ALABAMA
Post-Flood Recovery Guidebook

December 2014

Prepared for:
Alabama Department of Economic and Community Affairs
Office of Water Resources
401 Adams Avenue
Montgomery, Alabama 36104

Prepared by:
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OWR
The Office of Water Resources
A Division of ADECA

amec

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COMMON ABBREVIATIONS AND ACRONYMS

AAFM .... Alabama Association of Floodplain Managers
AARC .... Alabama Association of Regional Councils
ACAMP .. Alabama Coastal Area Management Program
ADCNR ... Alabama Department of Conservation and Natural Resources
ADECA.... Alabama Department of Economic and Community Affairs
ADEM .... Alabama Department of Environmental Management
AEMA .... Alabama Emergency Management Agency
AL FRIS... Alabama Flood Risk Information System
ATC .... Applied Technology Council
BCA .... Benefit Cost Analysis
BCR .... Benefit Cost Ratio
BFE .... Base Flood Elevation
CDBG .... Community Development Block Grant
CDC .... Center for Disease Control
CFM .... Certified Floodplain Manager
CFR .... Code of Federal Regulations
CRS .... Community Rating System
CSLF .... Changes Since Last FIRM
DMA .... Disaster Mitigation Act
EOC .... Emergency Operations Center
EOP .... Emergency Operations Plan
EM .... Emergency Manager
EMA .... Emergency Management Agency
EMI .... Emergency Management Institute
ESF .... Emergency Support Function
FEMA .... Federal Emergency Management Agency
FIRM .... Flood Insurance Rate Map
FIS .....Flood Insurance Study
FMA .....Flood Mitigation Assistance
FPA .....Floodplain Administrator
GIS .....Geographic Information System
HMA .....Hazard Mitigation Assistance
HMGP .....Hazard Mitigation Grant Program
HVAC .....Heating, Ventilating, and Air Conditioning
IA .....Individual Assistance
ICC .....Increased Cost of Compliance
IDA .....Initial Damage Assessment
LHMP .....Local Hazard Mitigation Plan
NAI .....No Adverse Impacts
NFIA .....National Flood Insurance Act
NFIP .....National Flood Insurance Program
NOAA .....National Oceanic and Atmospheric Administration
NWS .....National Weather Service
OWR .....ADECA Office of Water Resources
PA .....Public Assistance
PDA .....Preliminary Damage Assessment
PDM .....Pre-Disaster Mitigation
PIO .....Public Information Officer
PW .....Project Worksheet
SBA .....Small Business Administration
SDE .....Substantial Damage Estimator
SFHA .....Special Flood Hazard Area
USACE.....United States Army Corps of Engineers
USGS .....United States Geological Survey

Preface

The Alabama Department of Economic and Community Affairs (ADECA) Office of Water Resources (OWR), with assistance from AMEC Environment & Infrastructure, Inc., developed this Alabama-specific “Post-Flood Recovery Guidebook” to assist communities in: responding to a flood or hurricane event, enforcing the National Flood Insurance Program (NFIP) requirements for rebuilding efforts, and outlining suitable disaster recovery measures that will help reduce future flood damages. The Guidebook not only looks at strategies and methods to reduce future flood damages, but also considers multi-objective planning strategies to restore and preserve the natural resources and environments associated with Alabama’s floodplains.

The Guidebook addresses Alabama’s most familiar and frequent natural disaster, flooding. Heavy rains are a consistent threat across the State, while hurricanes and inland moving tropical storms have caused hundreds of millions of dollars in flood damage to Alabama homes and businesses in just the past few years. Since 2000, there have been 16 major federal disaster declarations due to flooding including four major hurricanes that have caused severe flood damage: Hurricane Ivan (2004), Hurricane Dennis (2004), Hurricane Katrina (2005), and Hurricane Gustav (2008). Alabama’s coastal residents are at higher risk for flooding during hurricane season due to much of the area’s low lying elevation and the threat of storm surge from an inland moving storm.

Although Alabama’s river system and coastal resources are the source of one of the State’s greatest natural hazards, they also provide incredible benefit to the State and its citizens. The U.S. Geological Survey estimates that approximately ten percent of the freshwater resources in the entire continental United States originate in or flow through Alabama. Few states can match Alabama's surface freshwater resources. At least one-sixth of the surface area of Alabama is comprised of lakes, reservoirs, ponds, wetlands, estuaries, and flowing rivers and streams. Alabama ranks seventh in the United States for its number of stream miles, with 77,274 miles. Six of Alabama's 14 major rivers are used for navigation. There are 16 navigational dams, five of which also generate hydroelectric power. The Mobile River basin, which covers some two-thirds of the State, has a greater yield of water per square mile of land than any other basin in the United States, including the Mississippi River.

Alabama's extensive network of rivers and their tributaries and lakes makes them one of the State's most distinctive natural features. This was even reflected in the creation of the original "Great Seal of the State of Alabama” in 1819, by then Governor William Wyatt Bibb. It included Alabama's main river channels in the design, forever imprinting the strategic importance of rivers to Alabama's future.

Other natural water resources in Alabama include 50 miles of Gulf Coast shoreline and beaches, 3.6 million acres of freshwater wetlands located throughout the State, 27,600 acres of coastal wetlands, and 390,000 acres of estuaries, including Mobile Bay and Wolf Bay near the Gulf of Mexico. In addition, the State’s springs, streams, rivers, lakes, and wetlands are home to more species of aquatic and semi-aquatic animals than any other state in the union. These natural resources have provided great economic benefits to the citizens of the State in the way of commercial fishing which has been successful in coastal waters, estuaries, and rivers for more than 100 years, and commercial catfish farming in developed ponds which has increased substantially from 1970-2010. The abundance and high-quality of Alabama's water resources helped determine the location of many settlements, towns, and eventually cities, contributed significantly to the economic development of the State, and will be a catalyst in Alabama's future as an emerging Sunbelt state.

The extensive network of rivers, tributaries, and estuaries throughout the state provides tremendous opportunities for economic and recreational benefits. However, this incredible natural resource also poses a significant natural hazard for those that choose to develop in areas adjacent to them. Without proper planning for development, more and more people will be at risk for the impacts of flooding to their property. For the people that have developed in these areas that are at risk, local officials should be properly prepared to address the impacts of flooding.

Alabama’s local Floodplain Administrators (FPA) can perform all of their duties adequately during periods when there is no threat of a flood, but if the FPA is not prepared for all phases of emergency management when a flood event does occur, it can be devastating to the recovery efforts. The FPA needs to be prepared prior to a major flood event to avoid the challenges that can be faced from:

(1) Political pressure to rebuild immediately to avoid the inconvenience of home-owners and businesses being temporarily displaced;
(2) Being misinformed about the impacts of improper/noncompliant rebuilding on flood insurance and NFIP compliance;
(3) Improper procedures for assessing the level of damages received from impacted structures; and
(4) Lack of coordination with other local, state, and federal agencies.

The Guidebook will provide pre-event preparedness planning tips for the FPA to consider the nature and extent of the flood risks and hazard areas in the community, coordination with the local emergency management agency to develop a mitigation strategy, development of a standard operating procedures guide for post-flood responsibilities, completion of proper training for permitting and building code enforcement staff, planning for opportunities and determine feasibility to preserve and restore natural resource areas associated with floodplains, and development of outreach materials for citizen awareness in a post-flood environment.

The Guidebook provides guidance on the FPA's responsibilities during the response phase of the flood event, primarily focusing on coordination with local emergency managers. For the recovery phase, after the flooding has receded, the Guidebook describes the FPA's roles and responsibilities for internal communication needs, communications and coordination with local/state/federal agencies, public outreach, proper documentation of flood impacts (i.e., preliminary and advanced damage assessments, high water marks, photographic records), implementation of proper permitting and building code enforcement procedures, reviewing the mitigation strategy for the impacted areas to determine mitigation opportunities, and consideration of how to preserve and restore targeted natural areas in the floodplain. Finally, the Guidebook provides instruction on identifying and implementing mitigation measures.

