



Baldwin County Flood Warning and Response Annex

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Introduction

Purpose

The purpose of this annex is to establish the Baldwin County Emergency Management Agency's (BCEMA) procedures for recognizing flood threats, disseminating timely warnings, coordinating emergency response operations, and protecting life and property during flood events affecting the unincorporated areas of Baldwin County. This annex provides the framework for monitoring flood conditions, coordinating with local, state, and federal partners, activating emergency response actions, and supporting decision-making before, during, and after flood events.

This annex supplements the Baldwin County Emergency Operations Plan (EOP) by outlining the operational procedures used to monitor flood hazards, issue public warnings, coordinate protective actions, support critical facilities, and document post-event improvements. The procedures contained in this annex apply to riverine flooding, flash flooding, localized stormwater flooding, coastal flooding, storm surge, and flooding associated with tropical systems.

This annex establishes Baldwin County's operational framework for flood warning and response and supports the County's floodplain management, emergency management, and public safety programs. It establishes the relationship between Baldwin County's Flood Threat Recognition System, Emergency Warning Dissemination procedures, Flood Response Operations, Critical Facilities Planning, and participation in the National Weather Service StormReady program. Together, these elements provide an integrated approach to reducing the risk to life, property, and critical infrastructure through timely warning, coordinated response, and continuous improvement. This annex should be implemented in conjunction with the Baldwin County Emergency Operations Plan, the Baldwin County Multi-Jurisdictional Hazard Mitigation Plan, the Flood Hazard Management Plan, applicable Emergency Support Function (ESF) Annexes, and department-specific Standard Operating Guidelines (SOGs).

Scope

This annex applies to all agencies, departments, organizations, and partners that have responsibilities for flood preparedness, warning, response, recovery, or mitigation within the unincorporated areas of Baldwin County. It establishes the framework for coordinating flood-related operations among county departments, municipalities, public safety agencies, critical facilities, utility providers, and other supporting organizations before, during, and after flood events.

The provisions of this annex apply to, but are not limited to:

- Baldwin County Emergency Management Agency (BCEMA)
- Baldwin County Commission Departments
- Baldwin County municipalities and Emergency Management Coordinators

- Baldwin County Sheriff's Office
- Local law enforcement agencies
- Fire departments
- Emergency Medical Services (EMS)
- Baldwin County Highway Department
- Baldwin County Public Works
- Public and private utility providers
- School systems
- Healthcare facilities
- Long-term care and assisted living facilities
- Special needs facilities
- Critical infrastructure owners and operators
- Volunteer organizations active in disasters (VOADs)
- Nongovernmental organizations (NGOs)
- State and federal partner agencies supporting flood response operations

Implementation of this annex will be coordinated by the Baldwin County Emergency Management Agency in accordance with the Baldwin County Emergency Operations Plan (EOP), applicable Emergency Support Function (ESF) Annexes, Incident Annexes, and department-specific Standard Operating Guidelines (SOGs).

Situation and Planning Assumptions

Baldwin County is vulnerable to a variety of flood hazards due to its location along the northern Gulf of America (formerly Mexico), extensive river and stream systems, low-lying coastal terrain, and rapidly developing watersheds. Flooding may occur as a result of heavy rainfall, tropical storms and hurricanes, storm surge, prolonged rainfall events, high tides, and localized drainage issues. Depending on the source of flooding, impacts may develop gradually over several days or occur rapidly with little warning.

The primary flood hazards affecting Baldwin County include:

- Riverine flooding
- Flash flooding
- Localized stormwater flooding
- Coastal flooding
- Storm surge
- Flooding associated with tropical systems
- Backwater flooding

Flooding may affect developed and rural areas throughout the unincorporated portions of Baldwin County and may occur independently or simultaneously during a single event. Impacts can include roadway inundation, bridge closures, damage to homes and businesses, disruptions to critical infrastructure, isolation of neighborhoods, utility outages, and threats to public safety.

The Weather Act of 2017 establishes the National Weather Service (NWS), an agency under the National Oceanic and Atmospheric Administration (NOAA), is the official and authoritative source of weather information, forecasts, and warnings in the United States for local, state, and federal governments. The Weather Research and Forecasting Innovation Act of 2017 was signed into law on April 18, 2017, and is the primary legislation directing NOAA and the NWS to advance weather research and forecasting capabilities to protect lives and property.

Flood hazards, flood-prone areas, historical flood events, vulnerability assessments, inventories of flood-exposed buildings by occupancy type, land uses within flood hazard areas, and critical facilities are documented in Chapter 3 of the Baldwin County Flood Hazard Management Plan, which serves as the technical foundation for this annex. Flood inundation maps, river gauge information, storm surge mapping, and historical flood data are used in conjunction with this annex to support operational decision-making before, during, and after flood events.

