**< 6ft**	**< 7ft**	**< 8ft**	**< 9ft**	**< 10ft**
BY TOTALS											
High social vulnerability population	Count	84	296	732	1296	2066	2964	3933	5090	6845	7796
Medium social vulnerability population	Count	141	413	1013	1813	2615	3285	3934	4509	5051	5564
Low social vulnerability population	Count	13	58	129	220	311	378	434	503	587	655
Property value	$Million	466	1027	2402	4129	5931	7721	9750	11829	13880	15562
Population	Count	238	767	1874	3329	4992	6628	8301	10102	12482	14015
Caucasian population	Count	231	744	1821	3237	4847	6436	8063	9809	12098	13567
Population of color	Count	9	32	76	136	215	281	347	421	548	633
African American population	Count	2	8	18	31	48	62	76	95	130	154
Asian population	Count	2	8	19	35	61	78	90	102	119	128
Hispanic population	Count	5	13	30	49	76	111	151	198	295	361
Native American population	Count	3	10	25	47	75	98	122	146	184	213
Homes	Count	396	1133	2664	4756	7424	10227	13280	16197	19223	21504
Schools	Count	0	0	0	0	0	0	0	1	1	1
Libraries	Count	0	0	0	0	0	0	0	0	1	1
Museums	Count	0	0	0	0	0	0	0	1	1	2
Houses of worship	Count	1	1	2	2	2	2	4	5	6	10
Roads	Miles	2	7	27	57	92	125	160	197	238	274
County roads	Miles	0	0	3	6	9	11	12	14	14	15
Federal roads	Miles	0	2	4	5	6	7	8	10	11	12
Local roads	Miles	2	5	19	42	70	97	122	150	183	211
Secondary roads	Miles	0	2	5	9	13	17	26	33	41	48
State roads	Miles	0	0	0	4	6	10	18	23	29	35
Heliports	Count	4	4	5	5	5	5	5	5	5	5

Elevation relative to local high tide line (Mean Higher High Water)											
	Unit	**< 1ft**	**< 2ft**	**< 3ft**	**< 4ft**	**< 5ft**	**< 6ft**	**< 7ft**	**< 8ft**	**< 9ft**	**< 10ft**
BY TOTALS											
EPA listed sites	Count	11	17	30	47	55	60	65	73	76	84
NPDES sites	Count	11	16	24	40	47	52	54	60	63	68
OIL sites	Count	0	0	1	1	1	1	1	1	1	1
RADINFO sites	Count	0	1	5	6	7	7	8	10	10	13
Hazardous materials facilities	Count	0	0	1	1	1	1	1	1	1	1
Oil facilities	Count	0	0	1	1	1	1	1	1	1	1
Hazardous waste sites	Count	0	1	5	6	7	7	8	10	10	13
Minor hazwaste source sites	Count	0	1	3	3	4	4	4	4	4	6
Unspecified hazardous waste sites	Count	0	0	2	3	3	3	4	6	6	7
Wastewater sites	Count	11	16	24	40	47	52	56	62	65	70
Major wastewater sites	Count	1	1	1	1	1	2	2	2	2	2
Nonmajor wastewater sites	Count	10	15	23	39	46	50	52	58	61	66
Land	Acres	41304	73690	86303	96439	105145	113977	122674	131131	139665	147100
Protected land	Acres	19429	39396	45775	50304	53192	55938	58543	60815	62661	63974
Federal protected land	Acres	20	458	1385	2351	3080	3924	4821	5622	6211	6663
State protected land	Acres	19219	38677	44048	47316	49340	51162	52804	54183	55368	56148

Source: Surging Seas.org; ssrf.climatecentral.org/states/AL/downloads/analysis_total_tables/County/AL_Baldwin_County-total.xls

Dam Failure Vulnerability

Overview

Planning Significance: Low

Potential Losses to Existing Development

According to the National Inventory of Dams (NID), Baldwin County has 20 dams, with one classified as a significant hazard and the rest as low hazard, meaning failure would primarily affect agricultural land, uninhabited structures, or low-volume roads.

Dam failures, though rare, are typically triggered by extreme rainfall, flooding, or seismic activity. Unlike typical flood events, a catastrophic failure could result in rapid and deep flooding with high velocity, causing significant damage.

A GIS analysis of dam inundation areas would provide the most accurate risk assessment, but low hazard dams are not required to have Emergency Action Plans (EAPs) or inundation mapping. To improve preparedness, Baldwin County may collaborate with dam owners and state agencies to assess risks, encourage EAP development for significant hazard dams, and promote regular inspections and maintenance.

Future Development

Flooding from a dam failure can exceed the Special Flood Hazard Areas (SFHAs) regulated by local floodplain ordinances. Any future development downstream of dams or within inundation zones increases vulnerability to this hazard. Baldwin County should integrate dam failure risk assessments into the development permitting process, particularly for areas downstream of the county's significant hazard dam.

Tsunami Vulnerability

Overview

Planning Significance: Low

Potential Losses to Existing Development

The most likely sources of potential Gulf Coast tsunamis are underwater landslides. However, geological records suggest that large landslides were most active over 7,000 years ago, during a period of rapid sea level change. Despite this, ongoing sediment deposition—particularly from the Mississippi River—may contribute to slope instability and increased fluid pressure, potentially leading to future landslide activity.

Tsunami inundation mapping is available for the City of Mobile and Dauphin Island/Gulf Highlands, but not for Baldwin County. Without historical tsunami events or observed data, estimating inundation zones and potential losses for Baldwin County remains challenging. GIS analysis of populations and development within at-risk coastal areas would provide the most accurate assessment in the event of a tsunami.

Future Development

Coastal development in Baldwin County would be the most vulnerable to a potential tsunami event. While the county participates in the National Flood Insurance Program (NFIP) and enforces floodplain management regulations to mitigate risks, these measures primarily address flooding hazards rather than tsunami-specific threats. Even with mitigation, evacuation may still be necessary due to rapidly rising waters. Additionally, tsunami waves exceeding anticipated mitigation levels could still result in significant damage to infrastructure and property.

Future Land Use and Development

Baldwin County is experiencing a significant population growth. It is the 7th fastest growing metropolitan statistical area in the United States. **Table 44** provides information on changes in population and housing units in the planning area and estimated population growth. There is an estimated 57.28% increase in population from 2010 to 2050 for Baldwin County. With this population growth, Baldwin County should monitor new development to ensure that it does not take place in hazard-prone areas, specifically in the floodplains and dam inundation areas. Estimation of housing growth was not available beyond 2023.

Table 44 Change in Population and Housing Units; and Population Projections 2020-2050

Year	Population	Percent Change in Population	Housing Units	Percent Change in Housing Units
2010	182,265		104,061	
2020	231,767	27.16%	124,915	16.67%
2025	259,022	11.76 %	n/a	n/a
2030	283,798	9.57%	n/a	n/a
2035	292,088	2.92%	n/a	n/a
2040	302,040	3.41 %	n/a	n/a
2045	300,659	-0.46%	n/a	n/a
2050	309,447	2.92%	n/a	n/a
Estimated Change from 2010 to 2050		57.28%	n/a	n/a

Source: U.S. Census Bureau, University of Alabama, Center for Business and Economic *RESEARCH: HTTPS://CBER.CBA.UA.EDU/EDATA/EST_PRJ.HTML; N/A = NOT AVAILABLE*

Planned Development/Expansion Activities

The Baldwin County Planning and Zoning Commission completed a comprehensive plan, *Our Vision, A Citizens Guide to Growth* in the Zoned Areas of Baldwin County, in 2023.

The plan is a guidance document for elected and appointed officials, staff and citizens to manage growth and development in the County with regards to land uses and zoning, as well as the development of public improvements and infrastructure. The map in **Figure** 30 shows the future land use recommendations for the County.

Future land use is divided into broad categories which represent the recommendations for the physical development of the unincorporated areas of the County. The categories are intended for planning purposes only and do not represent the adoption of zoning designations for areas which have not voted their desire to come under the zoning authority of the Baldwin County Commission. The future land use categories contained within the plan include:

PLACE TYPE CATEGORIES

IDEAL CONSERVATION/PRESERVATION

• Environmental Conservation

• Protected/Open Space

Ideal Conservation or Preservation Areas would include land that is undeveloped, or minimally developed, and protected by local, state, and federal agencies or by public, private, and nonprofit organizations. This could include areas conserved for the protection of critical habitat, clean water, open space, or cultural heritage. Zoning Designations may include Environmental Conservation.

CONSERVATION DEVELOPMENT POTENTIAL

- Environmental Conservation
- Protected/Open Space
- Conservation-based Communities

Conservation Development Potential Areas are suitable for all the land uses described in the Ideal Conservation/ Preservation Areas place type but would allow for limited development based on low-impact design principles. Allowing conservation-based subdivisions in these areas could help to balance the pressure of residential development with environmental preservation and rural character. Conservation-based subdivisions allow for the clustering of residential dwellings to protect open space that is valued for natural resource protection—such as stream buffers, mature forest habitat, or wetlands— working farmland, or recreational amenities. Zoning Designations may include Environmental Conservation, CR and OR.

RURAL/AGRICULTURE/LOW IMPACT DEVELOPMENT POTENTIAL

- Rural Subdivisions
- Active Farmland
- Agri-hoods
- Rural Crossroad Center/Node
- Clustered Manufactured Home Communities

Rural Development Potential Areas include large lots, open space views, and a large buffer distance between buildings. Residential homes may be on large tracts and could include estate homes and working farmland. The development pattern may also include conservation-based subdivisions to allow for the clustering of residential dwellings to protect open space that is valued for natural resource protection— such as stream buffers, mature forest habitat, or wetlands—working farmland, or recreational amenities. Lands within these areas should be developed with additional Low Impact Development (LID) standards and buffers to limit the

impact to adjacent critical environments. At key rural crossroads, rural centers or nodes could allow for a combination of retail and service uses to meet the needs of the community. Zoning Designations may include RR, RA and RSF-E

Moderate Development Potential

- Single Family Neighborhoods
- (suburban)
- Amenity-based Communities
- Neighborhood Center/Node

Moderate Development Potential Areas are suitable for all of the land uses described in the previous place types but may also include a variety of home types from large and medium-lot single-family detached homes to single-family attached homes such as duplexes and townhomes. Subdivision patterns may be amenity-based communities with small gardens, parks and playgrounds within private lots or part of a community space. Neighborhood centers or nodes at key intersections would allow for a combination of retail, office, and service uses to meet the needs of the community. Zoning Designations may include RSF-1 and RSF-2.