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City of Birmingham, Alabama
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- Joel Duke, AICP – City Planner, Floodplain Administrator

City of Mobile, Alabama
- Nick Amberger, PE – Engineering, Floodplain Administrator

City of Tuscaloosa, Alabama
- Josh D. Yates, CFM – Engineering Environmental Compliance Coordinator

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- Peter Olivero, PE, PLS – Engineering Manager, Floodplain Administrator

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Introduction

This Alabama-specific Post-Flood Recovery Guidebook outlines the responsibilities and tasks of the local floodplain administrator before, during, and after a flood event. The Guidebook is organized around the four phases of emergency management:

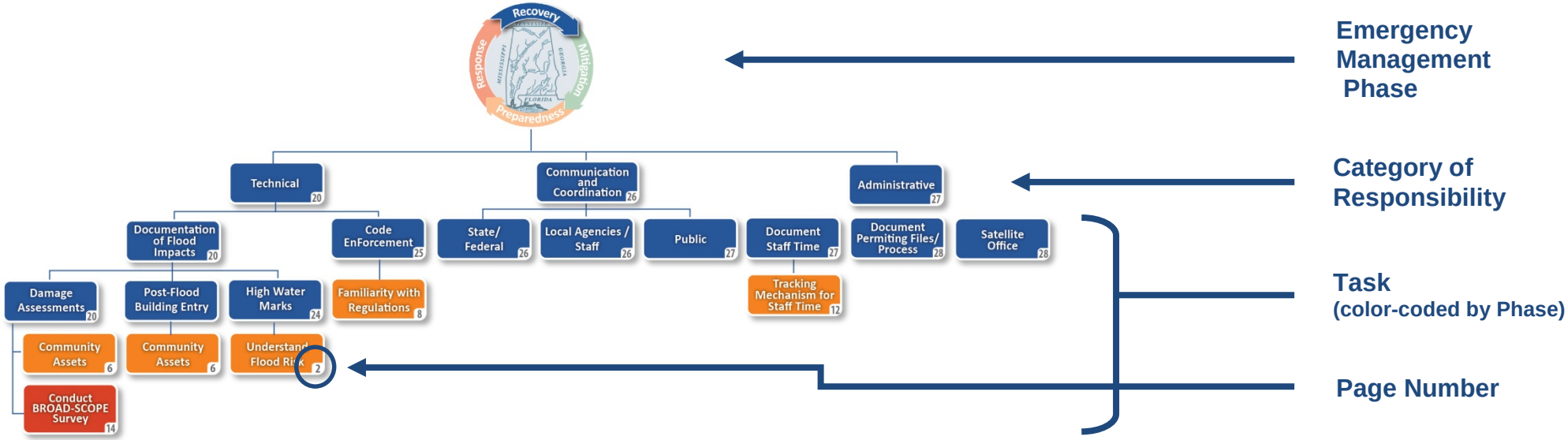
- Preparedness (orange)
- Response (red)
- Recovery (blue)
- Mitigation (green)

For each phase, the responsibilities and tasks have been further organized under three main categories:

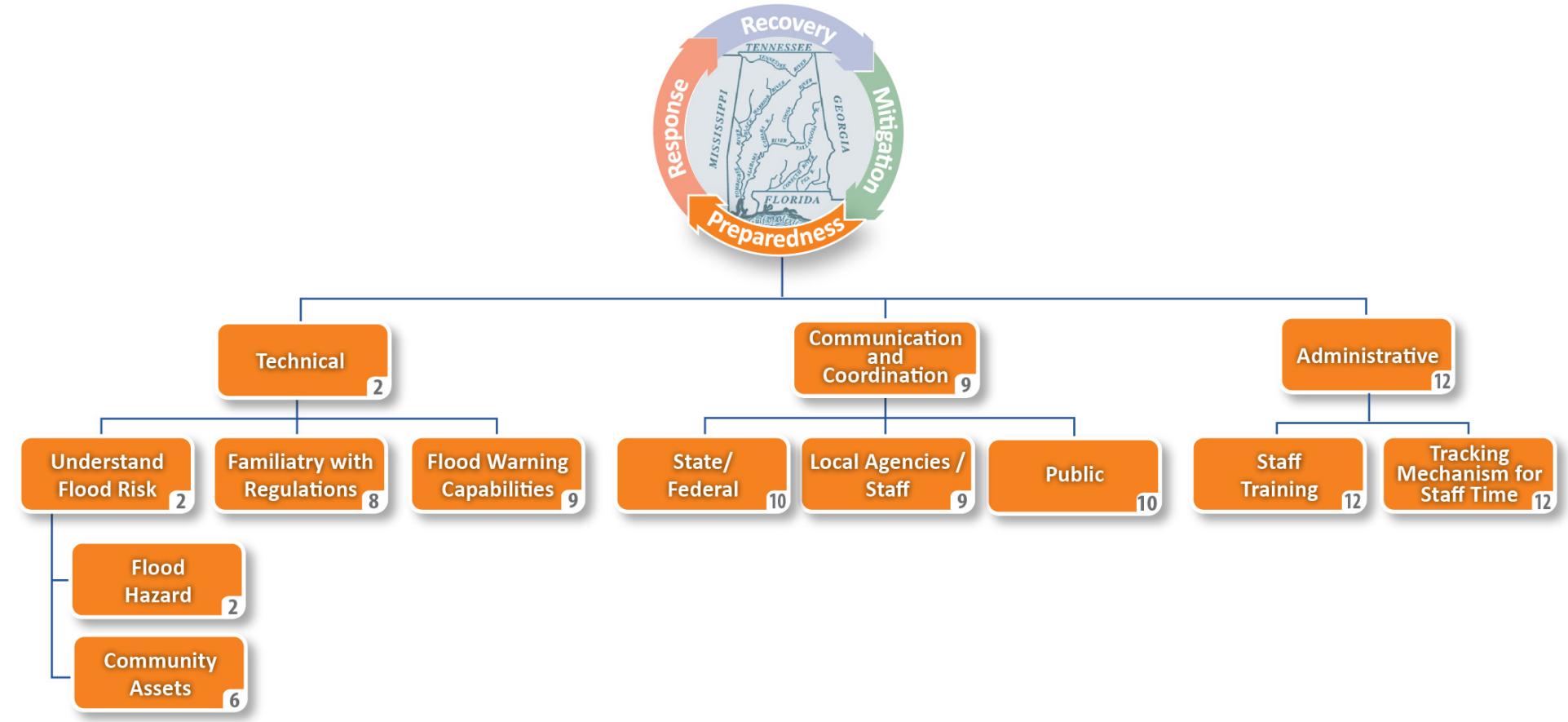
- Technical Responsibilities
- Communication and Coordination Responsibilities
- Administrative Responsibilities

In addition to outlining responsibilities and tasks, the Guidebook also demonstrates the connection between the four phases. Each emergency management phase is presented as an individual section of the Guidebook and begins with an organizational diagram of the technical, communication/coordination, and administrative responsibilities. Each task is further color-coded to coincide with the associated emergency management phase. An example of the organization diagram for the recovery phase is presented below. From this example, we can see that the recovery task (blue) of "damage assessments" will utilize information collected earlier in both the preparedness phase (orange) and response phase (red). For quick reference, the page number of each task within the Guidebook is presented in the lower right-hand corner of the individual task box in the diagram.

ADECA OWR encourages the local Floodplain Administrator to use this Guidebook along with the identified tasks, tools, and trainings to prepare yourself and your community to respond to the next flood event and ensure your community will recover resiliently, timely, and in compliance with the National Flood Insurance Program (NFIP) and your local flood ordinance.



Preparedness



I. Technical Responsibilities

a. Understand the Risk of Flooding to Your Community

The local Floodplain Administrator should be familiar with the risk of flooding to their community. The risk of flooding is the potential for damage, loss, or other impacts that are caused by the interaction of the (i) flood hazard with (ii) community assets. Data sources for each are outlined below.

i. Flood Hazard

Understanding the flood hazard for your community may be achieved through research and review of existing flood hazard studies, flood hazard mapping, historical documentation of previous flood events, and field visits. Flood hazard analysis and mapping developed by FEMA are the basis for both mitigation efforts and Emergency Operations Plans (EOPs). From a planning perspective, these tools aid a planning team in decisions for which hazards need special attention, what actions have specific planning needs and what resources are most likely to be needed. A community's Local Hazard Mitigation Plan (LHMP) is a resource that should include a comprehensive analysis of flood risk as well as a comprehensive mitigation strategy aimed at reducing vulnerability to people and property in the community. The LHMP should be a good tool to begin to develop an understanding of the risk for flooding to your community.

Flooding can and will happen – anytime and anywhere. The definition of flooding is when excess water from snowmelt or rainfall accumulates and overflows onto a river's bank or adjacent floodplains. Flood damage is therefore any damage to a structure from surface water, whether that water originated from the body of water or not. Most homeowner's insurance policies do not cover damage from flood. Flood coverage must be purchased from private insurance companies which deal specifically with flood insurance through an arrangement with the National Flood Insurance Program (NFIP).

Types of flooding include:

- **Riverine flooding** – is the most common and occurs when water overtops the banks of a river and its tributaries. This type of flooding can last for several days or weeks.
- **Shallow flooding** – occurs in flat areas where there are no channels which means the water cannot drain easily. Problems associated with this type of flooding include sheet flow, ponding and urban drainage.
- **Flash flooding** – occurs suddenly when the peak flow travels from one end of the watershed to the other in less than six hours. A large amount of rainfall over a short time frame is generally what causes this type of flooding, but dam failure or sudden spills may also be the cause.
- **Coastal flooding and erosion** - results from storm surges and wave actions. Storm surge is the rise in water surface elevations above normal tide levels due primarily to low barometric pressure and wind action over a long stretch of open water. Breaking waves also contribute to the water level rise through wave runup and wave setup.
- **Dam or levee failures/overtopping** – can result in severe flooding. In this scenario, a large quantity of water is suddenly released with a great potential to cause human casualties, economic loss and environmental damage.