The following planning assumptions apply to flood incidents affecting the unincorporated areas of Baldwin County:

- Flooding may occur with little or no advance warning, particularly during flash flood events resulting from intense rainfall.
- Riverine flooding generally provides longer warning times than flash flooding, allowing additional time for monitoring, public notification, protective actions, and resource deployment.
- Tropical systems may produce multiple flood hazards simultaneously, including heavy rainfall, riverine flooding, storm surge, coastal flooding, high tides, and localized stormwater flooding.
- Floodwaters may render roads, bridges, and other transportation routes impassable before rivers reach their forecast crest, limiting access for emergency responders and the public.
- Flood conditions may rapidly change due to additional rainfall, changing weather conditions, upstream runoff, tidal influences, or changing river forecasts.
- Multiple local, municipal, state, federal, private-sector, and volunteer agencies may be required to coordinate response and recovery operations under the National Incident Management System (NIMS) and Incident Command System (ICS).
- Communications systems may become degraded or fail due to power outages, infrastructure damage, or network congestion. Redundant communications systems and established backup procedures will be utilized whenever possible.

- Public compliance with evacuation orders, protective actions, and emergency messaging cannot be assumed. Multiple methods of public warning and information dissemination will be used to maximize message delivery.
- Critical facilities, essential services, and utilities located within flood-prone areas may be impacted and require priority coordination to maintain continuity of operations and protect vulnerable populations.
- The Baldwin County Emergency Management Agency will maintain continuous situational awareness using National Weather Service forecasts, National Water Prediction Service forecasts, USGS river gauge observations, local weather reports, and field reports from partner agencies to support timely operational decisions.

Concept of Operations

Flood operations are conducted in a phased approach that emphasizes continuous monitoring, timely threat recognition, coordinated decision-making, and implementation of protective actions. As flood conditions evolve, the Baldwin County Emergency Management Agency (BCEMA) maintains situational awareness and coordinates with local, state, and federal partners to protect life, property, and critical infrastructure.

Phase 1 – Monitoring

BCEMA continuously monitors weather, hydrologic, and environmental conditions to identify developing flood threats. Information is collected from multiple redundant sources to ensure timely and accurate situational awareness.

Monitoring sources include:

- | | |
|--|--|
| • National Weather Service (NWS) | • ALERT systems (where available) |
| • National Hurricane Center (NHC) | • Historical flood data |
| • National Oceanic and Atmospheric Administration (NOAA) | • Flood loss history |
| • United States Geological Survey (USGS) River Gauges | • FEMA flood mapping |
| • National Water Prediction Service (NWPS) | • Baldwin County GIS |
| • National Water Model | • Reports from municipal partners |
| • Local rainfall observations | • 911 Communications |
| • Weather radar | • Field reports from law enforcement, fire departments, and public works personnel |

Information is monitored continuously during periods of elevated flood potential and is evaluated throughout the operational period.

Phase 2 – Threat Recognition

BCEMA continues to evaluate available weather and hydrologic information to determine the likelihood, severity, and potential impacts of flooding. Forecast information is compared with historical flood events, known flood-prone locations, and current field conditions to support operational decision-making.

Threat recognition includes evaluation of:

- Rainfall totals
- Rainfall forecasts
- River stages
- River forecasts
- Flood crest predictions
- Flash Flood Guidance
- Storm surge forecasts
- High tide forecasts
- Road flooding reports
- Public reports
- Law enforcement reports
- Public Works reports
- Damage reports
- Infrastructure impacts

Threat levels are continuously compared with historical flood events, flood inundation mapping, and known impact locations throughout Baldwin County. BCEMA routinely incorporates National Weather Service forecasts, USGS river gauge observations, National Water Prediction Service forecasts, FEMA flood information, and local flood loss history to determine the appropriate level of response.

Phase 3 – Decision Making

Based on the information collected during monitoring and threat recognition, BCEMA determines the appropriate operational response. Protective actions are implemented using the National Incident Management System (NIMS) and Incident Command System (ICS) and are coordinated with county departments, municipalities, public safety agencies, and other partner organizations.

Operational decisions may include:

- Increased monitoring
- Notification of county leadership and partner agencies
- Activation of the Emergency Operations Center (EOC)
- Public information releases
- AlertBaldwin notifications
- IPAWS and Wireless Emergency Alerts (WEA)
- Road closures and traffic control
- Evacuation recommendations or orders (when applicable)
- Shelter activation
- Resource deployment
- Mutual aid requests

- Damage assessment operations

Flood Threat Recognition

Purpose

The Baldwin County Emergency Management Agency (BCEMA) maintains a comprehensive Flood Threat Recognition System (FTR) to provide continuous situational awareness of developing flood conditions throughout the unincorporated areas of Baldwin County. The purpose of the Flood Threat Recognition System is to identify potential flooding before significant impacts occur, evaluate the anticipated effects on the community, and support timely warning dissemination, emergency response, and protective actions.