MID-DENSITY DEVELOPMENT POTENTIAL

- New Urban Communities
- Village Center/Node

Mid-density Development Potential Areas are suitable for all of the land uses described in the previous place types but may also include more traditional neighborhoods with a mix of housing and price points with smaller lot sizes to include patio homes, cottage homes, townhouses and multifamily. Neighborhoods have a connected and grid street network with narrow traffic lanes, sidewalks, and walkable block sizes. Village centers or nodes at key intersections would allow for a combination of retail, office, parks, schools, institution and service uses to meet the needs of the community. Zoning Designations may include RSF-3, RSF-4, RTF-4, RSF-6, RTF-6, LB, B-1 and B-2.

HIGH-DENSITY DEVELOPMENT POTENTIAL

- Mixed-Use Communities
- Apartment Communities
- Urban Mixed-Use Center/Node

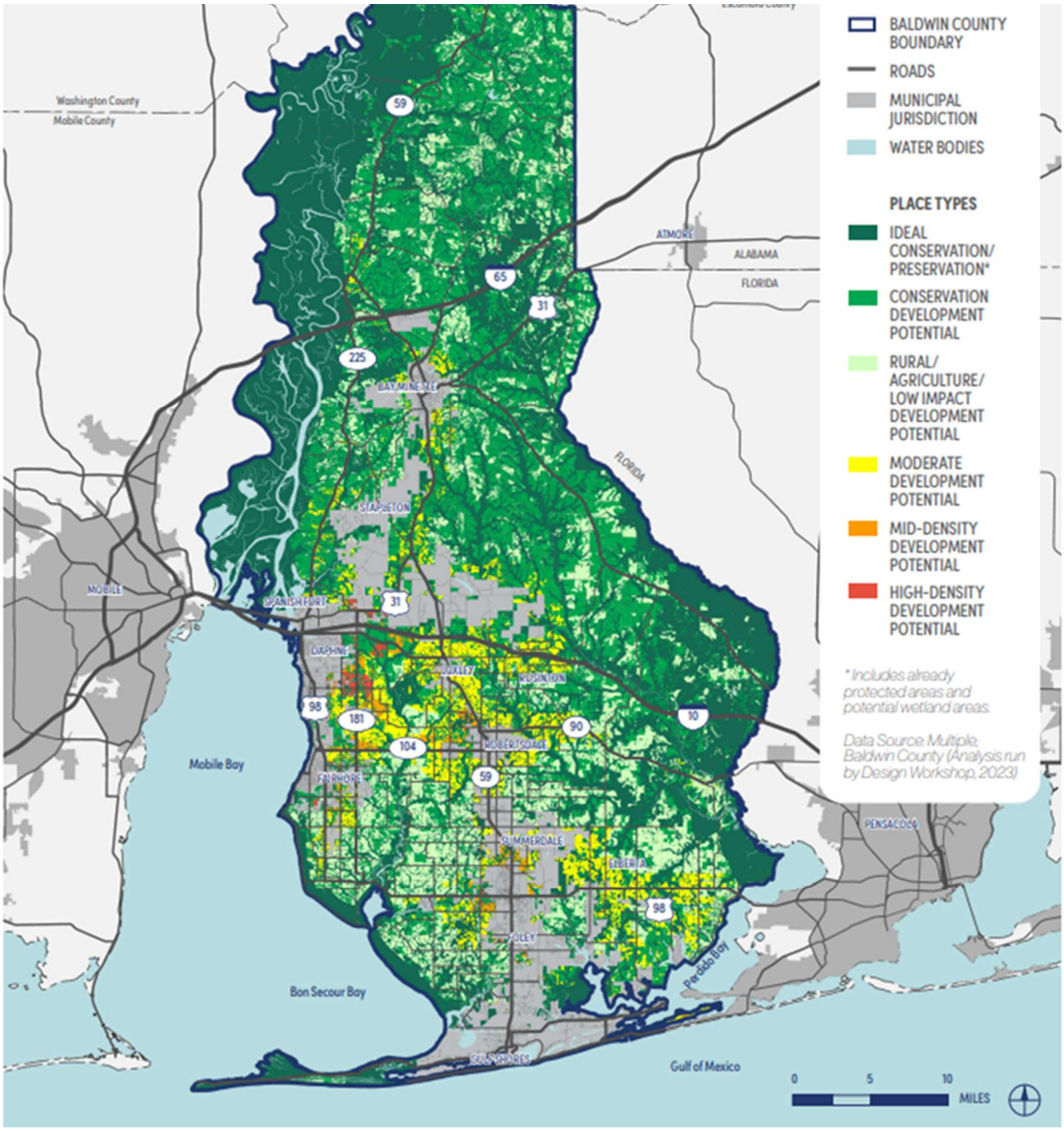
High-density Development Potential Areas are suitable for all the land uses described in the previous place types but have the highest potential for mixed-use communities with a variety of densities including apartment communities, and urban mixed-use centers. Commercial uses are oriented to pedestrian- and bicycle- friendly streets in a connected grid pattern. Zoning Designations may include RMF-6, HDR, RMH, B-3 and B-4.

Future Planning Areas

Future planning areas include locations throughout the County where new development is either underway, has been proposed or is likely to occur. These areas will be evaluated for non-binding future land use categories during the first six-month revision of the Master Plan. Future planning areas as indicated on the Master Plan Map include the following:

- The Stockton area including Bicentennial Park and Live Oak Landing:
- The area surrounding the South Alabama Mega Site:
- The Baldwin Beach Express Corridor:
- The intersection of State Highway 181 and State Highway 104 including the proposed location for a new Catholic High School; this area has adopted county zoning, Planning District 8 & 37:
- The Interstate 65, County Road 47 (Rabun Road) interchange:
- The Interstate 10, County Road 64 Extension (Wilcox Road) interchange:
- The Stapleton area including the intersection of US Highway 31 and State Highway 59: and
- The area surrounding the proposed Mudcat Pointe Subdivision in Seminole.

Figure 30 Future Land Use Recommendations for Baldwin County



Summary of Key Issues

Table 45 shows the results of the Hazard Ranking in order of High to Low Planning Significance based on the methodology described in Chapter 3.

Table 45 results of the Hazard Ranking in order of High to Low Planning Significance based on the methodology described in section

Hazard	Geographic Location / Spatial Extent	Probability	Magnitude	Planning Significance
Flood: 100-/500-Year	Partial	Very High	Significant	High
Hurricane and Tropical Storms (including storm surge)	Community-Wide	Moderate	Significant	High
Flood: Stormwater/Localized	Community-Wide	Very High	Moderate	Moderate
Coastal Bank Erosion	Minimal	Very High	Moderate	Moderate
Changing Future Conditions and Sea Level Rise	Minimal	High	Slight	Moderate
Dam/Levee Failure	Minimal	Very Low	Slight	Low
Tsunami	Minimal	Very Low	Slight	Low

The following section summarizes key issues and questions for the planning committee brought out by the risk assessment.

- According to the July 31, 2017, Preliminary Flood Insurance Study prepared by FEMA, approximately 25-percent of the parcel acreage within the County is located within a Special Flood Hazard Area (SFHA). Changes in floodplain development and development within the watershed in general due to future population growth is likely to increase the size of the SFHAs due to an increase in impervious area.
- Properties categorized as repetitive loss properties have a greater need for flood protection. Repetitive loss can be attributed to development within the 100-year floodplain as well as localized stormwater flooding. Both types of flooding are likely to increase in the future due to development in the floodplain/watershed as well as due to the effects of climate change and sea level rise. Therefore, is it very likely that unmitigated repetitive loss properties will continue to flood in the future.
- Flash flooding occurs repeatedly in some known areas, often outside of the mapped floodplain.
- Localized flooding issues are addressed by the Highway Department. A tracking mechanism for roadway issues and residential complaints could assist visualizing the flooding issue and prioritizing issues to address.

- Due to the level topography, poorly drained soils, a consistent level of annual precipitation and the tidal influence on canal drainage resulting from heavy rainstorms, tropical storms, and hurricanes, it is highly likely that unmitigated properties will continue to experience localized flooding. An increase in imperious area due to future development will only exacerbate the localizing flooding issues unless measures are taken to reduce the volume of runoff. Furthermore, the intensity of individual rainfall events is likely to increase in the future due to climate change which may further overwhelm stormwater drainage systems.
- Dam Inundation Maps are needed to determine vulnerability for the identified significant hazard dam.
- Tsunami Inundation Maps are needed to determine vulnerability.

CHAPTER IV MITIGATION STRATEGY

44 CFR Requirement 201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section presents the mitigation strategy developed by the Floodplain Management Planning Committee (FMPC) based on the risk assessment. The mitigation strategy was developed through a collaborative group process and consists of general goal statements and objectives to guide the jurisdictions in efforts to lessen disaster impacts as well as specific mitigation actions that can be put in place to directly reduce vulnerability to hazards and losses. The following definitions are based upon those found in the March 2023 *Local Mitigation Planning Policy Guide*:

- **Goals** are general guidelines that explain what the community wants to achieve with the plan. They are usually broad policy-type statements that are long-term, and they represent visions for reducing or avoiding losses from the identified hazards.
- **Mitigation Actions** are specific actions that help achieve goals.

Goals

44 CFR Requirement 201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

The FMPC developed goals to provide direction for reducing hazard-related losses in the planning area. These were based upon the results of the risk assessment and a review of mitigation goals from other state and local plans, specifically, the Alabama State Hazard Mitigation Plan, 2023. This review was to ensure that this plan's mitigation strategy was integrated or aligned with existing plans and policies.

The goals of the mitigation strategy are listed below, in no particular order:

GOALS

1 Reduce the vulnerability of the people, property, environment, and economy of unincorporated Baldwin County to the impacts of flood hazards.

2 Strengthen and protect critical facilities and infrastructure from flood hazards to create a safer, more sustainable community.

3 Increase citizen awareness and preparedness by providing information describing all types of flood hazards, flood insurance, methods for preventing flood damage, and how to respond.

4 Maintain and enhance the County's ability to manage a comprehensive flood hazard program.

Identification and Analysis of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

After reviewing the results of the risk assessment, the committee discussed the key issues that were identified for specific hazards. In addition, staff provided the FMPC with information on the types of mitigation actions generally recognized by FEMA. A handout was provided with the following types of mitigation actions, which originated from the National Flood Insurance Program's Community Rating System, as well as definitions and examples for each type of action:

- **Prevention:** Administrative or regulatory actions or processes that influence the way land and buildings are developed and built,
- **Property protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard or remove them from the hazard area,
- **Structural:** Actions that involve the construction of structures to reduce the impact of hazard,
- **Natural resource protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems,
- **Emergency services**: Actions that protect people and property during and immediately after a disaster or hazard event, and
- **Public education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them.