Flooding caused by rainfall occurs to some extent almost every year in almost every part of the State. This type of flooding occurs most frequently between the months of November and April, with a peak from February through April. Alabama receives an average of 56 inches of rainfall annually, creating a high potential for riverine and flash flooding. Additionally, Mobile and Baldwin counties are located on the coast of the Gulf of Mexico, creating a high potential for coastal flooding due to storm surge that accompanies tropical storms, hurricanes, and other coastal events.

Knowing and understanding the flood risks for your community is paramount to being prepared ahead of time for proper response to an event. Local Floodplain Administrators should become familiar with the documents that define the flood risks in their community.

FEMA Regulatory Products

Most communities participate in FEMA's National Flood Insurance Program (NFIP) and have what is called a Flood Insurance Study (FIS) with corresponding Flood Insurance Rate Maps (FIRMs).

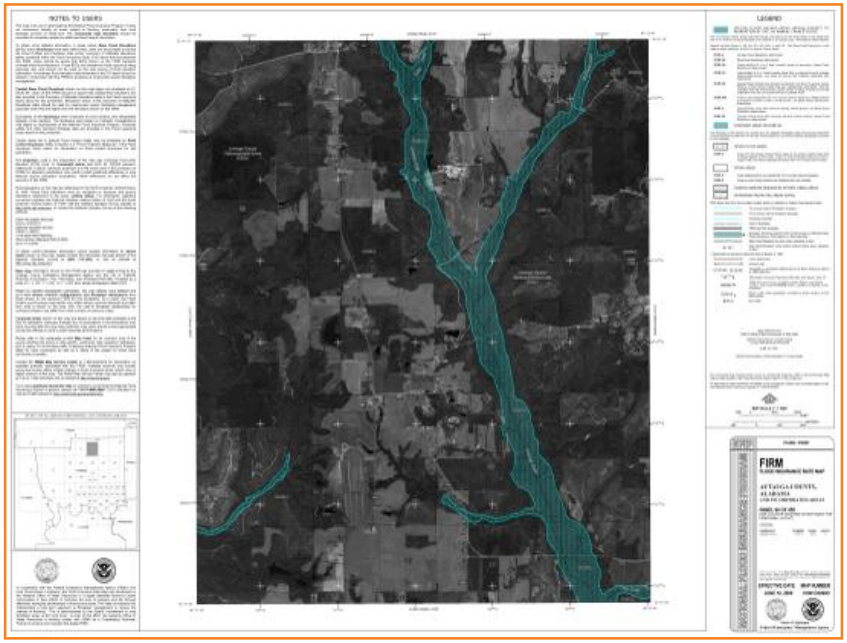
- **Flood Insurance Rate Maps** (FIRMs) identify risk in a community. It is the official map of a community on which FEMA has delineated the Special Flood Hazard Areas (SFHAs), the Base Flood Elevations (BFEs), and the risk premium zones applicable to the community.
- **Flood Insurance Studies** (FISs) a compilation and presentation of flood risk data for specific watercourses, lakes, and coastal flood hazard areas within a community. When a flood study is completed for the NFIP, the information and maps are assembled into an FIS. The FIS report contains detailed flood elevation data in flood profiles and data tables.

These maps and data are used for several purposes:

- Identification of flood hazard risks within the community for disaster preparedness;
- Regulation of development within the floodplain by building code, engineering, and community development departments;
- Insurance rates by insurance agents; and
- Loan or financial assistance by banks and lending institutions.

The Flood Insurance Rate Maps (FIRMs) show the area susceptible to the 1% annual chance flood (often referred to as the 100 year flood or the "base" flood). This means the area has at least a 1% chance of being flooded in any given year. This inundation area is known as the Special Flood Hazard Area (SFHA). The SFHA is further defined as a Coastal High Hazard Area (CHHA) for areas of flood hazard extending from off-shore to the inland limit of primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources.

FIRMs use zone designations to identify areas where there is a high (1% or greater), moderate (0.2% to 1%), or minimal (less than 0.2%) annual chance of flooding. In coastal areas, the high risk areas are designated as either AE Zones or VE Zones. Moderate and minimal risk areas are designated as X Zones on newer FIRMs and as B and C Zones on older FIRMs.



FEMA Non-Regulatory Products

FEMA began a new initiative in 2010, the Risk Mapping, Assessment, and Planning (Risk MAP) program. The program takes a watershed-based approach to flood studies, which creates a more accurate, holistic picture of the flood risk. ADECA OWR has prioritized Risk MAP watershed-based flood studies within the State based upon the greatest risk of flooding and quality of data available. ADECA OWR has initiated Risk MAP projects in approximately half the State.

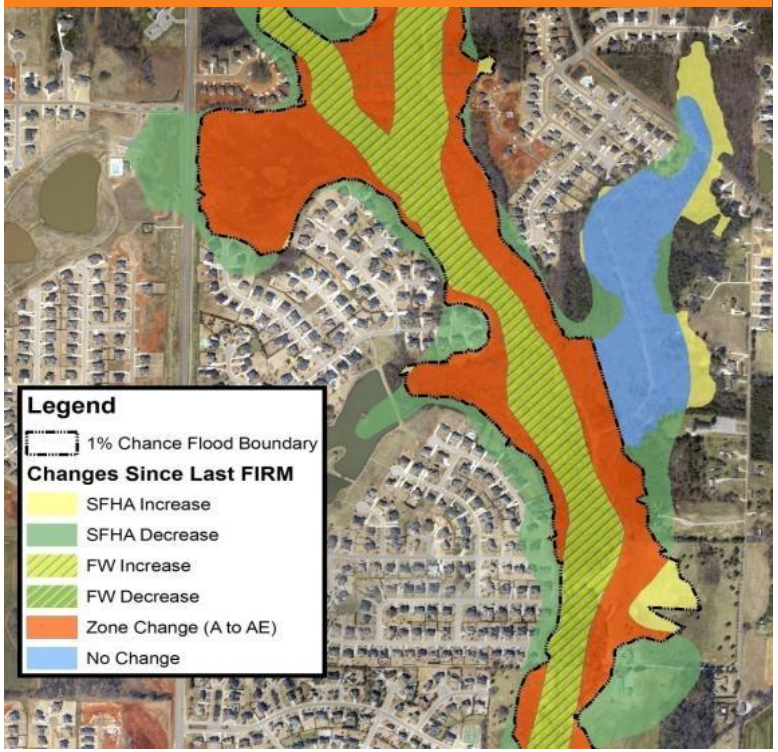
The Risk MAP program provides communities with additional non-regulatory products (flood information and tools) to enhance their mitigation plans and take action to better protect their citizens. The non-regulatory products include the following:

- Flood Risk Database
  - Changes Since Last FIRM (CSLF),
  - Flood Depth and Analysis Grids,
  - Flood Risk Assessment, and
  - Areas of Mitigation Interest;
- Flood Risk Report; and
- Flood Risk Map.

Changes Since Last FIRM (CSLF) - a polygon feature showing the increases and decreases of the Special Flood Hazard Area between the effective study and the proposed study. If parcel data is available these polygons can be attributed with the number of structures and population within the area of change. This can be a great tool in determining areas in need of mitigation, such as areas where the floodway or floodplain has expanded its boundaries and can be prioritized by the number of structures or population affected.

Flood Depth and Analysis Grids - In general, a property located in the 1% flood hazard area has a 26% chance of flooding over the life of a 30 year mortgage. Through Risk MAP and the development of depth grids for multiple recurrence intervals, it is possible to calculate the percent chance of flooding (1) annually and (2) over the course of 30 years. When overlaid with imagery it provides a useful tool to estimate a structure's risk of flooding and can provide more insight than the 1% annual chance floodplain. For example, structures may be near the flood fringe but are shown on the FIRM to have a similar chance of flooding as structures in the floodway. This tool can also aid homeowners in deciding whether to purchase flood insurance. There are also flood depth rasters for the 10%, 4%, 2%, 1%, and 0.2% chance flood events. These can help with the development of emergency plans or evacuation routes by providing an estimate of the depth of flooding on roads for more frequent flood events.

Example Changes Since Last FIRM



Flood Risk Assessment is determined using the program HAZUS, parcel data, building data, and population data to categorize risk on a census block level. This data provides total loss estimates and is a great product for Local Hazard Mitigation Plans (LHMP).