Flood threat recognition serves as the foundation of Baldwin County's Flood Warning and Response Program by integrating meteorological, hydrologic, geographic, and historical flood information into operational decision-making.

Operational Overview

The Planning Section maintains situational awareness by incorporating National Weather Service forecasts, National Water Prediction Service forecasts, United States Geological Survey (USGS) river gauge observations, National Hurricane Center guidance, FEMA flood mapping, Baldwin County GIS data, and reports from county departments, municipalities, first responders, and the public. This information is used to evaluate flood severity, forecast potential impacts, identify threatened populations and infrastructure, and recommend protective actions to the EMA Director.

Monitoring Sources

Information Source	Operational Purpose	Primary User
National Weather Service (NWS)	Weather forecasts, watches, warnings, flash flood guidance, Decision Support Services	Planning Section
National Hurricane Center (NHC)	Tropical cyclone forecasts, storm surge forecasts	Planning Section
National Water Prediction Service (NWPS)	River forecasts and projected flood crests	Planning Section
United States Geological Survey (USGS)	Real-time river stage observations	Planning Section
NOAA Weather Radio	Continuous weather information	Duty Officer

Local rainfall observations	Verification of rainfall totals and localized flooding	Planning Section
Baldwin County GIS	Flood mapping, critical facilities, road impacts, situational awareness	Planning Section
FEMA Flood Insurance Rate Maps	Flood hazard identification and impact analysis	Planning Section
Baldwin County 911	Field reports and public notifications	Operations Section
Sheriff's Office, Fire/EMS, Highway Department, Public Works	Field observations, road conditions, infrastructure impacts	Operations Section
Historical flood records and flood loss history	Comparison with previous flood events and expected impacts	Planning Section

Primary Monitored River Systems

River System	Primary Monitoring Source	Operational Use
Fish River	USGS / NWPS	River stage monitoring and flood forecasting
Styx River	USGS / NWPS	River stage monitoring and flood forecasting
Perdido River	USGS / NWPS	River stage monitoring and flood forecasting
Blackwater River	USGS / NWPS	River stage monitoring and flood forecasting
Tensaw River	USGS / NWPS	River stage monitoring and flood forecasting
Magnolia River	USGS / NWPS	River stage monitoring and flood forecasting
Bon Secour River	USGS / NWPS	River stage monitoring and flood forecasting

Flood Threat Recognition Process

BCEMA continuously monitors forecast and observed weather conditions. Information from the National Weather Service, National Hurricane Center, National Water Prediction Service, USGS river gauges, Baldwin County GIS, and field observations is evaluated to determine anticipated impacts. Forecast conditions are compared with historical flood events, known flood-prone locations, and flood inundation mapping to support operational decision-making and implementation of protective actions.

Emergency Warning Dissemination Process

Purpose

The purpose of the Flood Warning component is to provide timely, accurate, and coordinated flood warnings to the public, partner agencies, critical facilities, and municipal governments in order to reduce the loss of life and property. Upon recognition of a flood threat, the Baldwin County Emergency Management Agency (BCEMA) disseminates emergency information using multiple redundant communication systems to ensure protective actions can be implemented before flood impacts occur.

Flood warnings are coordinated with the National Weather Service (NWS), National Hurricane Center (NHC), county departments, municipalities, public safety agencies, and other partner organizations to provide consistent and reliable information throughout the incident.

Operational Overview

Once a flood threat has been identified through the Flood Threat Recognition System, BCEMA evaluates forecast confidence, anticipated impacts, and current field conditions to determine the appropriate level of public notification. Emergency warnings may be issued for localized flooding, flash flooding, river flooding, coastal flooding, storm surge, or flooding associated with tropical systems.

The Emergency Management Director or his/her designee authorizes county-issued emergency notifications. National Weather Service watches, warnings, advisories, and



river forecasts are monitored continuously and supplemented with county-specific information when local protective actions or additional public guidance are necessary.

The Public Information Officer (PIO), call-duty personnel, and Emergency Operations Center staff coordinate the dissemination of emergency information using multiple communication platforms to ensure information reaches residents, visitors, businesses, critical facilities, and response agencies in a timely manner.

Warning Authority

Emergency notifications issued on behalf of Baldwin County shall be authorized by the Baldwin County Emergency Management Director or his/her designee.

The National Weather Service independently issues Flood Watches, Flood Warnings, Flash Flood Warnings, River Flood Warnings, Coastal Flood Warnings, and other hydrologic products. BCEMA monitors these products continuously and supplements them with locally generated emergency notifications, protective action guidance, evacuation information, road closure information, and incident-specific updates as conditions warrant.