The FMPC then analyzed a list of potential structural and nonstructural mitigation alternatives, which were organized by hazard and based upon the risk assessment, existing capabilities, and plan goals and objectives. Through a facilitated planning process, each committee member developed ideas for mitigation actions based upon these alternatives and their own ideas. Duplicate ideas were condensed to a refined list of mitigation actions that were written on index cards and categorized by mitigation action type.

Some alternatives identified did not make it to this refined list because they were determined by the FMPC to not be politically, technically, or financially feasible or because no champion for the action was present in the group. However, these ideas are still captured in Appendix C and may be readdressed if funding opportunities change or during the next plan update process.

Implementation of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraph (c)(2)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.

Each proposed mitigation action was evaluated against the following considerations:

- Compatibility with goals and objectives identified in the current Alabama Hazard Mitigation Plan (2023):
- Compatibility with goals and objectives identified in the current Baldwin County Hazard Mitigation Plan (2021)
- Assessment of the impact of identified actions on Baldwin County; and
- Compatibility with other local and regional plans and programs.

To prioritize the mitigation actions the actions were evaluated using a simple cost/benefit analysis (**Table 46**). A weighted score was then applied to the total number of votes within each cost/benefit category for a total priority score. A scoring example is presented in **Table 47**. Depending on the results of the action evaluations, each action is recognized as a high priority project (60 to 100 points), medium priority project (50-59 points), or low priority project (0 to 49 points). The results of the prioritization process are included in **Table 47 and Table 48**

This process of identification and analysis of mitigation options allowed the FMPC to come to consensus and to prioritize recommended mitigation actions. Emphasis was placed on the importance of a cost-benefit analysis in determining project priority; however, this was not a quantitative analysis. The Disaster Mitigation Act regulations state that benefit-cost review is the primary method by which mitigation projects should be prioritized. Recognizing the federal regulatory requirement to prioritize by benefit-cost and the need for any publicly funded project to be cost-effective, the FMPC intends to pursue implementation according to when and where damage occurs, available funding, political will, local priority, and priorities identified in the Alabama Hazard Mitigation Plan. Cost-effectiveness will be considered in additional detail when seeking FEMA mitigation grant funding for eligible projects identified in this plan.

There are a total of 6 new mitigation actions and 19 continued mitigation actions from the previous plan for a total of 25 mitigation actions. Priorities for all mitigation actions were determined and/or updated using the cost-benefit analysis as described above. **Table 48** summarizes identified actions and provides information on the hazards addressed and plan goals achieved. The individual action items, as recommended and prioritized by the FMPC, are then presented with the order of priority. Each action item includes responsible office,

potential funding, timeline, and estimated cost level for each identified action. Each mitigation action is also identified as either addressing current development or future development.

Table 46 Benefit/Cost Analysis

Benefit	Definition	Weighted Value
Low	Difficult to assess benefits of this action; long-term timeframe for implementation	1
Medium	Long-term impact on reduction of losses is anticipated; implementation within 5 years	2
High	Meaningful impact on reduction of losses; implementation within 5 years is important	3
Cost	**Definition**	**Weighted Value**
Difficult to Fund	Funding sources not secured; grant funding will be needed	1
Potential to Fund	Funding requires budgeting over multiple years, grant funding potential	2
Easily Funded	Funds to implement action are available in existing budget	3

Action: Prioritize and secure funding for buyout of repetitive flood properties.

Table 47 Example Mitigation Action Prioritization

Benefit	FMPC Votes	Weighted Value	Score
Low	0	1	0
Med	3	2	6
High	10	3	30
Cost	**Definition**	**Weighted Value**	**Score**
Difficult to Fund	0	1	0
Potential to Fund	2	2	4
Easily Funded	11	3	33
TOTAL SCORE			73 - HIGH

Mitigation Action Review Period

In addition to prioritization of the mitigation actions by the FMPC, the public was invited to review the proposed mitigation actions and provide input on additional mitigation actions.

The following actions received the strongest interest of the public:

Currently awaiting comments. None received 1/28/2025

Table 48 Mitigation Action Matrix

Action	FMPC Priority	Goals Address	Address Current Development	Address Future Development	Continued Compliance with NFIP
Public Education					
Provide annual notification of flood hazard determination service to lending institutions, insurance companies, real estate companies and title insurance companies.	High	3	X		X
Distribute outreach materials to floodplain residents at county offices and special events.	High	3	X		X
Develop Program for Public Information (PPI) to Increase citizen awareness and preparedness by providing information describing all types of flood hazards, flood insurance, methods for preventing flood damage, and how to protect their property. Coordinate and consolidate outreach measures identified in the local hazard mitigation plan.	High	3	X		X
Encourage Low Impact Development (LID) methods for new infrastructure and/or mitigation measures for both County and private projects.	Med	1,4		X	X
Publish or engage with at least two (2) flood or stormwater-related articles or materials through local and/or social media platforms.	Med	1,3,4	X	X	X
Ensure that the citizens of Baldwin can easily submit flood/stormwater complaints through the County Website.	Med	3,4	X	X	X
Emergency Services					
In coordination with the Local Emergency Planning Committee (LEPC), prepare and adopt a local disaster recovery plan to aid in the recovery of flood hazard events.	High	1,2	X		X
Strengthen flood warning activities by developing programs including a flood threat recognition system, flood prediction models and a system to disseminate flood warnings to the public.	Med	1,3	X	X	X
Prevention					
Strictly administer existing flood hazard regulations (Flood Damage Prevention Ordinance) and review said regulations to determine their adequacy and whether revisions are needed.	High	1,2	X	X	X

Action	FMPC Priority	Goals Address	Address Current Development	Address Future Development	Continued Compliance with NFIP
Continue to comply with the NPDES permitting requirements and insist on compliance by the development community.	Med	1,2		X	X
Assure compliance with the existing stormwater and erosion control measures contained in the zoning and subdivision regulations.	Med	1		X	X
Continue participation in the CRS program to reduce flood hazards.	Med	1,2		X	X
Continue to assist unincorporated areas with implementing planning and zoning in accordance with the provisions of Act No. 91-719, as amended.	Med	1,2		X	X
Assure compliance with the wetland's protection provisions contained in the zoning and subdivision regulations and utilize the ADID study findings in the land development review process.	Med	1		X	X
Continue to review and comment upon ADEM and COE permit applications for dredge and fill.	Med	4	X	X	X
Continue to coordinate flood hazard activities with state and federal environmental agencies including Health Department, ADCNR, ADEM, EPA, NRCS, FEMA, USFWS and COE.	Med	4	X	X	X
Continue to coordinate flood hazard activities with municipal governments involved in flood hazard management	Med	4	X	X	X
Utilize the County's geographic information system (GIS) to identify and protect flood hazard areas.	Med	1,2	X	X	X
Maintain an inventory of county-maintained roads and bridges which become partially or wholly submerged during rainfall events.	Med	2	X	X	X
Coordinate with the Baldwin County Local Hazard Mitigation	Med	1,2,3,4	X	X	X
Construct regional stormwater ponds to mitigate localized flooding, nutrient loading, and sediment deposition within major watersheds.	Med	1,2,3,4	X	X	X
Monitor roadway overtopping during major rainfall events and prioritize stormwater mitigation projects to address.	High	1,2,4		X	X
Upgrade and/or replace undersized stormwater infrastructure within County maintained ROW's	High	1,2,4	X	X	X

Action	FMPC Priority	Goals Address	Address Current Development	Address Future Development	Continued Compliance with NFIP
Review the County's Subdivision Regulation to enhance flood protection.	High	1,4	X	X	X
Offer LID/GI training for staff and professionals.	Med	1,3,4	X	X	X
Monitor and document all projects incorporating LID/GI practices.	Med	4		X	X
County Staff will participate in Watershed Management Plan development throughout the County.	Med	1,3,4	X	X	X
Provide county support to local organizations that write and implement watershed plans	Med	1,3,4	X	X	X
Develop hydraulic models of every major watershed in Baldwin County to assist with stormwater planning and mitigation for new infrastructure and private developments.	Med	1,3		X	X
Provide staff training on flood management to ensure compliance with local, state, and federal permits, along with specialized training in flood hazard management	Med	1,3,4	X	X	X
Provide training for additional staff members to achieve certification as Certified Floodplain Managers.	High	1,2,4	X	X	X
Property Protection					
Continue participation in the FEMA hazard mitigation program to purchase properties which repeatedly flood.	Med	1	X		X
Research and evaluate the impact of a buyout only hazard mitigation program within the floodway and pursue appropriate action.	Med	1	X		X
Review location of repetitive loss properties, define repetitive loss areas (RL and neighboring properties), and develop repetitive loss area analyses to provide more specific guidance on how to reduce damage from repetitive flooding.	Low	1	X		X
Examine beach erosion utilizing drones to assess the potential benefits of beach nourishment.	Med	1,2	X	X	X
Natural Resources Protection					
Research the feasibility of establishing and funding a stream maintenance and restoration program and pursue appropriate action.	Med	1	X	X	X

Action	FMPC Priority	Goals Address	Address Current Development	Address Future Development	Continued Compliance with NFIP
Identify significant open space and wetland resources and pursue public and private grants for purchase as appropriate.	Med	1	X	X	X
Through continued coordination with US Fish and Wildlife and the Alabama Dept of Conservation & Natural Resources, Baldwin County will continue to examine the appropriate use of sediment-trapping vegetation, sediment mounds, etc., in addressing the impacts of coastal erosion.	Med	4	X	X	X
Structural Projects					
Continue program to pave County dirt roads giving priority to dirt roads with known erosion problems.	Med	2	X	X	X