The final product is a data point file, Areas of Mitigation Interest. It is created from LHMP data and community input. Examples include channel improvements, home buy-outs, urbanization, non-regulated flood structures, undersized culverts, pinch points, etc. When looking at risk on a broad scale this feature class allows community leaders to zero in on potential areas in need of mitigation.

The Flood Risk Report summarizes the findings of the study and non-regulatory products in a single source by county and by community. It tabulates numerical data such as area added to the SFHA, building loss, and content loss. This is a great source of information for Hazard Mitigation Plans, grant applications, and project prioritization.

The Flood Risk Map displays the Flood Risk Assessment dataset and Areas of Mitigation Interest for the subject watershed. These datasets are presented to communities at the completion of a Risk MAP project. Training is provided to planners, engineers, GIS analysts, and Floodplain Administrators on how to utilize this data for mitigation planning and communication of risk to the public. Please see FEMA's Operating Guidance document 6-11 *User Guidance for Flood Risk Datasets and Products* available from the following website: http://www.fema.gov/guidance-cooperating-technical-partners-program/operating-guidance-documents for more information.

Flood Hazard Studies, Environmental Plans, Hazard Mitigation Plans

In addition to FEMA's regulatory and non-regulatory products, the following sources of information may be available in your community to enhance your understanding of the flood hazard:

- Localized engineering flood studies;
- Stormwater drainage and watershed studies;
- State and local hazard mitigation plans (LHMPs); and
- Technical studies by federal or state agencies – check with the U.S. Army Corps of Engineers, U.S. Department of Agriculture/Natural Resources Conservation Service, or U.S. Geological Survey for any flood studies, unpublished reports, water control manuals, environmental assessments, or other data that may concern your community.

How to Access ALABAMA Flood Hazard Data:

Step 1. Go to the Alabama Flood Risk Information System (AL FRIS).

The AL FRIS includes the digital Flood Insurance Rate Maps for Alabama (FIRMs), Flood Insurance Study (FIS) Reports and various flood risk datasets developed by the Alabama Office of Water Resources in cooperation with the Federal Emergency Management Agency (FEMA) for all counties within the State of Alabama.

www.adeca.alabama.gov/floods or
http://fris.ncem.org/fris/Home.aspx?ST=AL

Step 2. Select "Advanced"
Step 3. Select your Community and/or County
Step 4. Select Data Export
Step 5. Select either the map as a PDF to download or download the digital data (shapefile or geodatabase)

Flood hazard data is also available from FEMA's Map Service Center: https://msc.fema.gov

How to Access ALABAMA Repetitive Loss Data:

Submit request to NFIP State Coordinator:

Corey Garyotis, P.E., CFM
ADECA Office of Water Resources
401 Adams Avenue
Montgomery, Alabama 36104
334.353.0853
Corey.Garyotis@adeca.alabama.gov

Note: Due to restrictions by the Federal Privacy Act, only requests for data from local and State government officials can be honored.

Other Flood Hazard Mapping and Data

Federal or state agencies may also have mapping and technical data available. This data may include:

- US Army Corps of Engineers navigation maps;
- USGS flood inundation mapping program; and
- USGS stream gage data.

Repetitive Loss Areas

Repetitive loss structures are costly and pose a high-risk threat to residents who may be threatened by continual flooding. The NFIP defines a repetitive loss property as "any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period, since 1978. At least two of the claims must be more than 10 days apart". You should be familiar with the repetitive loss structures within your community as well as identify Repetitive Loss Areas. A Repetitive Loss Area is a portion (or portions) of a community that includes the identified repetitive loss properties and also nearby properties that are subject to the same or similar flooding conditions. Steps to properly address Repetitive Loss Areas:

- The NFIP State Coordinator can provide a listing of repetitive loss flood insurance claims within the community to identify a community's Repetitive Loss Area.
- It may be prudent to coordinate with the local Emergency Manager to have special measures in place to notify and/or evacuate residents in Repetitive Loss Areas during a flood.
- A mitigation strategy/plan for the community should have repetitive loss properties with Repetitive Loss Areas as a top priority for mitigation.

Historical Documentation

Documentation of flood events in the past will also assist in understanding your flood hazard. Historical documentation includes:

- Historical records and newspaper articles about past floods;
- Knowledge and experiences of the local residents, community officials, etc.; and
- Local Hazard Mitigation Plan, including the history of previous hazard events for each hazard. This information helps estimate the likelihood of future events and predict potential impacts.

On-Site Field Visits

Mother Nature does not read flood maps. Therefore, a local Floodplain Administrator must be familiar with the community "on the ground"; this includes:

- Areas not mapped on the FIRM that have flooded in the past;
- Areas subject to sudden or flash flooding;
- Constrictions or "pinch points" in channels that may cause flooding for adjacent property owners; and
- Areas in the community where vegetation or other forms of debris may be dislodged during a significant rainfall event and cause blockage of channels, bridges, or culverts located downstream.

ii. Community Assets

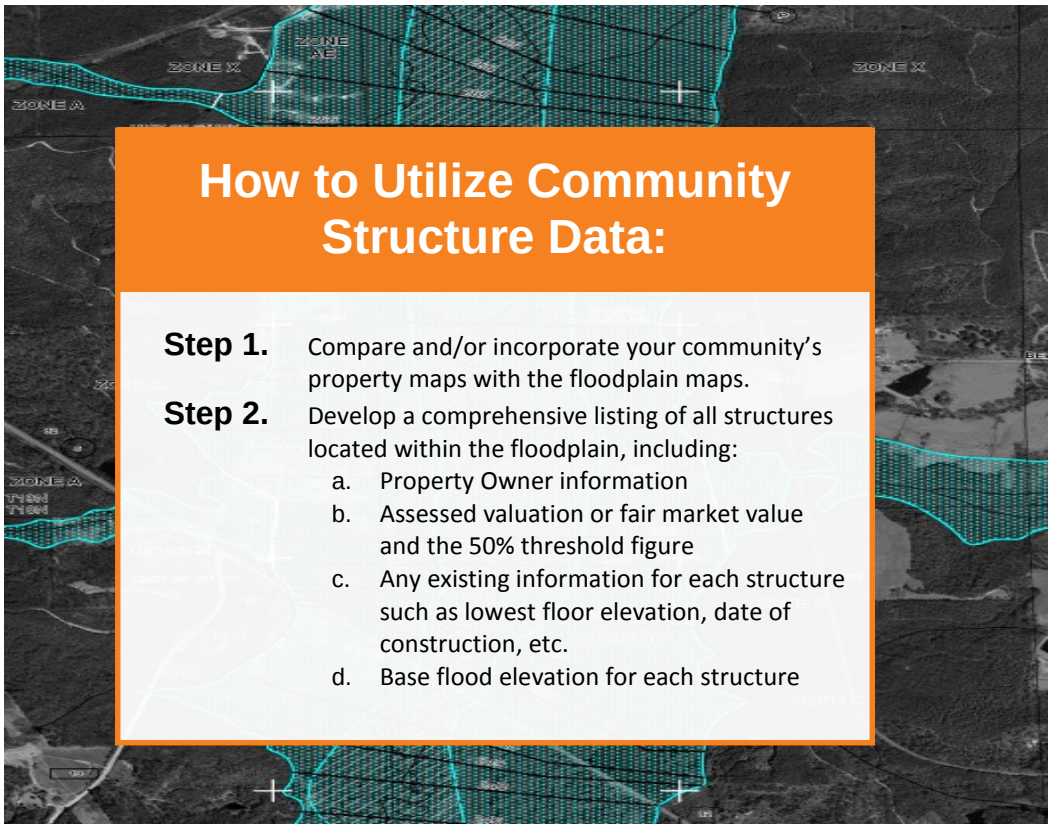
With an understanding of the location, extent, previous occurrences, and probability of flood events, the local Floodplain Administrator should be familiar with the community assets exposed to the flood hazard. This includes people, property, infrastructure, and other critical facilities. Examples of each are provided below.

Existing Structures

All structures are exposed to risk, but certain buildings or concentrations of buildings may be more vulnerable because of their location, age, construction type, condition, or use. Consult the local tax assessor and planning department for information on land use, zoning, parcel boundaries and ownership, and types and numbers of structures. Ideally, a photo of each structure should also be taken to accompany structure data. This helps

identify the structure and document the condition of the structure prior to a flood event.

When an insurable, publicly owned structure that is located within Special Flood Hazard Areas is damaged from flood waters and the flood event results in a Presidential major disaster declaration, any assistance from FEMA is reduced by the amount of insurance settlement that could have been obtained under a standard NFIP policy. Municipalities should insure public property in flood hazard areas to avoid either the loss of valuable public property or the cost to replace it. For structures located outside of a SFHA, FEMA will reduce the amount of eligible assistance by any insurance proceeds that the structure is eligible to receive.