Warning Systems

Warning System	Primary Purpose	Primary Audience
AlertBaldwin (Everbridge)	Emergency notifications, evacuation information, road closures	Registered residents, visitors, businesses
Integrated Public Alert and Warning System (IPAWS)	Countywide emergency notifications	General public
Wireless Emergency Alerts (WEA)	Immediate life safety notifications	Mobile device users within the affected area
Emergency Alert System (EAS)	Broadcast emergency information	Television and radio audiences
NOAA Weather Radio	National Weather Service watches and warnings	General public and critical facilities
Baldwin County EMA Website	Situation updates, preparedness information, recovery information	Public
Social Media	Real-time incident updates	Public
Press Releases	Official public information	News media and public

Local Television and Radio	Emergency broadcasts	Public
Municipal Partners	Coordination with local jurisdictions	Municipal officials and residents
Direct Notifications	Hospitals, nursing homes, utilities, schools, and other critical facilities	Critical facilities

Warning Dissemination Process

Upon recognition of a flood threat, BCEMA evaluates forecast information, anticipated impacts, and local conditions to determine the appropriate warning strategy. Emergency notifications are coordinated with county leadership, municipalities, public safety agencies, and critical facilities prior to or concurrent with public dissemination, as appropriate. Warning information is continuously updated as incident conditions evolve.

Pre-Scripted Message

BCEMA maintains a library of pre-scripted emergency notification templates to facilitate the rapid dissemination of accurate and consistent public information. Message templates are maintained within the Baldwin County IPAWS Instructions and AlertBaldwin notification system and are available to authorized personnel during emergency operations.

Pre-scripted messages include, but are not limited to:

- Flood Watch
- Flood Warning
- Flash Flood Warning
- River Flood Warning
- Storm Surge Warning
- Coastal Flood Warning
- Road Closure Notification
- Evacuation Notice
- Shelter Opening
- Shelter Closure
- Recovery Information



The Public Information Officer, call-duty personnel, and other authorized staff receive routine training on the AlertBaldwin, Everbridge, and IPAWS platforms to ensure notifications can be disseminated quickly and efficiently.

Public Information

The Public Information Officer coordinates emergency public information activities throughout flood incidents. Public information efforts are intended to provide clear, consistent, and timely information that supports public safety and informed decision-making.

Information disseminated during flood events may include:

- Watches, warnings, and advisories
- River stage updates
- Storm surge forecasts
- Evacuation recommendations or orders
- Shelter locations and availability
- Road closures
- Protective action guidance
- Safety messaging
- Recovery information
- Disaster assistance information

Public information is coordinated with the National Weather Service, county departments, municipal partners, utility providers, public safety agencies, and local media to ensure consistent messaging throughout the incident.

Documentation

BCEMA maintains records of emergency notifications, AlertBaldwin activations, IPAWS messages, press releases, social media posts, and other public information products as part of the incident record. These records support operational documentation, After Action Reports, continuous program improvement, and verification of the County's Flood Warning and Response Program.

Flood Response Operations

Purpose

The Baldwin County Emergency Management Agency (BCEMA) coordinates flood response operations to protect life, stabilize the incident, protect property and critical infrastructure, and support community recovery. Response operations are conducted in accordance with the National Incident Management System (NIMS), the Incident Command System (ICS), the Baldwin County Emergency Operations Plan (EOP), and this annex. Operational activities are scalable and may range from enhanced monitoring to full Emergency Operations Center (EOC) activation depending on the severity and anticipated impacts of the incident.

Operational Overview

Flood response operations begin when conditions identified through the Flood Threat Recognition System indicate that emergency protective actions may be required. BCEMA continuously evaluates weather forecasts, river conditions, rainfall observations, storm surge forecasts, and field reports to determine the appropriate level of response.

As incident conditions evolve, BCEMA coordinates emergency operations with county departments, municipalities, public safety agencies, utility providers, volunteer organizations, and state and federal partners. The Emergency Operations Center (EOC) serves as the central coordination point for incident management, resource coordination, situational awareness, and public information.

1. Initial Actions

Immediately following the identification of a flood threat, BCEMA initiates actions necessary to establish situational awareness and prepare for response operations.

Initial actions may include:

- Increase weather and river monitoring.
- Notify the EMA Director and Deputy Director.
- Notify county leadership and partner agencies.
- Review staffing requirements.
- Review resource availability.
- Coordinate with the National Weather Service.
- Increase communication with municipalities.
- Begin Situation Report (SITREP) development.
- Prepare public information messaging.

- Evaluate the need for Emergency Operations Center activation

2. Emergency Operations Center (EOC)

The Emergency Operations Center may be activated when forecast conditions or observed impacts indicate the need for coordinated emergency management. Activation levels are determined by the EMA Director or designee based on incident complexity, anticipated impacts, and resource requirements. BCEMA maintains the capability to receive and evaluate flood watches, warnings, forecasts, and partner reports 24 hours a day through on-call personnel, Baldwin County 911, automated notification systems, and established backup communications procedures.