Table 49 ACTION IMPLEMENTATION STRATEGY

Action ID	FMPC Priority	Mitigation Action	Mitigation Category	Responsible Office	Partners	Potential Resources/Funding	Estimated Cost Level	Timeframe	Status
1	High	Provide annual notification of flood hazard determination service to lending institutions, insurance companies, real estate companies and title insurance companies.	• Public Education	• Building Department	• Planning and Zoning Department	• Staff Time • Department Budgets for printing services	Low	Annually	Ongoing
2	High	Distribute outreach materials to floodplain residents at county offices and special events.	• Public Education	• Building Department	• Planning and Zoning Department	• Staff Time • Department Budgets for printing services	Low	Annually	Ongoing
3	High	Develop Program for Public Information (PPI) to Increase citizen awareness and preparedness by providing information describing all types of flood hazards, flood insurance, methods for preventing flood damage, and how to protect their property. Coordinate and consolidate outreach measures identified in the local hazard mitigation plan.	• Public Education	• Building Department	• Planning and Zoning Department	• Staff Time • Department Budgets for consulting services	Medium	Within 1-Year	Not Started
4	High	In coordination with the Local Emergency Planning Committee (LEPC), prepare and adopt a local disaster recovery plan to aid in the recovery of flood hazard events.	• Emergency Services	• Emergency Management Agency	• Building Inspection • Planning & Zoning	• Staff Time • Department Budgets for consulting services	Low	Within 1-Year	New
5	Med	Strengthen flood warning activities by developing programs including a flood threat recognition system, flood prediction models and a system to disseminate flood warnings to the public.	• Emergency Services	• Emergency Management Agency	• Building Inspection • Planning & Zoning	• Staff Time • Department Budgets for consulting services • DHS Grant Funding	Medium	Within 5-Years	In-Progress
6	High	Strictly administer existing flood hazard regulations (Flood Damage Prevention Ordinance) and review said regulations to determine their adequacy and whether revisions are needed.	• Prevention	• Building Department	Planning and Zoning Department	• Staff Time	Medium	Daily	In-Progress
7	Med	Continue to comply with the NPDES permitting requirements and insist on compliance by the development community.	• Prevention	• Planning & Zoning	Building Inspection	• Staff Time	Medium	Daily	In-Progress
8	Med	Assure compliance with the existing stormwater and erosion control measures contained in the zoning and subdivision regulations.	• Prevention	• Planning & Zoning	Building Inspection	• Staff Time	Medium	Daily	In-Progress
9	Med	Continue participation in the CRS program to reduce flood hazards.	• Prevention	• Building Department	Planning and Zoning Department	• Staff Time	Medium	Daily	Ongoing
10	Med	Continue to assist unincorporated areas to implement planning and zoning in accordance with the provisions of Act No. 91-719, as amended.	• Prevention	• Planning & Zoning	Building Inspection	• Staff Time	Medium	Daily	In-Progress

Action ID	FMPC Priority	Mitigation Action	Mitigation Category	Responsible Office	Partners	Potential Resources/Funding	Estimated Cost Level	Timeframe	Status
11	Med	Assure compliance with the wetlands protection provisions contained in the zoning and subdivision regulations and utilize the ADID study findings in the land development review process.	• Prevention	• Planning & Zoning	Building Inspection	• Staff Time	Medium	Daily, as applicable	In-Progress
12	Med	Continue to review and comment upon ADEM and COE permit applications for dredge and fill.	• Prevention	• Planning & Zoning	• Building Inspection	• Staff Time	Medium	Daily, as applicable	In-Progress
13	Med	Continue to coordinate flood hazard activities with state and federal environmental agencies including Health Department, ADCNR, ADEM, EPA, NRCS, FEMA, USFWS and COE.	• Prevention	• Building Inspection • Planning & Zoning	• Emergency Management Agency	• Staff Time	Medium	Daily, as applicable	In-Progress
14	Med	Continue to coordinate flood hazard activities with municipal governments involved in flood hazard management.	• Prevention	• Building Inspection • Planning & Zoning	• Emergency Management Agency	• Staff Time	Medium	Annually	In-Progress
15	Med	Utilize the County's geographic information system (GIS) to identify and protect flood hazard areas.	• Prevention	• Planning & Zoning		• Staff Time • General Fund	Medium	Within 1-Year	In-Progress
16	Med	Maintain an inventory of county-maintained roads and bridges which become partially or wholly submerged during rainfall events.	• Prevention	• Highway Department	• Building Inspection • Planning & Zoning • Emergency Management Agency	• Staff Time	Medium	Within 1-Year	In-Progress
17	Med	Coordinate with the Baldwin County Local Hazard Mitigation	• Prevention	• Emergency Management Agency	• Building Inspection • Planning & Zoning	• Staff Time • Department Budgets for consulting services	Medium	Annually	New
18	Med	Continue participation in the FEMA hazard mitigation program to purchase properties which repeatedly flood.	• Property Protection	• Building Inspection • Planning & Zoning	• Emergency Management Agency	• HMA Grant Funding • Staff Time	Medium	Annually	In-Progress
19	Med	Research and evaluate the impact of a buyout only hazard mitigation program within the floodway and pursue appropriate action.	• Property Protection	• Building Inspection • Planning & Zoning	• Emergency Management Agency	• HMA Grant Funding • Staff Time	Medium	Annually	In-Progress
20	Low	Review location of repetitive loss properties, define repetitive loss areas (RL and neighboring properties), and develop repetitive loss area analyses to provide more specific guidance on how to reduce damage from repetitive flooding.	• Property Protection	• Building Inspection • Planning & Zoning	• Emergency Management Agency	• HMA Grant Funding • Staff Time	Medium	Within 3-Years	New
21	Med	Research the feasibility of establishing and funding a stream maintenance and restoration program and pursue appropriate action.	• Natural Resources Protection	• Planning & Zoning		• Staff Time • EPA Grant Funding	Low	Within 5-Years	Updated

Action ID	FMPC Priority	Mitigation Action	Mitigation Category	Responsible Office	Partners	Potential Resources/Funding	Estimated Cost Level	Timeframe	Status
22	Med	Identify significant open space and wetland resources and pursue public and private grants for purchase as appropriate.	• Natural Resources Protection	• Planning & Zoning		• Staff Time • EPA Grant Funding • NOAA Coastal Zone Mgmt Funding • USDA, NRCS	Medium	Within 3-Years	In-Progress
23	Med	Through continued coordination with state and federal agencies, Baldwin County will continue to pursue grants to assist in coastal erosion management measures.	• Natural Resources Protection	• Planning & Zoning	• Building Department	• Staff Time	Medium	Within 3-Years	Updated
24	Med	Continue program to pave County dirt roads giving priority to dirt roads with known erosion problems.	• Structural Projects	• Highway Department	• Planning & Zoning	• Staff Time General Fund	Medium	Annually	In-Progress
25	Med	Develop hydraulic models of every major watershed in Baldwin County to assist with stormwater planning and mitigation for new infrastructure and private developments.	• Prevention	• Highway Department	• Planning & Zoning	• Staff Time • Department Budget	Medium	Within 5-years	In-Progress
26	Med	Construct regional stormwater ponds to mitigate localized flooding, nutrient loading, and sediment deposition within major watersheds.	• Prevention	• Highway Department	• Planning & Zoning	• Staff Time	High	Annually	In-Progress
27	High	Monitor roadway overtopping during major rainfall events and prioritize stormwater mitigation projects to address.	• Prevention	• Highway Department	• Planning & Zoning	• Staff Time	Low	Annually	In-Progress
28	Med	Encourage Low Impact Development (LID) methods for new infrastructure and/or mitigation measures for both County and private projects.	• Education	• Highway Department •	• Planning & Zoning	• Staff Time	Low	Annually	In-Progress
29	High	Monitor roadway overtopping during major rainfall events and prioritize stormwater mitigation projects to address.	• Prevention	Highway Department	• Planning & Zoning	• Staff Time	Low	Annually	In-Progress
30	High	Upgrade and/or replace undersized stormwater infrastructure within County maintained ROW's	• Prevention	• Highway Department	• Planning & Zoning	• Staff Time • Department Budgets	Medium	Annually	In-Progress
31	Med	Review the County's Subdivision Regulation to enhance flood protection.	• Prevention	• Planning & Zoning	• Building Department	• Staff Time	Low	Annually	New
32	High	Ensure that the citizens of Baldwin can easily submit flood/stormwater complaints through the County Website.	• Public Education	• Planning & Zoning	• Building Department	• Staff Time	Medium	Annually	New
33	Med	Offer LID/GI training for staff and professionals.	• Prevention	• Planning & Zoning	• Building Department	• Staff Time	Medium	Annually	New

Action ID	FMPC Priority	Mitigation Action	Mitigation Category	Responsible Office	Partners	Potential Resources/Funding	Estimated Cost Level	Timeframe	Status
34	Med	Monitor and document all projects incorporating LID/GI practices.	• Prevention	• Planning & Zoning	• Building Department	• Staff Time	Medium	Annually	New
35	Med	County Staff will participate in Watershed Management Plan development throughout the County.	• Prevention	• Planning & Zoning	• Building Department	• Staff Time	Medium	Annually	New
36	Med	Provide county support to local organizations that write and implement watershed plans	• Prevention	• Planning & Zoning	• Building Department	• Staff	Medium	Annually	New
37	Med	Provide staff training on flood management to ensure compliance with local, state, and federal permits, along with specialized training in flood hazard management	• Prevention	• Building Department	• Planning & Zoning	• Staff	Medium	Annually	New
38	Med	Examine beach erosion utilizing drones to assess the potential benefits of beach nourishment.	• Property Protection	• Building Department		• Staff	Low	Within 5 years	New
39	High	Provide training for additional staff members to achieve certification as Certified Floodplain Managers.	• Prevention	• Building Department	• Planning & Zoning • Highway • EMA	• Staff Time	Low	Within 1-2 years	New

CHAPTER V PLAN MAINTENANCE PROCESS

This chapter provides an overview of the overall strategy for plan maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

Previous Efforts To Monitor, Evaluate, And Update The Plan

Since the approval of the *Baldwin County Flood Hazard Management Plan* in 2018 and the Baldwin County Multi-Hazard Mitigation Plan, the County has demonstrated a commitment to monitoring, evaluating, and updating the plan with formal annual meetings. These annual meetings have consisted of the following:

- Summary review of the hazard mitigation plan;
- Discussion of hazard events over the previous year;
- Discussion of changes in development;
- Progress in mitigation efforts, including status updates to all mitigation actions in the previous plan;
- Discussion of available mitigation funding sources; and
- Discussion of continued public involvement.

Conducting in coordination with the annual CRS update, the Baldwin County Building Inspection Department provided the updated Flood Mitigation Strategy with the current status of each mitigation action to the Baldwin County Commission requesting that the mitigation strategy be incorporated, where appropriate in other planning mechanisms.

Monitoring, Evaluating, And Updating The Plan

44 CFR Requirement 201.6(c)(4): The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five- year cycle.

Floodplain Management Planning Committee

With adoption of this plan, the FMPC will continue to be tasked with plan monitoring, evaluation, and maintenance of the plan. The participating members, led by the Baldwin County Building Inspection Department, agree to

- Meet semi-annually, and after a disaster event, to monitor and evaluate the implementation of the plan;
- Act as a forum for flood hazard mitigation issues;
- Disseminate flood hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high priority, low- or no-cost recommended actions;
- Maintain vigilant monitoring of multi-objective, cost-share, and other funding opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Keep the concept of mitigation in the forefront of community decision making by identifying plan recommendations when other community goals, plans, and activities overlap, influence, or directly affect increased community vulnerability to disasters;
- Report on plan progress and recommended changes to the Baldwin County Commissioners; and
- Inform and solicit input from the public.