Infrastructure

Infrastructure systems, critical for life safety and economic viability, include the following: transportation, power, communication, water, and wastewater systems. Many critical facilities within your community depend upon infrastructure systems to function. For example, hospitals need electricity, water, and sewer to continue helping patients. As with critical facilities, the continued operations of infrastructure systems during and following a disaster are key factors in reducing the severity of impacts and increasing the speed of recovery.

Critical Facilities

Critical facilities are structures and institutions necessary for a community's response to and recovery from emergencies. Critical facilities must continue to operate during and following a disaster to reduce the severity of impacts and accelerate recovery. When identifying the vulnerabilities of critical facilities, consider the structural integrity, content value, and the effects of interrupted service to the community.

People

The following vulnerable and special needs populations should be identified within your community. These are populations whose members may have additional needs before, during, and after a flood event.

- Populations with disabilities:
  - Visually impaired
  - Mobility impaired
  - Emotional problems
  - Hearing impaired
  - Medically dependent
  - Severe mental problems
- Institution/Groups:
  - Hospitals
  - Halfway houses
  - Day-care centers
  - Homeless shelters
  - Nursing homes
  - Assisted care facilities
  - Prisons/jails
  - Spouse-abuse centers

- Other concentrations of populations:
  - Tourists,
  - Transients,
  - Culturally isolated,
  - Migrants, and
  - People without vehicles.
- Vulnerable Populations:
  - Elderly,
  - Socially isolated,
  - Children,
  - Low-income,
  - Homeless,
  - Home-bound, and
  - Non-English speaking.

b. Familiarity with Regulations

Communities participating in the National Flood Insurance Program must adopt and enforce floodplain management regulations that meet or exceed the minimum NFIP standards and requirements. These standards are intended to prevent loss of life and property, as well as economic and social hardships that result from flooding. The minimum NFIP standards and requirements can be found in Chapter 44 of the Code of Federal Regulations (44 CFR) Parts 59 and 60. A community's flood damage prevention ordinance ensures these minimum requirements are met.

The majority of NFIP communities in Alabama have adopted the model ordinance language for auto-adoption of new flood maps. The State of Alabama NFIP Coordinator has prepared three model flood damage prevention ordinances to assist communities in meeting the NFIP requirements. The ordinances are tailored for riverine, coastal, and island communities. These state model ordinances are available on the ADECA OWR website:

http://www.adeca.alabama.gov/floods

The flood damage prevention ordinance includes information regarding:

- Adoption of flood maps;
- Requirements for development permits;
- Construction standards;
- Building protection standards;
- Standards for manufactured homes; and
- Designation and duties of the local Floodplain Administrator.

The local Floodplain Administrator is responsible for ensuring that development activities comply with the floodplain management regulations and other applicable codes and ordinances, including post-flood reconstruction within your community.

i. No Adverse Impact (NAI) floodplain management

Looking beyond the minimum requirements of the NFIP, communities may wish to provide a higher level of protection for their citizens and to prevent increased flooding now and in the future. The concept of "No Adverse Impact" (NAI) is an approach to floodplain management that ensures the action of any community or property owner, public or private, does not adversely impact the property and rights of others. An adverse impact can be measured by an increase in flood stages, flood velocity, flows, the potential for erosion and sedimentation, degradation of water quality, or increased cost of public services. NAI floodplain management extends beyond the floodplain to include managing development in the watersheds where floodwaters originate. NAI does not mean zero development. It means that any adverse impact caused by a project must be mitigated, preferably as provided for in the community or watershed based plan.

For local governments, NAI floodplain management represents a more effective way to tackle flood problems. The Association of State Floodplain Managers has prepared a Toolkit designed to help local officials incorporate the NAI principle into the community's ongoing programs. The toolkit

outlines a variety of activities to improve your floodplain management program. The Toolkit is available here:

http://www.floods.org/NoAdverseImpact/NAI_Toolkit_2003.pdf

c. Flood Warning Capabilities

Communities may want to consider the investment of a flood warning system to provide timely, reliable, and accurate warnings to their citizens. With sufficient warning of a flood, a community and its floodplain occupants can take protective measures such as moving furniture, cars, equipment, supplies, and people out of harm's way. When a flood threat recognition system is combined with an emergency response plan that addresses the community's flood problems, a great deal of flood damage can be prevented.

The National Weather Service (NWS) issues specific flood warnings for many locations along major rivers and coastlines. Many communities have their own flood threat recognition systems, which enable advance identification of floods on smaller rivers. The full benefit of early flood warning is only realized if the community disseminates the warning to the general public and critical facilities and has a flood warning and response plan that includes appropriate tasks, such as directing evacuation, road closures, sandbagging, and/or moving building contents above flood levels.

Communities in Alabama interested in a flood warning system should coordinate with the Alabama Emergency Management Agency (AEMA), National Weather Service (NWS), United States Geological Survey (USGS), United States Army Corps of Engineers (USACE), and their local Planning and Development District for assistance in developing a flood warning and response system and / or plan.

II. Communication and Coordination Responsibilities

a. Local Agencies/Staff

The local emergency manager is largely responsible for disaster and emergency response activities, such as evacuation, rescue, and coordination with the county, state and federal emergency management agencies. However, various offices or departments of your local government probably have also been assigned responsibility for flood-related tasks. Suggested local agencies/positions for coordination include:

- Emergency Management;
- Public Works;
- Building Code Official/Permitting Office;
- Community Development;
- Planning;
- County Engineer/Surveyor;
- Local Soil and Water Conservation District;
- County Cooperative Extension Service; and
- Local Utility Cooperatives.

Government offices should take inventory of their various response roles. An assessment of the levels and mechanisms for coordination and cooperation between departments should be performed. This assessment should be repeated at least every two to three years because of staff turn-over and changes in responsibilities. Example questions which should be addressed include:

- Do we have an existing Emergency Operations Plan (EOP) which identifies flood response tasks?
- Does the EOP identify responsible agencies/staff positions?

- Do we have a 'call down' roster or 'phone tree' developed?
- Who coordinates evacuations and when?
- Are there individuals in the community trained to lead or participate in flood response activities?
- Do we have Community Emergency Response Teams (CERT) trained within our community?
- Who will prepare and place the sandbags?
- Who will handle public information bulletins and the news media?
- Who will coordinate with volunteer organizations?
- Who will document the flood damage – residential/commercial/public?
- Who will establish the procedures for damage assessment team(s) and who will serve on the team(s)?
- Does our community have a debris management plan? The Sandy Recovery Improvement Act of 2013 (SRIA) (P.L.113-2) authorized FEMA to provide an incentive of a 2% increased cost share adjustment for the first 90 days of debris removal activities for communities with a FEMA-accepted debris management plan.

Communication and Coordination efforts are further defined in the Response and Recovery Sections.

b. State/Federal

There are several state and federal agencies that the local Floodplain Administrator should become familiar with to request assistance from or to find resources. These include the following:

- Alabama Emergency Management Agency;
- Alabama Department of Economic and Community Affairs, Office of Water Resources;
- Alabama Department of Transportation;
- Federal Emergency Management Agency;
- United States Geological Survey, Alabama Water Science Center; and
- National Weather Service.

The callout box on the following page provides direct contact information.

c. Public

Only a small percentage of people in any given community really understand the risks associated with flooding. With the current disclosure laws, buyers of homes / structures are informed if flood insurance is required for their federally backed loan on the structure. Unfortunately, this requirement is sometimes not disclosed until the "final closing" meeting.

Opportunities to provide *flood risk information* to your community may include:

- Websites or social media outlets;
- Utility bills;
- Seasonal outreach, in coordination with the local emergency manager;
- Outreach conducted during RiskMAP process; and
- CRS (Community Rating System) outreach.