The EOC operates using the Incident Command System (ICS) and may expand or contract as conditions dictate. The EOC supports on-scene Incident Command or Unified Command by coordinating information, resources, public messaging, policy support, and countywide priorities. It does not replace field incident command.

Operational Priorities

During flood response operations, BCEMA establishes priorities in the following order:

- Protection of life
- Incident stabilization
- Protection of critical infrastructure
- Protection of public and private property
- Restoration of essential services
- Documentation and transition to recovery

3. Planning

The Planning Section maintains situational awareness and supports operational decision-making throughout the incident.

Primary responsibilities include:

- Monitor National Weather Service forecasts.
- Monitor National Water Prediction Service forecasts.
- Monitor USGS river gauges.
- Monitor rainfall observations.
- Track flood crest forecasts.

- Evaluate storm surge forecasts.
- Develop and distribute Situation Reports (SITREPs).
- Maintain the Common Operating Picture (COP).
- Produce GIS mapping products.
- Support Incident Action Plan (IAP) development, as required.
- Track incident status and operational objectives.

Planning Product	Operational Purpose
Situation Report (SITREP)	Summarize current conditions and operational activities
GIS Products	Identify threatened populations, infrastructure, and operational impacts
River Stage & Forecast Summary	Track river stages and forecast crests
Weather Forecasts	Support operational planning and protective action decisions
Incident Action Plan (IAP)	Establish operational objectives and assignments for the operational period

4. Operations

The Operations Section coordinates field response activities to protect life and property.

Operational activities may include:

- Road closures
- High-water barricade placement
- Traffic control
- Evacuations
- Shelter coordination
- Swift water rescue coordination
- Search and rescue support
- Damage reconnaissance
- Infrastructure assessments
- Utility coordination
- Public safety operations

Operational Activity	Lead Agency	Supporting Agencies
Road Closures	Highway Department	Sheriff's Office

Evacuations	Sheriff's Office	Fire/EMS, Municipal Partners
Shelters	BCEMA	American Red Cross, VOADs
Swift Water Rescue	Fire Department	Sheriff's Office, EMS
Damage Assessments	BCEMA	Municipal Partners, Public Works

5. Logistics

The Logistics Section coordinates personnel, equipment, facilities, and supplies necessary to support response operations.

Responsibilities include:

- Resource requests
- Barricade distribution
- Equipment tracking
- Communications support
- Fuel coordination
- Generator support
- Shelter supplies
- Resource staging
- Mutual aid coordination
- State resource requests

Resource	Typical Use
Barricades	Road closures
Sandbags	Property protection
Portable generators	Critical facilities
Communications equipment	Field coordination
Heavy equipment	Debris removal and access restoration

6. Finance and Administration Section

The Finance and Administration Section maintains the necessary records to support emergency operations, disaster reimbursement, and post-incident recovery.

Responsibilities include:

- Cost tracking
- Personnel timekeeping (*Tracking Resources and Cost Expenditures*, T.R.A.C.E.)
- Equipment usage records
- Contract documentation
- Mutual aid reimbursement
- Emergency procurement documentation
- Disaster assistance documentation

Documentation	Purpose
Personnel Time Records	Cost recovery
Equipment Logs	FEMA reimbursement
Resource Requests	Incident documentation
Contracts and Purchases	Financial accountability
Mutual Aid Records	Reimbursement and reporting

Transition to Recovery

As immediate life safety concerns are addressed, BCEMA transitions response operations to recovery activities. Recovery priorities include:

- Initial damage assessments
- Debris management coordination
- Utility restoration
- Re-entry coordination
- Public assistance information
- Documentation for state and federal assistance
- After Action Review planning

Critical Facilities Planning

Purpose

The Baldwin County Emergency Management Agency (BCEMA) coordinates with public and private critical facilities to enhance flood preparedness, facilitate timely warning, support continuity of operations, and minimize impacts to life, property, and essential services. Coordination with critical facilities begins during preparedness activities and continues throughout response, recovery, and post-incident improvement efforts.

Operational Overview

Critical facilities located within or adjacent to flood-prone areas require priority coordination during flood incidents due to their role in supporting public safety, healthcare, emergency response, public utilities, and essential government services. BCEMA utilizes flood forecasts, inundation mapping, historical flood information, and field reports to identify facilities that may be threatened and coordinate protective actions.

Critical Facilities Categories

Public Safety

- Emergency Operations Center
- Baldwin County 911 Communications Center
- Sheriff's Office
- Municipal Law Enforcement
- Fire Stations
- EMS Stations

Healthcare

- Hospitals
- Nursing Homes
- Assisted Living Facilities
- Dialysis Centers
- Medical Clinics
- Public Health Facilities

Education

- Public Schools
- Private Schools
- Child Care Centers
- Colleges and Universities

Utilities

- Water Treatment Facilities
- Wastewater Treatment Facilities
- Lift Stations
- Electrical Substations

- Natural Gas Infrastructure
- Communications Infrastructure

Government

- County Administrative Buildings
- Courthouse Facilities
- Municipal Government Facilities

Coordination

BCEMA coordinates with critical facilities by:

- Maintaining emergency contact information.
- Providing weather briefings and situational updates.
- Disseminating flood watches, warnings, and emergency notifications.
- Coordinating protective actions.
- Coordinating resource requests through the EOC.
- Coordinating continuity of operations support.
- Coordinating damage assessments following flood events.