The FMPC is an advisory body and will not have any powers over county staff. Its primary duty is to encourage implementation of the plan by local partners and to report to the County Commission and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting flood mitigation proposals, hearing stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the County website.

Plan Maintenance Schedule

The FMPC agrees to meet semi-annually and after a hazard event as appropriate to monitor progress and update the mitigation strategy. The Baldwin County Building Inspection Department Head is responsible for initiating these plan reviews.

A five-year written update of the plan will be submitted to the Alabama Emergency Management Agency and FEMA Region IV per Requirement §201.6(c)(4)(i) of the Disaster Mitigation Act of 2000, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

Baldwin County coordinate five-year written updates, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. With this plan update anticipated to be adopted in 2025, the next plan update for the County will occur in 2030.

Plan Maintenance Process

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting

- Decreased vulnerability as a result of implementing recommended actions,
- Increased vulnerability as a result of failed or ineffective mitigation actions, and/or
- Increased vulnerability as a result of new development (and/or annexation). The annual reviews and updates to this plan will:
- Consider changes in vulnerability due to action implementation,
- Document success stories where mitigation efforts have proven effective,
- Document areas where mitigation actions were not effective,
- Document any new hazards that may arise or were previously overlooked,
- Incorporate new data or studies on hazards and risks,
- Incorporate new capabilities or changes in capabilities,
- Incorporate growth and development-related changes to inventories, and
- Incorporate new action recommendations or changes in action prioritization.

In order to best evaluate any changes in vulnerability as a result of plan implementation, the participating jurisdictions will follow the following process:

- A representative from the responsible office identified in each mitigation action will be responsible for tracking and reporting on an annual basis to the jurisdictional lead on action status and providing input on whether the action as implemented meets the defined objectives and is likely to be successful in reducing vulnerabilities.
- If the action does not meet identified objectives, the jurisdictional lead will determine what additional measures may be implemented, and an assigned individual will be responsible for defining action scope, implementing the action, monitoring success of the action, and making any required modifications to the plan.
- As part of the semi-annual review process, the Baldwin County Building Inspection Department will provide the updated Mitigation Strategy with the current status of each flood mitigation action to the County Commission requesting that the flood mitigation strategy be incorporated, where appropriate in other planning mechanisms.

Changes will be made to the plan during the update process to accommodate for actions that have failed or are not considered feasible after a review of their consistency with established criteria, time frame, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation.

Updating of the plan will be by written changes and submissions, as is appropriate and necessary, and as approved by the County Commission. In keeping with the five-year update process, the FMPC will convene public meetings to solicit public input on the plan and its routine maintenance and the final product will be adopted by the County Commission.

Specifically, the County will adhere to the following process for the next update of this FMP:

Semi-Annual Plan Review Process

For the 2025 Floodplain Hazard Management Plan update review process, Baldwin County's Building Inspection Department will be responsible for facilitating, coordinating, and scheduling reviews and maintenance of the plan. The review of the Floodplain Hazard Management Plan will be conducted as follows:

- The Building Inspection Department will place an advertisement in the local newspaper advising the public of the date, time, and place for each semi-annual review of the plan and will be responsible for leading the meeting to review the plan.
- Notices will be mailed to the members of the FMPC, federal, state, and local agencies, non-profit groups, local planning agencies, representatives of business interests, neighboring communities, and others advising them of the date, time, and place for the review.
- Local County officials will be noticed by email and telephone or personal visit and urged to participate.
- Members of the Baldwin County Commission will also be noticed by email and either by telephone or personal visit.
- Prior to the review, department heads and others tasked with implementation of the various activities will be queried concerning progress on each activity in their area of responsibility and asked to present a report at the review meeting.
- The local news media will be contacted, and a copy of the current plan will be available for public comment.
- After the review meeting, minutes of the meeting and a semi-annual report will be prepared by the FMPC and forwarded to the news media (public) and the ISO/CRS specialist for the CRS program. The report will also be presented to the County Commission for review, and a request will be made that the Commission take action to recognize and adopt any changes resulting from the review.

Criteria for Semi-annual Reviews

The criteria recommended in 44 CFR 201 and 206 will be utilized in reviewing and updating the plan. More specifically, the semi-annual reviews will include the following information:

- Community growth or change in the past quarter.
- The number of substantially damaged or substantially improved structures by flood zone.
- The renovations to public infrastructure including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the Emergency Operations Center (EOC) and whether or not the event resulted in a presidential disaster declaration.

- Natural hazard occurrences that were not of a magnitude to warrant activation of the EOC or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages due to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.
- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools and public safety buildings.
- Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Floodplain Hazard Management Plan. Review of the status of implementation of projects (mitigation strategies) including projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.
-

Incorporation Into Existing Planning Mechanisms

44 CFR Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Where possible, plan participants will use existing plans and/or programs to implement flood hazard mitigation actions. Based on the capability assessments, Baldwin County will continue to plan and implement programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through the following plans:

- Baldwin County Master Plan;
- Ordinances;
- Baldwin County Local Emergency Operations Plan;
- Capital improvement plans and budgets;
- Other community plans within the County, such as stormwater management plans, and parks and recreation plans; and
- Other plans and policies outlined in the capability assessment.

FMPC members involved in updating these existing planning mechanisms will be responsible for integrating the findings and actions of the Flood Hazard Management Plan, as appropriate. The FMPC is also responsible for monitoring this integration and incorporating the appropriate information into the five-year update of the multi-hazard mitigation plan.

Chapter 5 Monitoring, Evaluating and Updating the Plan, incorporation into existing planning mechanisms will be done through the routine actions of:

- Monitoring other planning/program agendas;
- Attending other planning/program meetings;
- Participating in other planning processes; and
- Monitoring community budget meetings for other community program opportunities.

The successful implementation of this mitigation strategy will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community.

Efforts should continuously be made to monitor the progress of mitigation actions implemented through other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this Floodplain Hazard Management Plan.

Continued Public Involvement

44 CFR Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

The update process provides an opportunity to publicize success stories from the plan's implementation and seek additional public comment. Information will be posted in the Newspaper and on the County website following the annual review of the mitigation plan. A public hearing(s) to receive public comment on plan maintenance and updating will be held during the update period. When the FMPC reconvenes for the update, it will coordinate with all stakeholders participating in the planning process, including those who joined the FMPC after the initial effort, to update and revise the plan. Public notice will be posted and public participation will be invited, at a minimum, through available website postings and press releases to the local media outlets, primarily newspapers.

APPENDIX

Appendix D Table 50 Acronyms & Abbreviations

ACRONYM	WHAT IT STANDS FOR
ACS	American Community Survey
ADCNR	Alabama Department of Conservation & Natural Resources
ADEM	Alabama Department of Environmental Management
ADID	Advanced Identification
AGCRP	Alabama Gulf Coast Recovery Program
ALDOT	Alabama Department of Transportation
ALERT	Automated Local Evaluation in Real Time
APE	Area of Potential Effect
BCEGS	Building Code Effectiveness Grading Schedule
BMP	Best Management Practices
BRATS	Baldwin Rural Area Transportation Service
CBRA	Coastal Barrier Resources Administration
CERT	Community Emergency Response Team
CIP	Capital Improvements Plan
COE	Corp. of Engineers
CRS	Community Rating System
DHS	Department of Human Services
DMA	Disaster Mitigation Act
EDA	U.S. Economic Development Administration
EMA	Emergency Management Agency
EMI	Emergency Management Institute
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency

ACRONYM	WHAT IT STANDS FOR
FHMP	Flood Hazard Management Plan
FHMP	Flood Hazard Management Plan
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Assistance Program
FMPC	Floodplain Management Planning Committee
FMPC	Floodplain Management Planning Committee
FPM	Flood Plain Management Plan
fps	feet per second
GIS	Geographic Information System
HAZUS	Hazards United States (FEMA software)
HMGP	Hazard Mitigation Grant Program
HUD	U.S. Department of Housing and Urban Development
ICC	Increased Cost of Compliance
ISO	Insurance Service Office
LEPC	Local Emergency Planning Committee
LID	Low Impact Development
LIDAR	Light Intensity Distance and Ranging
MIP	Multiyear Implementation Plan
MOM	Maximum of Maximums
MSL	Mean Sea Level
N/A	Non-Applicable
NCEI	National Centers for Environmental Information
NEMO	Nonpoint Education for Municipal Officials
NFIP	National Flood Insurance Program

ACRONYM	WHAT IT STANDS FOR
NGVD	National Geodetic Vertical Datum
nmi	nautical mile
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination Program
NRCS	Natural Resources Conservation Service
NRCS	National Resource Conservation Service
NWS	National Weather Service
OWR	Office of Workforce Relations
PDM	Pre-Disaster Mitigation Program
PPI	Program for Public Information
RL	Repetitive Loss
RMW	Radius of Maximum Winds
SBA	Small Business Administration
SFHA	Special Flood Hazard Area
SHELDUS	Special Hazard Events and Losses Database for the United States
SLOSH	Sea, Lake and Overland Surges from Hurricanes
SLR	Sea Level Rise
SoVI	Social Vulnerability Index
SWMP	Storm Water Management Program
USACE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey

APPENDIX A

APPENDIX B

Baldwin County
Flood Hazard Management Plan
Committee

Meeting Location & Time:
Baldwin County Building Department
Conference Room
201 E. Section Ave.
Foley, AL 36535
Monday, November 4, 2024
1:00-2:30pm

Committee Members: Ashley Cambell, Planning & Zoning; Corey Flowers, Building Department; Danon Smith, EMA; DJ Hart, Building Department; Janie Joiner, Building Department; Joshua Newman, Planning & Zoning; Mark Acreman, Highway Department; Peggy Summerville, County Resident; Shannon Spivey, BCC Service Center; Vernon Dandridge, EMA

Agenda

I. Call to Order (Sign-In)
II. Welcome and Opening Remarks
    A. New Members?

III. Review of Previous Meeting
    A. Action Item Updates
        - Public Survey
        - Presentation for Public Announcement of Plan Process
            - HMGP Meeting: November 8, 2024
        - Maps
        - Shared FHMP Document (access/updates)
        - Other

IV. New Action Items
    A. Building Department

    B. Planning & Zoning

    C. Highway Department

    D. EMA

    E. Citizen Service

V. Next Meeting Date –

NOTES:

Baldwin County
Flood Hazard Management Plan
Committee

Meeting Location & Time:
Baldwin County Foley Satellite Courthouse
Large Meeting Room
201 E. Section Ave.
Foley, AL 36535
Monday, December 2, 2024
1:00-2:00pm