State/Federal Contact Information:

AEMA PUBLIC ASSISTANCE CONTACTS

Benjie Abbott - Recovery Division Chief
benjie.abbott@ema.alabama.gov
205-280-2273 Office
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Janice Doucet - Deputy Public Assistance Section Chief
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Matthew Malone - Debris Operations Section Chief
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Kelli Alexander – State Hazard Mitigation Officer
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floods@adeca.alabama.gov
334-353-1955 Office

Corey Garyotis, P.E. – NFIP Coordinator
Corey.Garyotis@adeca.alabama.gov
334-353-0853 Office

ALDOT CONTACT

Lesley J. Morrissette – Maintenance Bureau, Emergency Management, Asst. State Maintenance Engineer
morrissettel@dot.state.al.us
334-242-6883 Office

FEDERAL CONTACTS

FEMA Region IV – Mitigation Division
http://www.fema.gov/region-iv-mitigation-division
Roy McClure, CFM – Floodplain Management
Roy.McClure@fema.dhs.gov

FEMA Region IV – Recovery Division
http://www.fema.gov/region-iv-recovery-division
Valerie Rhoads, Public Assistance Branch Chief
Jackie Reginello, Individual Assistance Branch Chief

USGS – Alabama Water Science Center
Athena P. Clark, Director, P.E.
(334) 395-4141
athclark@usgs.gov

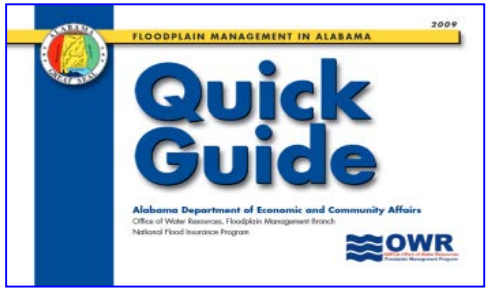
NWS – Senior Service Hydrologist, Birmingham
Roger McNeil
(205) 664-3010
roger.mcneil@noaa.gov

III. Administrative Responsibilities

a. Staff Training

Opportunities for staff training and learning to improve job performance skills for floodplain management and disaster response include:

- Alabama Quick Guide – Guidance document on why and how communities in the State of Alabama manage floodplains to protect people and property



  http://www.adeca.alabama.gov/Divisions/owr/floodplain/Documents/ALQG2009_Quick_Guide.pdf
- Certification with the Association of State Floodplain Managers
- Courses at FEMA's Emergency Management Institute (EMI) (on-campus and online)
  - Managing Floodplain Development through the National Flood Insurance Program (EMI Course E-273)
  - Advanced Floodplain Management Concepts I (EMI Course E-194)
  - Advanced Floodplain Management Concepts II (EMI Course E-282)
  - Advanced Floodplain Management Concepts III (EMI Course E-284)
  - Introduction to Incident Command System (FEMA Independent Study IS-100)
  - National Incident Management System (NIMS): An Introduction (FEMA Independent Study IS-700)
  - National Disaster Recovery Framework Overview (FEMA Independent Study IS-2900)
  - Substantial Damage Estimator tutorial
  - Mitigation eGrant System for the Subgrant Applicant (FEMA Independent Study IS-30)
  - Benefit-Cost Analysis Fundamentals (FEMA Independent Study IS-276)

See Appendix A for detailed information on recommended training courses.

b. Tracking Mechanism for Staff Time

It will be critical that you establish and maintain accurate records of events and expenditures related to disaster response and recovery work. All federal reimbursement is based on the supporting documentation. The information required for documentation will need to describe the "who, what, when, where, why, and how much," for each item of disaster response and recovery work. You should have a financial and record keeping system in place that can be used to track these elements. The importance of maintaining a complete and accurate set of records cannot be over-emphasized. To ensure that work performed both before and after a Presidential major disaster declaration is well documented, potential applicants should:

- Designate a person to coordinate the compilation and filing of records;
- Establish a file for each site where work has been or will be performed; and
- Maintain accurate disbursement and accounting records to document the work performed and the costs incurred.
- It is also very important to document the request for mutual aid and volunteers/donated resources in addition to documenting costs.

Documentation requirements are further defined in the Response and Recovery Sections.

Response

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  - Control Access to Flood Impact Areas 14
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  - Assist in Joint Preliminary Damage Assessment 14
    - Community Assets 6
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I. Technical Responsibilities

When a disaster or emergency occurs, it is the responsibility of the local community and the state or tribe to respond first. Your local emergency manager (EM) is responsible for disaster and emergency response activities, such as evacuation and rescue, and coordination with the county, state and federal emergency management agencies. You, as the local Floodplain Administrator, may also have a role during the emergency in addressing the immediate flood protection needs of your residents.

During a flood event, the local Floodplain Administrator may be tasked, in coordination with the local EM and local emergency operations plan (EOP), to:

a. Control Access to Flood Impacted Areas

- Barricade areas of concentrated flooding to control entry;
- Monitor areas that were identified as frequently flooded areas in "Understanding the Risk of Flooding to your Community", (see Preparedness Section); and
- Coordinate with the highway department for road and bridge closures.

b. Conduct Preliminary BROAD-SCOPE Impact Assessments

- Conduct a "windshield survey" to view the flood-impacted area and make general notes on the extent, height/depth, and velocity of floodwaters;
- Take photographs of the flood conditions;
- Make individual structure notes and take photographs (if possible) for damage documentation; and
- Use this information to assist in your flood recovery efforts.

c. Assist the Joint Preliminary Damage Assessment (PDA) Team

- Assist in the tour of damaged sites with the joint federal/state damage assessment team. Be sure to bring to their attention any environmental or historic issues that may be present. Provide information for any known flood insurance coverage of locally owned structures.
- You should also explain what immediate expenditures might be associated with any emergency work you have identified. This information may be used to provide you some expedited funding, if a declaration is obtained for your area.

Police and public works employees place barricades to block traffic from flooded roads. (The Huntsville Times/Dave Dieter)

II. Communication and Coordination Responsibilities

a. Local Agencies/Staff - Emergency Management

Your community's local Emergency Operations Plan (EOP) describes who will do what, as well as when, with what resources, and by what authority before, during, and immediately after *any* emergency. The EOP focuses on actions, such as direction and control, warning, public notification, and evacuation, that the local government must take during response operations and that fall outside of the state response mission. The EOP:

- Assigns responsibility to organizations and individuals for carrying out specific actions that exceed routine responsibility at projected times and places during an emergency.
- Sets forth lines of authority and organizational relationships and shows how all actions will be coordinated.
- Describes how people (including unaccompanied minors, individuals with disabilities, others with access and functional needs, individuals with pets and individuals with limited English proficiency) and property are protected.
- Identifies personnel, equipment, facilities, supplies, and other resources available within the jurisdiction or by agreement with other jurisdictions.
- Reconciles requirements with other jurisdictions.

The EOP may also be structured to address specific emergency or hazard events, such as flood events. A flood-specific annex to the EOP would describe the policies, situations, and responsibilities particular to the flood hazard and explain procedures that are unique to the flood event, such as instructions for filling and using sandbags.

As the local Floodplain Administrator, you should coordinate with your local emergency manager to: (1) understand the local EOP and your designated role, as applicable, during a flood event; and (2) provide the local EM with an understanding of the local flood hazards. As the local Floodplain Administrator you can familiarize the EM with:

- Areas within the floodplain boundaries of your community that:
  - Are most at risk to flooding and/or flash flooding;
  - Repetitively flood; and/or
  - Have localized drainage issues.

- Community assets that are at risk within the floodplain boundary, including:
  - Structures – residential, commercial, industrial, etc.;
  - Infrastructure – roadway and/or bridge overtopping locations;
  - Critical facilities – police, fire, hospitals, water treatment plants, etc.; and
  - Populations – potential evacuation needs.

b. Local Emergency Operations Center

Based on the magnitude and severity of the event, the local emergency manager may activate the local Emergency Operations Center (EOC). This is the central location of coordination for all major emergency operations within your community and/or county. The purpose of this central location is to ensure decision makers have direct unfiltered communications with one another and all response personnel.

The Floodplain Administrator and/or building permit office is often expected to have a representative in the EOC during the disaster. It is important to coordinate with your EM to understand your designated role, as applicable, during a flood event.

Clanton, Ala., August 29, 2005 -- The FEMA Emergency Response Team (in balcony) work at the Alabama Emergency Operations Center (EOC). FEMA/Mark Wolfe

c. State/Federal - Disaster Declaration Process

It is the responsibility first of the local community and AEMA to respond to a disaster or emergency event. However, at times their combined efforts and resources are not sufficient to effectively address the direct results of the most serious events. These situations call for federal assistance. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. §§5121 – 5207, authorizes the President to provide federal assistance to supplement state, tribal, and local efforts.

As part of the process to determine if federal financial assistance is warranted, an Initial Damage Assessments (IDA) is conducted by AEMA summarizing local damage information including private property, business losses, and public infrastructure damages. Information gathered will be used to help identify unmet needs and to determine if a request will be made by AEMA to FEMA Region IV for a joint preliminary damage assessment (PDA).

If requested, the joint PDA Team will consist of an AEMA, FEMA and local government representative. FEMA and state officials will brief team members on damage criteria, the kind of information to be collected for the particular incident, and reporting requirements. Based upon the information collected during the PDA, FEMA evaluates the impacts and severity of the event, and if warranted, the President will issue an emergency or major disaster declaration.

The process for a major disaster declaration is summarized as follows:

Step 1. Local government responds to the emergency or disaster supplemented by neighboring communities and volunteer agencies. If the local government is overwhelmed, the county Emergency Management Agency requests an Emergency Declaration from the county commissioners declaring a state of disaster emergency and requesting state assistance.