Preparedness

Critical facilities should maintain:

- Emergency Operations Plans
- Flood Response Procedures
- Evacuation Procedures
- Shelter-in-Place Procedures
- Continuity of Operations Plans (COOP)
- Backup Communications
- Emergency Power Generation
- Emergency Contact List

Notification

When flooding threatens a critical facility, BCEMA may provide:

- Watches
- Warnings
- River Forecast Updates
- Storm Surge Information
- Protective Action Recommendations
- Evacuation Guidance
- Shelter Information
- Recovery Information

Notifications may be disseminated through:

- AlertBaldwin (External)
- IPAWS
- Telephone
- Email
- Direct EOC Coordination
- Municipal Emergency Management Coordinators

Annual Coordination

BCEMA coordinates annually with critical facilities to:

- Verify contact information.
- Review emergency procedures.
- Review flood hazards.
- Participate in planning meetings.
- Participate in exercises.
- Review lessons learned from previous flood events.

Flood Mapping and Decision Support

Purpose

Flood mapping provides decision support throughout flood preparedness, response, and recovery operations by identifying threatened populations, infrastructure, transportation networks, and critical facilities.

Operational Overview

GIS personnel utilize flood mapping products to identify threatened populations, determine evacuation needs, support road closure decisions, identify vulnerable infrastructure, prioritize emergency response operations, and assist in damage assessment activities.

Flood mapping products are continuously compared with National Weather Service forecasts, National Water Prediction Service forecasts, USGS river gauge observations, storm surge forecasts, and field reports to maintain situational awareness throughout the incident. Flood inundation, storm-surge, critical-facility, transportation, and impact maps maintained by Baldwin County GIS support implementation of this annex.

Mapping Resources

BCEMA utilizes:

- FEMA Flood Insurance Rate Maps (FIRMs)
- Baldwin County GIS Flood Layers
- SLOSH Storm Surge Maps
- River Flood Inundation Maps
- Historical Flood Maps
- Road Closure Mapping
- Critical Facility Mapping
- Evacuation Route Mapping

Operational Uses

Flood mapping is utilized to:

- Identify threatened populations.
- Identify vulnerable infrastructure.
- Identify threatened critical facilities.
- Determine evacuation areas.
- Support road closure decisions.
- Support shelter operations.
- Prioritize damage assessments.
- Support resource deployment.

- Maintain the Common Operating Picture

Recovery

Purpose

Recovery operations begin as floodwaters recede and immediate life safety concerns have been addressed. Recovery activities focus on restoring essential services, documenting damages, supporting disaster assistance programs, reducing future flood risk, and returning the community to normal operations.

Damage Assessments

BCEMA coordinates initial and detailed damage assessments with county departments, municipalities, utility providers, and state and federal partners.

Damage assessments support:

- Situation Reports
- State Assistance Requests
- Federal Disaster Declarations
- Public Assistance
- Hazard Mitigation

Re-entry

BCEMA coordinates re-entry activities following flood events by:

- Evaluating roadway conditions.
- Coordinating utility restoration.
- Verifying public safety.
- Coordinating debris removal.
- Providing public information regarding safe return.

Property Protection

Property protection activities may include:

- Sandbag operations
- Temporary flood barriers
- Utility shutoffs
- Pumping operations
- Flood cleanup guidance
- Building safety inspections

Debris Management

BCEMA coordinates debris management with Public Works, Highway Department, municipalities, utility providers, and debris contractors to restore transportation routes and essential services.

Hazard Mitigation

Recovery activities provide opportunities to reduce future flood losses through:

- Damage documentation
- Mitigation project identification
- Floodplain management
- Public outreach
- Grant coordination

Documentation

BCEMA maintains:

- Damage Assessment Reports
- Situation Reports
- ICS Forms
- Resource Requests
- Cost Documentation
- After Action Reports
- Improvement Plan

Annual Review, Exercise, and Improvement

Purpose

BCEMA maintains a continuous improvement process to ensure the Flood Warning and Response Annex remains current, operationally effective, and reflective of lessons learned from flood incidents, exercises, and changes in planning guidance.

Annual Review

The annex shall be reviewed annually to:

- Verify operational procedures.
- Update contact information.
- Review flood mapping.
- Review river gauge information.
- Review notification procedures.
- Update operational checklists.

Annual Exercise

BCEMA will conduct or participate in at least one annual exercise or actual flood event that evaluates flood warning, emergency response, communications, and coordination procedures.