Committee Members: Ashley Cambell, Planning & Zoning; Corey Flowers, Building Department; Danon Smith, EMA; DJ Hart, Building Department; Janie Joiner, Building Department; Joshua Newman, Planning & Zoning; Mark Acreman, Highway Department; Peggy Summerville, County Resident; Shannon Spivey, BCC Service Center; Vernon Dandridge, EMA

Agenda

I. Call to Order (Sign-In)
II. Welcome and Opening Remarks
III. Review of Previous Meeting
    A. Action Item Updates
        - Public Survey
        - Presentation for Public Announcement of Plan Process
            - HMGP Meeting: November 8, 2024
        - Maps
        - Shared FHMP Document (access/updates)
        - Other
IV. New Action Items
    A. Building Department

    B. Planning & Zoning

    C. Highway Department

    D. EMA

    E. Citizen Service

V. Next Meeting Date – January

NOTES:

Baldwin County
Flood Hazard Management Plan
Committee

Meeting Location & Time:
Baldwin County Foley Satellite Courthouse
Large Meeting Room
201 E. Section Ave.
Foley, AL 36535
Monday, January 6, 2025
1:00-2:00pm

Committee Members: Ashley Cambell, Planning & Zoning; Corey Flowers, Building Department; Danon Smith, EMA; DJ Hart, Building Department; Janie Joiner, Building Department; Joshua Newman, Planning & Zoning; Mark Acreman, Highway Department; Peggy Summerville, County Resident; Shannon Spivey, BCC Service Center; Vernon Dandridge, EMA, Don Joffe, County Resident, Nick Williams, County Resident, Christian Miller, County Resident

Agenda

I. Call to Order (Sign-In)
II. Welcome and Opening Remarks
III. Review of Previous Meeting
    A. Action Item Updates
        - Public Survey
        - Maps
        - Shared FHMP Document (access/updates)
        - Other
IV. New Action Items
    A. Building Department
    B. Planning & Zoning
    C. Highway Department
    D. EMA
    E. Citizen Service
V. Next Meeting Date – January 21, 2025. This will be the final draft meeting prior to the plan being sent to the County Commission meeting.

Baldwin County
Flood Hazard Management Plan
Committee

Meeting Location & Time:
Baldwin County Foley Satellite Courthouse
Large Meeting Room
201 E. Section Ave.
Foley, AL 36535
Monday,
January 27, 2025
1:00-2:00pm

Committee Members: Ashley Cambell, Planning & Zoning; Corey Flowers, Building Department; Danon Smith, EMA; DJ Hart, Building Department; Janie Joiner, Building Department; Joshua Newman, Planning & Zoning; Mark Acreman, Highway Department; Peggy Summerville, County Resident; Shannon Spivey, BCC Service Center; Vernon Dandridge, EMA, Don Joffe, County Resident, Nick Williams, County Resident, Christian Miller, County Resident

Agenda

I. Call to Order (Sign-In)
II. Welcome and Opening Remarks
III. Review of Previous Meeting
IV. Final Draft Review

- Review of Final Draft of the plan. Make any changes from the public hearing or comments received.

Next Meeting Date – February 18, 2025. T he plan be sent to the Baldwin County Commission for approval.

GOT A MINUTE?

Help Baldwin County improve flood protection and potentially lower insurance premiums by sharing your feedback in this quick 6-question survey.

HOW TO USE A QR CODE:

OPEN THE CAMERA ON YOUR PHONE

POINT AT THE QR CODE AND WAIT FOR A LINK TO POP UP

TAP THE LINK TO OPEN IT

BALDWIN COUNTY, ALABAMA

Baldwin County Flood Hazard Management Plan Update

Baldwin County is updating the existing Flood Hazard Management Plan to better protect the people and property of the unincorporated areas of Baldwin County from the effects of flood hazard events. The plan will be updated pursuant to the requirements of the National Flood Insurance Program (NFIP) Community Rating System (CRS). Participation in CRS provides flood insurance premium rate reductions to policy holders in Baldwin County in recognition of the fact that the County implements activities that exceed the minimum NFIP requirements and is working towards the three goals of the CRS:

- Reduce and avoid flood damage to insurable property:
- Strengthen and support the insurance aspects of the NFIP: and
- Foster comprehensive floodplain management.

What is a Flood Hazard Management Plan?

A flood hazard management plan is the result of a planning process to determine how to reduce or eliminate the loss of life and property damage resulting from flood hazards. This plan will address a comprehensive list of flood hazards including riverine and coastal flooding, hurricanes and tropical storms, dam failure, coastal erosion and sea level rise. The plan will assess the likely impacts of these hazards to the unincorporated areas of Baldwin County.

This planning process is structured around 4 phases:

Phase 1: Planning Process
Phase 2: Risk Assessment
Phase 3: Mitigation Strategy
Phase 4: Plan Maintenance

The Ultimate Goal

The goal of this planning process is implementation of mitigation actions that will prevent or lessen the impacts of hazards to people and property in our community.

Why is this important to me?

It is important for citizens to be involved in flood hazard management planning in their community. The planning team needs your input on the types of hazards that are your priority and your opinion on ways to prevent or lessen the impacts of these hazards.

How can I participate?

An update will be presented at the following Planning and Zoning Commission meeting:

Thursday January 9, 2025

4:00 pm

Baldwin County Central Annex

Main Auditorium

22251 Palmer St.

Robertsdale, Al. 36567

Contact the Building Department for more information:

251-972-6837

Ext. 2693

ACCESS SURVEY

Flood Survey as of 1/31/2025 7:35:53 AM

TOTAL SURVEY SUBMITTED:	***152***
1. Are you a homeowner or renter in unincorporated Baldwin County?	
Homeowner	148
Renter	4
2. Do you currently have flood insurance?	
Yes	110
No	42
3. When making the decision to buy or build your home in Baldwin County, did you think about flood insurance?	
Yes	72
No	80
4.How concerned are you about future flood risks?	
Extremely concerned	44
Somewhat concerned	72
Not concerned	36
5.How prepared do you feel you are for a flood event?	
Not at all prepared	22
Somewhat prepared	68
Prepared	47
Very prepared	15
6. Do you currently know where to find information or who to contact about the following?	
Baldwin County flood maps	90
Flood dangers at your residence	58
Mitigation steps to protect your primary home	55
None	50

BALDWIN COUNTY COMMISSION

FOR IMMEDIATE RELEASE
November 5, 2024

CONTACT:
Corey Flowers
Baldwin County Building Department
(251) 972-6837 ext. 2693
corey.flowers@baldwincountyal.gov

PUBLIC NOTICE

Baldwin County Flood Hazard Management Plan

SPECIAL MEETING

The Baldwin County Flood Hazard Management Plan Committee will hold a public meeting to review the updates to the Baldwin County Alabama Flood Hazard Management Plan. Anyone who wishes to participate is encouraged to attend the meeting at the location and time listed below.

Monday, December 2, 2024
1:00 p.m.
Baldwin County Foley Satellite Courthouse
Large Meeting Room
201 East Section Avenue
Foley, Alabama 36535

BALDWIN COUNTY COMMISSION

FOR IMMEDIATE RELEASE
December 10, 2024

CONTACT:
Corey Flowers
Baldwin County Building Department
(251) 972-6837 ext. 2693
corey.flowers@baldwincountyal.gov

PUBLIC NOTICE

Baldwin County Flood Hazard Management Plan

SPECIAL MEETING

The Baldwin County Flood Hazard Management Plan Committee will hold a public meeting to review the updates to the Baldwin County Alabama Flood Hazard Management Plan. Anyone who wishes to participate is encouraged to attend the meeting at the location and time listed below.

Monday January 6, 2025
1:00p.m.
Baldwin County Foley Satellite Courthouse
Large Meeting Room
201 E. Section Ave.
Foley, Al. 36535

BALDWIN COUNTY COMMISSION

FOR IMMEDIATE RELEASE
January 7, 2025

CONTACT:
Corey Flowers
Baldwin County Building Department
(251) 972-6837 ext. 2693
corey.flowers@baldwincountyal.gov

PUBLIC NOTICE

Baldwin County Flood Hazard Management Plan

SPECIAL MEETING

The Baldwin County Flood Hazard Management Plan Committee will hold a public meeting to review the final updates to the Baldwin County Alabama Flood Hazard Management Plan. Anyone who wishes to participate is encouraged to attend the meeting at the location and time listed below.

Monday January 27, 2025
1:00p.m.
Baldwin County Foley Satellite Courthouse
Large Meeting Room
201 E. Section Ave.
Foley, Al. 36535

BALDWIN COUNTY COMMISSION
NOTICE OF PUBLIC HEARING

Baldwin County Alabama
Flood Hazard Management Plan

Notice is hereby given that the Baldwin County Commission will conduct a public hearing concerning
An update to the Baldwin County, Alabama Flood Hazard Management Plan.

The public hearing will be conducted during the regular meeting of the Baldwin County Commission, which is scheduled for Tuesday, February 18, 2025, beginning at 10:00 a.m. at the Baldwin County Fairhope Satellite Courthouse, County Commission Meeting Chambers-2nd Floor, 1100 Fairhope Avenue, Fairhope AL 36532.

Information related to the plan can be viewed online at *https://baldwincountyal.gov/departments/building-inspection*

or in the office of the Baldwin County Building Department 201 East Section Avenue, Foley, Al. 36535
during normal business hours. You can also speak with someone by telephone about the plan by calling (251)-972-6837 ext. 2693.

You may submit comments about the plan by email to:*buildingdepartment@baldwincountyal.gov*
or by sending correspondence to the Baldwin County Building Department, 201 East Section Avenue, Foley, Alabama, 36535. If you would like to address the Baldwin County Commission in person, please attend the public hearing at the time and location listed above.