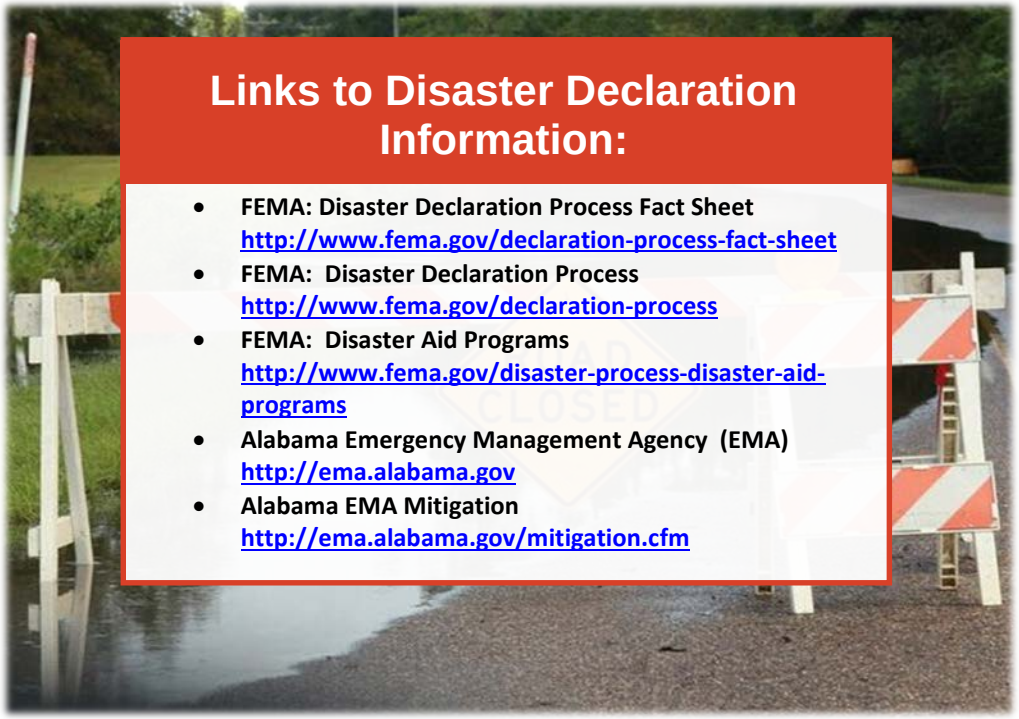
Step 2. AEMA responds with state resources, such as the National Guard and other state agencies. If these resources are overwhelmed, then AEMA requests assistance from the Federal Emergency Management Agency (FEMA).

Step 3. A damage assessment is performed by a Joint Preliminary Damage Assessment team composed of local, state, and federal agencies to determine losses and recovery needs.

Step 4. A Major Disaster Declaration is requested by the Governor, based on the impact assessment, along with an agreement to commit state funds and resources to long-term recovery.

Step 5. FEMA evaluates the request and recommends action to the White House based on the disaster, the local community and the state's ability to recover.

Step 6. The President considers the request and FEMA informs the Governor whether it has been approved or denied. This decision process could take a few hours to several weeks depending on the nature of the disaster.



Links to Disaster Declaration Information:

- **FEMA: Disaster Declaration Process Fact Sheet**
  http://www.fema.gov/declaration-process-fact-sheet
- **FEMA: Disaster Declaration Process**
  http://www.fema.gov/declaration-process
- **FEMA: Disaster Aid Programs**
  http://www.fema.gov/disaster-process-disaster-aid-programs
- **Alabama Emergency Management Agency (EMA)**
  http://ema.alabama.gov
- **Alabama EMA Mitigation**
  http://ema.alabama.gov/mitigation.cfm

After a Presidential major disaster declaration has been made, FEMA will designate the area eligible for assistance and announce the array of Federal programs available to assist in the response and recovery effort. Not all programs, however, are activated for every disaster. The determination of which programs are activated is based on the needs found during the damage assessment and any subsequent information that may be discovered. These programs include:

- **Individual Assistance (IA)** - financial or direct assistance to individuals and families whose property has been damaged or destroyed as a result of a federally-declared disaster, and whose losses are not covered by insurance.
- **Public Assistance (PA)** - supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.
- **Hazard Mitigation** – the Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to enable mitigation measures to be implemented during the immediate recovery from a disaster that will reduce the loss of life and property due to future natural disasters.

These federal programs are further defined in the Recovery and Mitigation Sections.

III. Administrative Responsibilities

During and after a flood event, the most immediate source to help with response and recovery is your own staff, materials, and equipment. They are within your authority and available to you. In a Presidentially declared event, some of your staff time, materials, and equipment costs may be eligible for cost-shared FEMA assistance through the Public Assistance (PA) Grant Program. Eligible work is defined by three general categories:

- Debris removal;
- Emergency protective measures; and
- Permanent restoration, which includes:
  - Road systems and bridges,
  - Water control facilities,
  - Public buildings and contents,
  - Public utilities, and
  - Parks and recreation.

Debris removal and emergency protective measures are considered “emergency work.” Permanent work includes restoring the facility back to its pre-disaster design, function, and capacity, including any codes and standards applicable to the approved work. The federal share of assistance for either emergency measures or permanent restoration is not less than 75% of the eligible cost. The grantee (Alabama EMA) determines how the non-federal share (up to 25%) is

split with the subgrantees (eligible applicants, i.e. your local government).

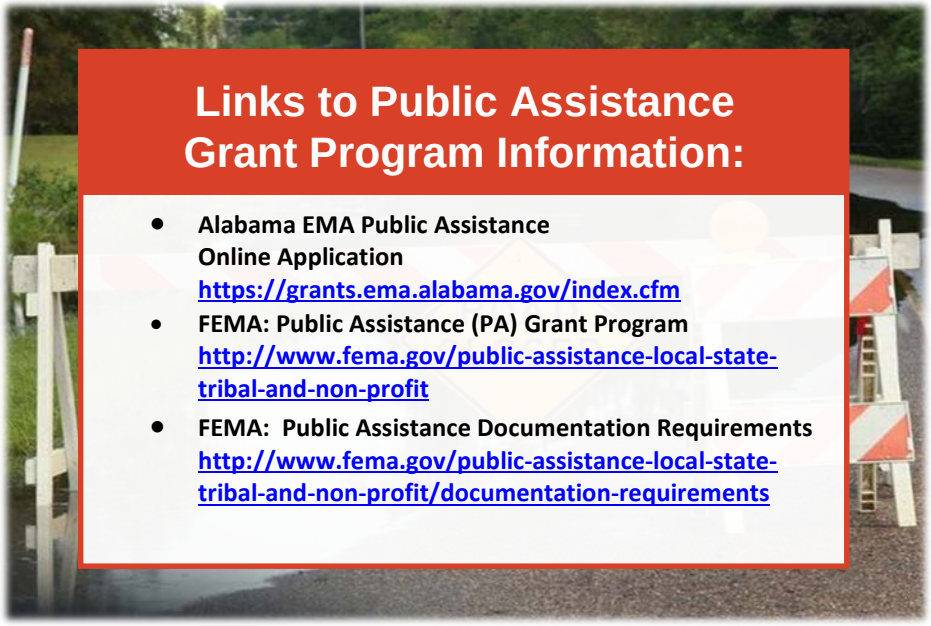
a. Tracking Staff Time and Resources

After a Presidential major disaster declaration, there will be a kickoff meeting conducted by the Federal Public Assistance Officer with those entities that have applied for assistance (Request for Public Assistance). Guidance will be provided at this meeting for the formulation of Project Worksheets. The approval and obligation of the Project Worksheets may take several weeks after the disaster. In the meantime, it may be necessary to start or complete emergency work, or in certain cases, *work may have been completed prior to the declaration.*

The work done for such things as debris removal and emergency protective measures should be documented. Good documentation facilitates the Public Assistance project formulation, validation, approval, and funding processes. It is very important that if repairs are made, there is good documentation and/ or correspondence with regulatory agencies. Local officials should also be extremely diligent in photo documentation and use specific detailed damage descriptions, location of damage, debris content, and conditions prior to damage.

Documentation highlights include:

- Permanent and temporary employees must be on the payroll in order to be reimbursed for their work on disaster projects. The payroll records must show the pay period, employee name, job classification, number of hours worked each day, total hours worked for the pay period, rate of pay (regular and overtime), and total earnings. Most established payroll systems already include this information.
- The records must also show which project (response and/or recovery site) the employee worked on each day and each hour if he/she worked on more than one project in a single day. Claims for labor must be documented for each site individually.
- Only the actual hours worked beyond the regular duty time (either overtime, straight time, or comp time) can be claimed for emergency work.