After Action Review

Following each exercise or actual flood event, BCEMA will conduct an After Action Review to evaluate:

- Operational effectiveness
- Strengths
- Areas for Improvement
- Lessons Learned

Improvement Plan

Corrective actions shall be documented and tracked until completed. Improvements identified through exercises or actual events shall be incorporated into future revisions of this annex.

Annex Maintenance

The Planning and Grants Division is responsible for coordinating revisions to this annex. Updates may be completed following:

- Annual review
- Exercises
- Significant flood events
- Changes in operational procedures
- Changes in planning guidance

Organization and Responsibilities

Agency	Primary Responsibilities
Baldwin County EMA	Flood monitoring, EOC coordination, warning dissemination, resource coordination, planning, public information, recovery coordination
Sheriff's Office	Traffic control, evacuations, security, field reporting
Fire Departments	Rescue operations, fire suppression, swift water rescue coordination
EMS	Medical response, patient transportation, support to shelters
Highway Department	Road monitoring, barricades, bridge inspections, debris removal
Public Works	Drainage systems, infrastructure support, damage assessments
Public Information Officer	Public messaging, media coordination, social media, press releases
Utility Providers	Utility restoration, infrastructure status reporting
Municipal Governments	Local response coordination, damage reporting, public information

Administration and Maintenance

BCEMA maintains records necessary to support emergency operations, disaster recovery, and reimbursement activities. Documentation includes Situation Reports, Incident Action Plans, ICS forms, damage assessments, resource requests, cost documentation, and emergency notifications.

Resource requests are coordinated through the Emergency Operations Center using established county procedures. Mutual aid resources may be requested through neighboring jurisdictions, the Alabama Emergency Management Agency (AEMA), and other available agreements.

Personnel assigned responsibilities under this annex should maintain the training and qualifications necessary to perform their assigned duties in accordance with the Baldwin County Emergency Operations Plan, the National Incident Management System (NIMS), and applicable Standard Operating Guidelines.

Detailed operational procedures, contact lists, warning templates, flood-impact mapping, critical-facility information, resource inventories, and platform-specific instructions are maintained separately by BCEMA and supporting departments. These materials may be updated administratively without requiring revision of this annex, provided the updates do not materially change the authorities, responsibilities, or policies established herein.

References

- Baldwin County Emergency Operations Plan
- Baldwin County Flood Hazard Management Plan
- National Incident Management System (NIMS)
- National Response Framework (NRF)
- FEMA Comprehensive Preparedness Guide (CPG) 101, Developing and Maintaining Emergency Operations Plans
- FEMA National Flood Insurance Program (NFIP)
- FEMA Community Rating System (CRS) Coordinator's Manual
- National Weather Service Flood Warning Program
- National Weather Service StormReady® Program
- National Water Prediction Service (NWPS)
- National Hurricane Center (NHC)
- National Oceanic and Atmospheric Administration (NOAA)
- Weather Research and Forecasting Innovation Act of 2017
- United States Geological Survey (USGS)
- Alabama Emergency Management Agency (AEMA)

Appendix A: Flood Trigger Matrix

The level of response is based on forecast conditions, observed impacts, available resources, and the anticipated effects on the public, critical facilities, and infrastructure. The Flood Trigger Matrix provides operational guidance for flood response; however, actual response actions are based on forecast confidence, observed conditions, incident complexity, available resources, and the professional judgment of the EMA Director or designee. The Trigger Matrix is intended to support operational decision-making and does not replace the judgment of the Emergency Management Director or Incident Commander.

Trigger	Source	Anticipated Concern	Initial Action	Lead
Flood Watch	NWS	Increasing flood potential	Enhanced monitoring, notify BCEMA staff, review staffing and resources	BCEMA
Flash Flood Warning	NWS	Immediate or imminent life-safety threat	Notify Duty Officer, increase situational awareness, coordinate with response agencies	BCEMA/Public Safety
Minor Flood Stage	USGS / NWPS	Initial roadway or low-lying impacts possible	Notify Highway Department and Public Works, monitor vulnerable roadways	Highway Dept/Public Works
Moderate Flood Stage	USGS / NWPS	Expanded access, property, or facility impacts	Notify municipal partners and critical facilities, consider increased EOC staffing	BCEMA
Major Flood Stage	USGS / NWPS	Significant life-safety and infrastructure impacts	Activate EOC as appropriate, coordinate protective actions, shelters, and resource requests	BCEMA/Partners
Storm Surge Forecast > 3 ft	NHC	Moderate life-safety and infrastructure impacts	Notify coastal partners and critical facilities, begin coastal preparedness actions	BCEMA/Partners
Storm Surge Forecast > 6 ft	NHC	Significant life-safety and infrastructure impacts	Evaluate evacuation recommendations or orders, coordinate shelter operations	BCEMA/Partners

Appendix B: Flood and Storm-Surge Maps

Flood and Storm-Surge Maps shown in this appendix depict Baldwin County at the stages of a Category 1 Storm Surge, Category 5 Storm Surge, and Flash Flooding.