Public participation is solicited without regard to race, color, national origin, sex, age, religion, disability, or family status. Persons who require special accommodations under the Americans with Disabilities Act or those requiring language translation services should contact Mindy Smith at the Baldwin County Building Department at (251) 972-6837 or *mindy.smith@baldwincountyal.gov*

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Meeting Location:	Baldwin County ~~Building Department – Foley~~ EOC Robertsdale	**Meeting Date:**	Wednesday, August 7, 2024
Facilitator:	Vernon Dandridge – Danon Smith	**Place/Room:**	Conference Room

1	Name: Janie Joiner	Email: janie.joiner@baldwincountyal.gov	
	Company: BC Building Dept	Phone: 251-972-6837	Job: Hazard Mitigation Coord.
2	Name: Corey FLOWERS	Email: corey.flowers@baldwincountyal.gov	
	Company: BC Building Dept	Phone: 251-972-6837	Job: Permit tech
3	Name: DJ Hart	Email: dhart@baldwincountyal.gov	
	Company: BC Building Dept.	Phone: 251-972-6837	Job:
4	Name: Vernon Dandridge	Email: vernon.dandridge@baldwincountyal.gov	
	Company: BC EMA	Phone: 251-972-6809	Job: Planning & Grants Div. Manag.
5	Name: Danon Smith	Email: danon.smith@baldwincountyal.gov	
	Company: BCEMA	Phone: 251-972-8516	Job: Deputy Director
6	Name:	Email:	
	Company:	Phone:	Job:
7	Name:	Email:	
	Company:	Phone:	Job:
8	Name:	Email:	
	Company:	Phone:	Job:
9	Name:	Email:	
	Company:	Phone:	Job:

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Meeting Location:	Baldwin County Building Department – Foley	**Meeting Date:**	Wednesday, September 4, 2024
Facilitator:	Vernon Dandridge – Danon Smith	**Place/Room:**	Conference Room

1	Name: Janie Joiner	Email: janie.joiner@baldwincountyal.gov	
	Company: BC Building Dept	Phone: 251-972-6837	Job: Hazard Mitigation Coord.
2	Name: DG Hart	Email: dhart@baldwincountyal.gov	
	Company: BC Bldg. Dept.	Phone: 251-972-6837	Job:
3	Name: Corey Flowers	Email:	
	Company: BC Buiding Dept	Phone: (251) 972-6837	Job: Permit tech
4	Name:	Email: Corey.Flowers@baldwincountyal.gov	
	Company:	Phone:	Job:
5	Name: Vernon Dandridge	Email: vernon.dandridge@baldwincountyal.gov	
	Company: BC EMA	Phone: 251-972-6809	Job: Planning & Grants Div. Mang.
6	Name:	Email:	
	Company:	Phone:	Job:
7	Name:	Email:	
	Company:	Phone:	Job:
8	Name:	Email:	
	Company:	Phone:	Job:
9	Name:	Email:	
	Company:	Phone:	Job:

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Meeting Location:	Baldwin County Building Department – Foley	**Meeting Date:**	Tuesday October 8, 2024 10:00 AM
Facilitator:	Vernon Dandridge – Danon Smith	**Place/Room:**	Conference Room

1	Name: Janie Joiner	Email: janie.joiner@baldwincountyal.gov		
	Company: BC Building Dept	Phone: 251-972-6837	Job: Hazard Mitigation Coord.	
2	Name: DJ Hart	Email: dhart@baldwincountyal.gov		
	Company: BC Bldg. Dept	Phone: 251-972-6837	Job: CRS Coordinator	
3	Name: Peggy Summerville	Email: Peggy@TheLandLady.org		
	Company: Scout South Properties	Phone: 251-229-3430	Job: Realtor	
4	Name: Josh Newman	Email: joshua.newman@baldwincounty al.gov		
	Company: BC Planning & Zoning	Phone:	Job:	
5	Name: Ashley Campbell	Email: ashley.campbell@baldwin county al.com		
	Company: BC P+Z	Phone: 251-423-3632	Job: Environmental Programs/Natural Resource Planner	
6	Name: Corey Flowers	Email: Corey.Flowers@baldwincountyal.gov		
	Company: BC Building Dept	Phone: (251) 972-6837	Job: Permit tech	
7	Name: Vernon Dandridge	Email: vernon.dandridge@baldwincountyal.gov		
	Company: BC EMA	Phone: 251-972-6809	Job: Planning & Grants D.v. Mang.	
8	Name: Mark Acreman	Email: mark.acreman@baldwincountyal.gov		
	Company: Highway Dept.	Phone: 251-269-7350	Job: Asst County Engineer	
9	Name: Shannon Spivey	Email: ssp.vey@baldwincountyal.gov		
	Company: BCC	Phone: 251.970.4014	Job: Citizens Service Center	

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Meeting Location:	Baldwin County Building Department – Foley	**Meeting Date:**	Monday, November 4, 2024 1:00 PM
Facilitator:	Vernon Dandridge – Danon Smith	**Place/Room:**	Conference Room

1	Name: Shannon Spivey	Email: ssp.vey@baldwincountyal.gov		
	Company: BCC Service Center	Phone: 251.970.4014	Job: Citizen Serv. Center	
2	Name: Peggy Summerville	Email: Peggy@TheLANDLADY.org		
	Company: Scout South	Phone: 251-229-3430	Job: Realtor	
3	Name: DJ Hart	Email: dhart@baldwincountyal.gov		
	Company: BCC Bldg Dept.	Phone: 251-972-6837	Job: CRS Coordinator	
4	Name: Janie Joiner	Email: janiejoiner@baldwincountyal.gov		
	Company: BCC Bldg Dept.	Phone: 251-972-6837	Job: Hazard Mitigation Coord.	
5	Name: Corey Flowers	Email: Corey-Flowers@baldwincountyal.gov		
	Company: BCC Bldg Dept	Phone: (251) 972-6837	Job: CRS Coordinator	
6	Name: Vernon Dandridge	Email: vernon.dandridge@baldwincountyal.gov		
	Company: BC EMA	Phone: 251-972-6809	Job: Planning & Grants Dir. Mang.	
7	Name: Josh Newman	Email: josh.newman@baldwincountyal.gov		
	Company: P & Z	Phone: (334) 379-9241	Job: Permit Engr.	
8	Name: Ashley Campbell	Email: ashley.campbell@baldwincountyal.gov		
	Company: Baldwin County Commission	Phone: 251 423 3632	Job: Natural Resource Planner	
9	Name: Mark Acreman	Email: mark.acreman@baldwincountyal.gov		
	Company: BC Highway Dept.	Phone: 251-269-7350	Job: Asst. County Engineer	

SIGN-IN SHEET – FHMP COMMITTEE MEETING			
Training Location:	Baldwin County Satellite Courthouse – Foley	**Meeting Date:**	Monday December 2, 2024, 1:00 PM
Facilitator:	Vernon Dandridge – Corey Flowers	**Place/Room:**	Large Meeting Room

10	Name: Peggy Summerville	Email: Peggy@TheLANDLADY.org	
	Company: Scout South Properties	Phone: 251-229-3430	Job: Realtor : Land
11	Name: Christian Miller VIRTUAL	Email:	
	Company:	Phone:	Job:
12	Name: Michael AARON	Email: Firechief@Summerdaleal.com	
	Company: Town of Summerdale	Phone: 251 213 9770	Job: Fire chief / EMERG. MANAGER
13	Name: Josh Newman Virtual	Email:	
	Company:	Phone:	Job:
14	Name:	Email:	
	Company:	Phone:	Job:
15	Name:	Email:	
	Company:	Phone:	Job:
16	Name:	Email:	
	Company:	Phone:	Job:
17	Name:	Email:	
	Company:	Phone:	Job:
18	Name:	Email:	
	Company:	Phone:	Job:

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Meeting Location:	Baldwin County Satellite Courthouse – Foley	**Meeting Date:**	Monday December 2, 2024, 1:00 PM
Facilitator:	Vernon Dandridge – Corey Flowers	**Place/Room:**	Large Meeting Room

1	Name: Don Joffe	Email: d.joffe@comcast.net		
	Company: Citizen	Phone: 404 915 4754	Job: retired	
2	Name: D.J. Hart	Email: dhart@baldwincountyal.gov		
	Company: BCC Bldg Dept.	Phone:	Job: CRS Coordinator	
3	Name: Corey Flowers	Email: Corey.flowers@baldwincountyal.gov		
	Company: BCC Bldg Dept	Phone:	Job: CRS Coordinator	
4	Name: Vernon Dandridge	Email: vernon.dandridge@baldwincountyal.gov		
	Company: BCEMA	Phone: 251-972-6809	Job: Planning & Grants Div. Mang.	
5	Name: Ashley Campbell	Email: ashley.campbell@baldwincountyal.gov		
	Company: BC P&Z	Phone: 251-423 3632	Job: Natural Resource Planner	
6	Name: Mark Acreman Virtual	Email:		
	Company:	Phone:	Job:	
7	Name: Nick Williams Virtual	Email:		
	Company: City of Foley	Phone:	Job: Sustainability Coordinator	
8	Name: Janie Joiner	Email: janie.joiner@baldwincountyal.gov		
	Company: BCC	Phone: 251-972-6837	Job: Hazard Mitigation Coord.	
9	Name: Shannon Spivey	Email: sspivey@baldwincountyal.gov		
	Company: BCC	Phone: 251 970.4014	Job: ~~CRS~~ Cust. Rel Mngr	

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Training Location:	Foley Satellite Courthouse	**Meeting Date:**	Monday, January 6, 2025 1:00PM
Facilitator:	Corey Flowers	**Place/Room:**	Large Conference Room

10	Name: Nick Williams Virtural	Email:	
	Company:	Phone:	Job:
11	Name:	Email:	
	Company:	Phone:	Job:
12	Name:	Email:	
	Company:	Phone:	Job:
13	Name:	Email:	
	Company:	Phone:	Job:
14	Name:	Email:	
	Company:	Phone:	Job:
15	Name:	Email:	
	Company:	Phone:	Job:
16	Name:	Email:	
	Company:	Phone:	Job:
17	Name:	Email:	
	Company:	Phone:	Job:
18	Name:	Email:	
	Company:	Phone:	Job:

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Meeting Location:	Foley Satellite Courthouse	**Meeting Date:**	Monday, January 6, 2025 1:00 PM
Facilitator:	Corey Flowers	**Place/Room:**	Large Conference Room

1	Name: Don Joffe	Email: d.joffe@comcast.net	
	Company: EAC	Phone: 404 915 4754	Job: retired
2	Name: Vernon Dandridge	Email: vernon.dandridge@baldwincountyal.gov	
	Company: BC EMA	Phone: 251-753-7740	Job: Planning & Grants Div. Mang.
3	Name: Corey Flowers	Email: Corey.flowers@baldwincountyal.gov	
	Company: BCC	Phone: (251) 635-6340	Job: CRS Coordinator
4	Name: Shannon Spivey	Email: sspivey@baldwincountyal.gov	
	Company: BCC	Phone: 251.970.4014	Job: Cust Rel Mng.
5	Name: Mark Acreman	Email: mark.acreman@baldwincountyal.gov	
	Company: BC Highway	Phone: 251-269-7350	Job: Asst. County Engineer
6	Name: Janie Joiner	Email: janie.joiner@baldwincountyal.gov	
	Company: BC Building Inspections	Phone: 251-233-0102	Job: Hazard Mitigation Coord.
7	Name: DJ Hart	Email: dhart@baldwincountyal.gov	
	Company: BCC - Bldg Insp.	Phone:	Job: CRS Coordinator
8	Name: Peggy Summerville	Email: Peggy@TheLANDLADY.org	
	Company: Scout South Properties	Phone: 251-229-3431	Job: Realtor - Land
9	Name: Josh Newman Virtual	Email:	
	Company:	Phone:	Job:

	Company:	Phone:	Job:

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Training Location:		**Meeting Date:**	Mon. Jan 27, 2025
Facilitator:		**Place/Room:**	

10	Name: Zachary Bodle	Email: Virtural - Highway Dept	
	Company:	Phone:	Job:
11	Name: Damon Smith	Email: Virtural EMA	
	Company:	Phone:	Job:
12	Name:	Email:	
	Company:	Phone:	Job:
13	Name:	Email:	
	Company:	Phone:	Job:
14	Name:	Email:	
	Company:	Phone:	Job:
15	Name:	Email:	
	Company:	Phone:	Job:
16	Name:	Email:	
	Company:	Phone:	Job:
17	Name:	Email:	
	Company:	Phone:	Job:
18	Name:	Email:	

SIGN-IN SHEET – FHMP COMMITTEE MEETING

Meeting Location:	Baldwin County Foley Satellite Courthouse	**Meeting Date:**	Monday January 6, 2025 1:00p.m. 27
Facilitator:	Corey Flowers	**Place/Room:**	Large Meeting Room

1	Name: Peggy Summerville	Email: Peggy@TheLANDLADY.org		
	Company: Scout South Properties	Phone: 251-229-3430	Job: Realtor-LAND	
2	Name: Don Joffe	Email: d.joffe@comcast.net		
	Company: EAC	Phone: 404 915 4754	Job: Brd Member Bell Forest Water	
3	Name: Janie Joiner	Email: janie.joiner@baldwincountyal.gov		
	Company: BCC Building Dept	Phone: 251-972-6837	Job: Hazard Mitigation Coord.	
4	Name: Josh Newman	Email: josh.newman@baldwincountyal.gov		
	Company: P & Z Permitting	Phone:	Job:	
5	Name: Christian Miller	Email: cmiller@mobilebaynep.com		
	Company: Mobile Bay NEP	Phone:	Job:	
6	Name: Ashley Campbell	Email: ashley.campbell@baldwincountyal.gov		
	Company: Baldwin County	Phone: 251 423-3632	Job: Natural Resource Planner	
7	Name: Corey FLOWERS	Email: Corey.FLOWERS@baldwincountyal.gov		
	Company: Baldwin Cnty	Phone: (251) 972-6837	Job: CRS Coordinator	
8	Name: DJ Hart	Email: dhart@baldwincountyal.gov		
	Company:	Phone:	Job:	
9	Name: Nick Williams	Email: Virtural		

BALDWIN COUNTY, ALABAMA
Building Department

February 4, 2025

Hello,

I hope this message finds you well. As part of our ongoing efforts to improve flood hazard management and enhance community resilience in Baldwin County, we are pleased to share the draft of the **Flood Hazard Management Plan**. This document outlines strategies, policies, and actions aimed at reducing the impacts of flooding and safeguarding the people, property, and infrastructure of our community.

We greatly value your expertise and input as a key stakeholder in this process. Your feedback is crucial to ensuring that the plan is comprehensive, effective, and aligns with the needs of all impacted parties. We invite you to review the attached final draft and share any comments, suggestions, or concerns you may have by February 14th. Your insights will play a vital role in finalizing the plan and advancing its implementation.

Should you require any additional information or have specific questions while reviewing the draft, please do not hesitate to contact me directly at Corey Flowers, Baldwin County CRS Coordinator, at **Corey.Flowers@baldwincountyal.gov**, or Vernon Dandridge, Baldwin County EMA Planning & Grants Division Manager, at **Vernon.Dandridge@baldwincountyal.gov**.

Thank you for your continued collaboration. We look forward to hearing your thoughts and working together to create a safer, more resilient community.

Best regards,

Corey Flowers
Community Rating System Coordinator
Baldwin County Building Department

Flood Hazard Management Plan Update – Why It Matters to You!

Baldwin County Flood Hazard Management Plan Update

Baldwin County is updating the existing Flood Hazard Management Plan to better protect the people and property of the unincorporated areas of Baldwin County from the effects of flood hazard events. The plan will be updated pursuant to the requirements of the National Flood Insurance Program (NFIP) Community Rating System (CRS). Participation in CRS provides flood insurance premium rate reductions to policy holders in Baldwin County in recognition of the fact that the County implements activities that exceed the minimum NFIP requirements and is working towards the three goals of the CRS:

- Reduce and avoid flood damage to insurable property;
- Strengthen and support the insurance aspects of the NFIP; and
- Foster comprehensive floodplain management.

What is a Flood Hazard Management Plan?

A flood hazard management plan is the result of a planning process to determine how to reduce or eliminate the loss of life and property damage resulting from flood hazards. This plan will address a comprehensive list of flood hazards including riverine and coastal flooding, hurricanes and tropical storms, dam failure, coastal erosion and sea level rise. The plan will assess the likely impacts of these hazards to the unincorporated areas of Baldwin County.

This planning process is structured around 4 phases:

Phase 1: Planning Process
Phase 2: Risk Assessment
Phase 3: Mitigation Strategy
Phase 4: Plan Maintenance

The Ultimate Goal

The goal of this planning process is implementation of mitigation actions that will prevent or lessen the impacts of hazards to people and property in our community.

Why is this important to me?

It is important for citizens to be involved in flood hazard management planning in their community. The planning team needs your input on the types of hazards that are your priority and your opinion on ways to prevent or lessen the impacts of these hazards.

How can I participate?

An update will be presented at the following Planning and Zoning Commission meeting:

Thursday January 9, 2025

4:00 pm

Baldwin County Central Annex

Main Auditorium

22251 Palmer St.

Robertsdale, AL 36567

Contact the Building Department for more information:

251-972-6837

Ext. 2693

ACCESS SURVEY

Baldwin County, AL Commission
Published by Cloud Campaign
- October 14, 2024 -

Baldwin County is updating its Flood Hazard Management Plan to better protect residents and property from flood risks. By participating, you can help guide improvements in flood protection, which may lead to lower flood insurance premiums through the National Flood Insurance Program's (NFIP) Community Rating System (CRS).

Your input on past experiences and future concerns will help us make Baldwin County safer for everyone. Please take a moment to complete this short 6-question survey at: https://qrcodes.pro/zx7Usd ***BY NOVEMBER 5TH!***

See insights and ads

Boost post

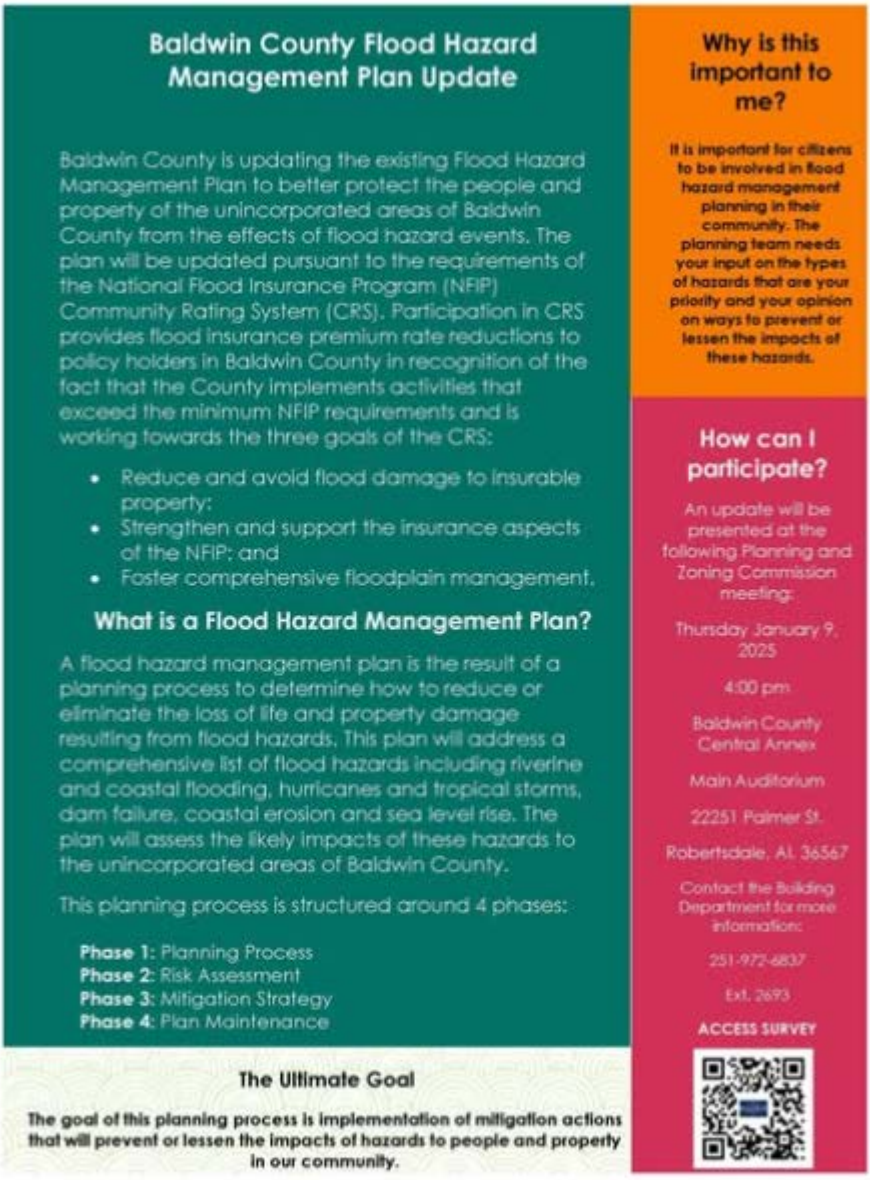
South Baldwin Chamber of Commerce and 9 others

7 comments 19 shares

Baldwin County Emergency Management Agency
January 6 at 12:47 PM ·

Flood Hazard Management Plan Update – Why It Matters to You

https://baldwincountyal.gov/departments/building-inspection



Baldwin County, AL Commission
Published by Cloud Campaign
· January 6 at 10:27 AM ·

Flood Hazard Management Plan Update – Why It Matters to You!

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Baldwin County Emergency Management Agency
October 23, 2024 ·

Baldwin County, AL Commission
Published by Cloud Campaign
· October 23, 2024 ·

Baldwin County is updating its Flood Hazard Management Plan to better protect residents and property from flood risks. By participating, you can help guide impro... See more

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