Based on forecast levels provided by NWS, river gauges, and operational decisions made by the BCEMA Director, or his designee, and Baldwin County Commission leadership, a flood level determination could look like the following examples.

Flood Level 1

- Increase monitoring.
- Prepare equipment.
- Notify response agencies.
- Review staffing.

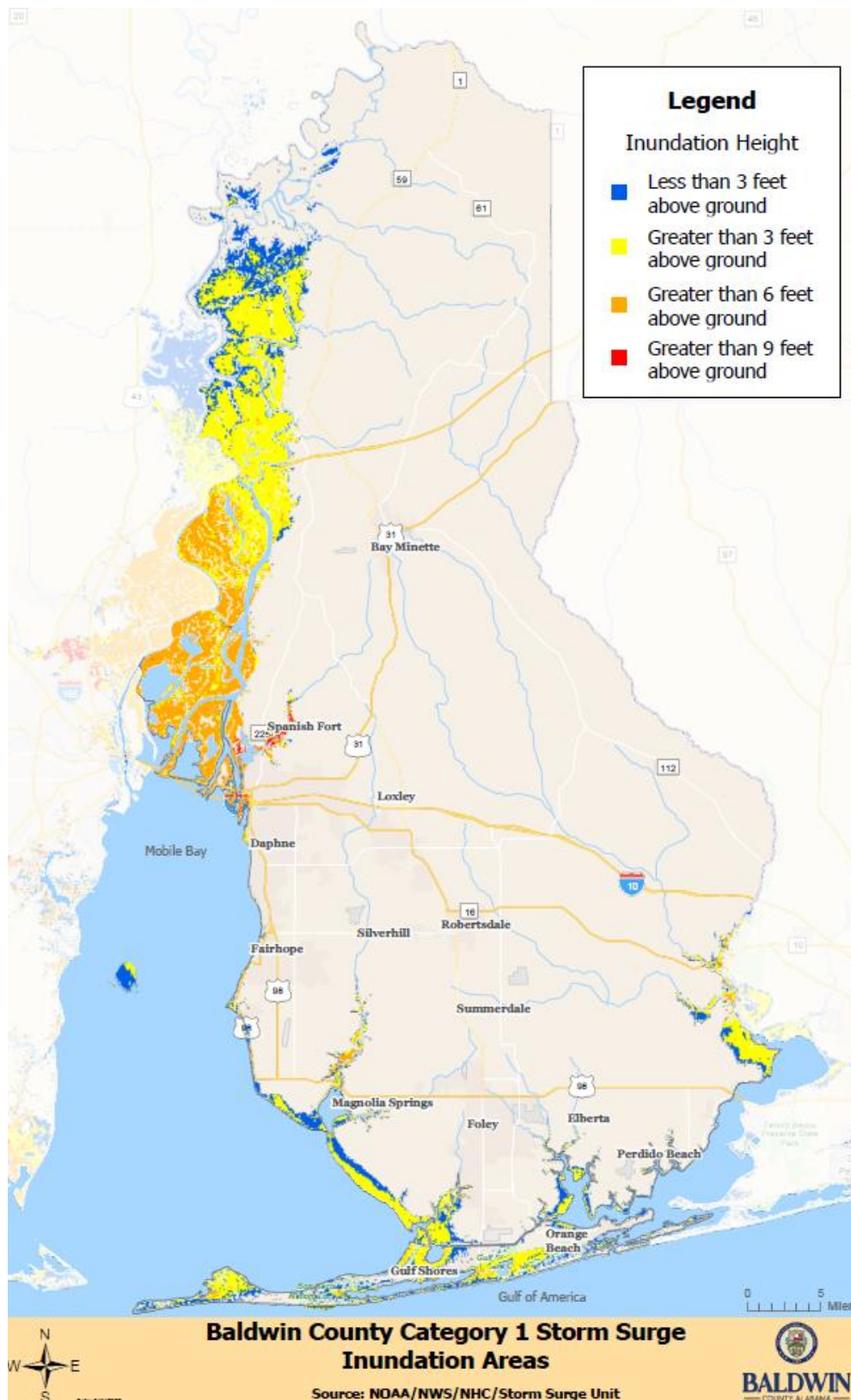
Flood Level 2

- Issue public warning.
- Notify critical facilities.
- Begin road closures.
- Stage rescue resources.
- Open sandbag sites.

Flood Level 3

- Initiate evacuations.
- Deploy damage assessment teams.
- Open shelters.
- Begin rescue operations.
- Protect county facilities.

Map 1.1 – Category 1 Storm Surge Inundation Areas



Map 1.2 – Category 5 Storm Surge Inundation Areas