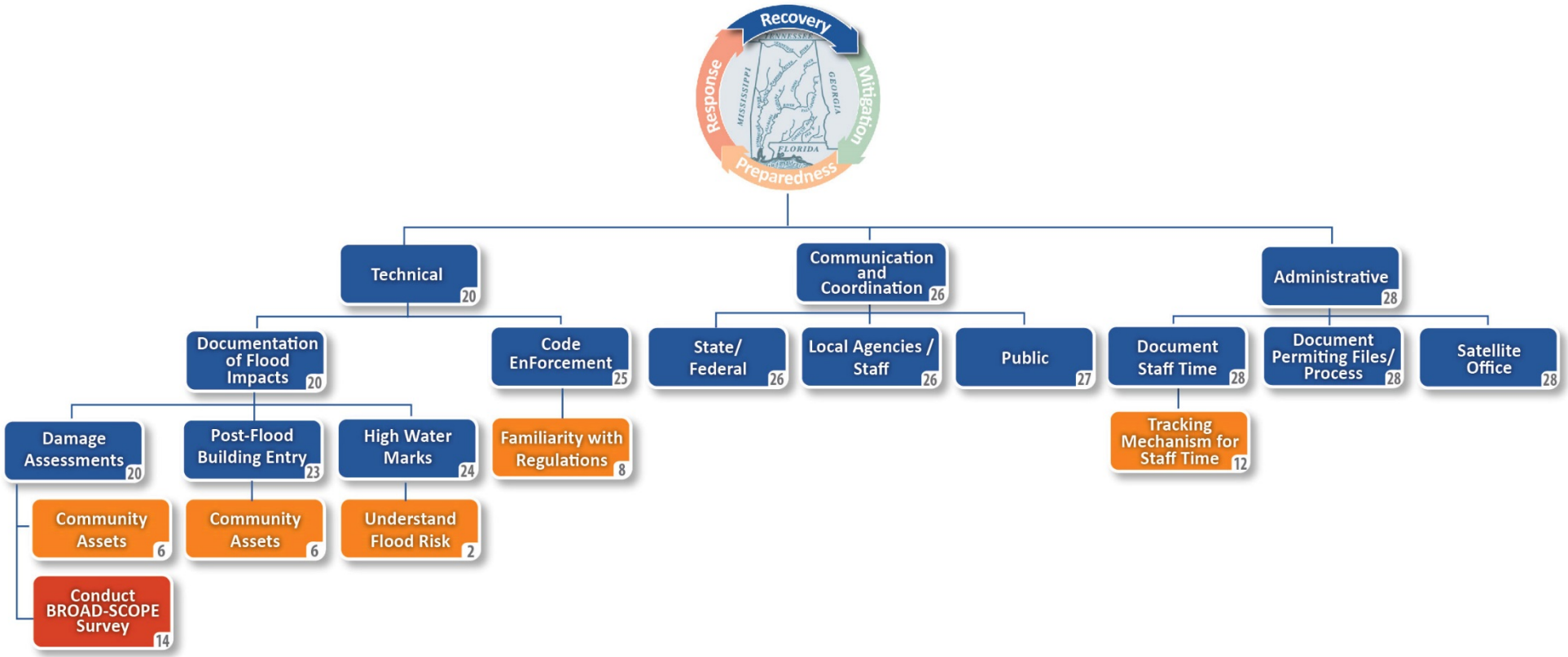


Links to Public Assistance Grant Program Information:

- **Alabama EMA Public Assistance Online Application**
  https://grants.ema.alabama.gov/index.cfm
- **FEMA: Public Assistance (PA) Grant Program**
  http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit
- **FEMA: Public Assistance Documentation Requirements**
  http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit/documentation-requirements

- Equipment used on each project (both owned and rented) must be documented. Specifically, the documentation must show the date used, equipment description, operator, hours used each day, cost per hour, and total cost for each piece of equipment.
- Equipment that is damaged and/or lost during disaster incidents may be eligible for reimbursement. The damage and/or loss must be documented along with sufficient supporting documentation such as property inventory records, purchase orders, and video and/or photographs.
- A record of materials and supplies purchased or taken from stock must be kept for each project. Specifically, the documentation must show the name of the vendor, description of the material, quantity, unit price, total price, date of purchase, date used and whether purchased or taken from stock.
- For contracted work, a copy of the contract and all invoices for that project must be maintained. Each invoice must include a description of the work done, date of the work, name of the contractor, an invoice number, and amount billed.
- The dates used on all documentation must be within the allowable time period for each project.

Recovery


Recovery
Technical 20
Documentation of Flood Impacts 20
Damage Assessments 20
Community Assets 6
Conduct BROAD-SCOPE Survey 14
Post-Flood Building Entry 23
Community Assets 6
High Water Marks 24
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I. Technical Responsibilities

The biggest task facing the floodplain manager after a flood is making sure any post-disaster reconstruction is done in compliance with your community's flood damage prevention ordinance. If the disaster event is large enough in scope, the demand for issuing the flood development permits and/or building permits will be tremendous. Communities that have limited staff resources may be quickly overwhelmed.

To assist your community in developing a standard process for recovery, we begin with Documentation of Flood Impacts.

a. Documentation of Flood Impacts

The task of documenting the extent of flooding and flood impacts can be overwhelming for the local Floodplain Administrator. However, this historical data is vital. The impact assessment and/or "windshield survey" conducted during the response phase will assist the local floodplain manager in identifying the area affected by the flood event and extent of damages to structures. This will help you organize a plan to systematically conduct (i) damage assessments across your community for the impacted structures, (ii) post building safety information, and (iii) collect high water marks. Photographs and/or video can also assist in documenting the extent of damage to structures. Boundaries of inundation and high water marks can help establish the area and height the water encompassed.

i. Damage Assessments

In a post-disaster environment, one of your most important recovery needs is the assessment of damaged structures *prior* to issuing a permit for reconstruction. The process for performing damage assessments includes the following steps:

DEFINE AREAS FOR ASSESSMENTS

Step 1. Obtain and/or prepare mapping which combines the Special Flood Hazard Area (SFHA) with your community, street address, or tax maps. Only structures found within the mapped SFHA will need 'substantial damage' estimations. See the Preparedness Section for additional flood hazard and mapping information.

Step 2. Next, incorporate your impact assessment/ windshield survey (see Response Section) into this mapping to identify general locations within the SFHA that are most likely to have damaged structures.

Step 3. Based upon your identified locations and the potential number of damaged structures, begin to outline your plan and logistics for conducting the damage assessments. This includes:

- Identifying staff, volunteers, and/or contract inspectors to form inspection teams; and
- Prioritizing areas to conduct assessments.

SELECT METHOD

Step 4. Assessments for those damaged structures located within the SFHA, should be conducted using:

- FEMA's Substantial Damage Estimator (SDE) Tool and Worksheets; **and/or**
- Rapid Depth Damage Field Estimate.

It is important to be consistent in the method(s) of assessment used. Consistency will leave little room for argument about equality or appeals. All damage assessment documentation should be maintained in the individual permit file. This will become especially important when the community is reviewed by the State NFIP Coordinator or by FEMA for NFIP compliance.

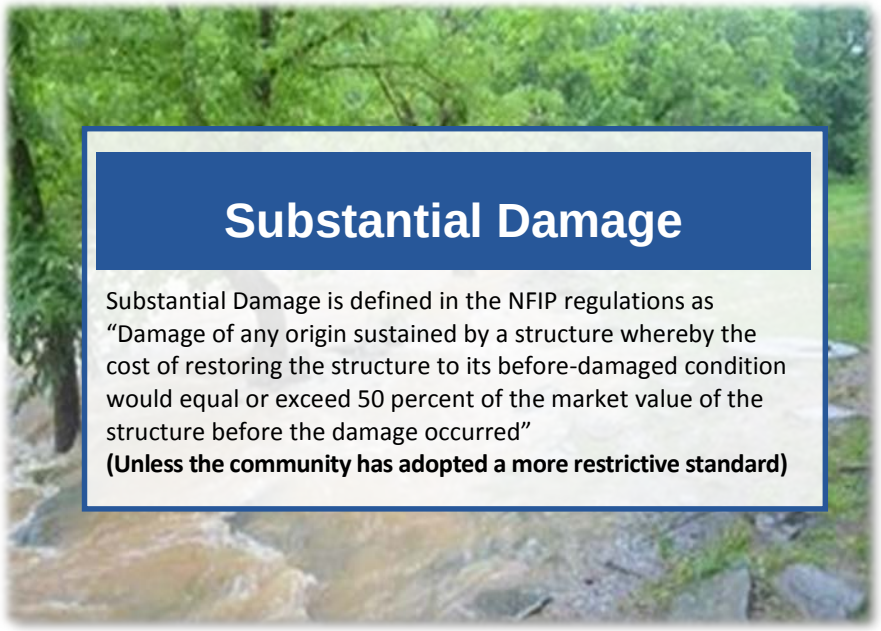
FEMA Substantial Damage Estimator (SDE)

FEMA has developed the Substantial Damage Estimator (SDE) Tool version 2.0, to assist state and community officials in estimating substantial damage to residential and non-residential structures.The SDE tool is based on the concept of using damage estimates for individual structure elements to determine whether the structure as a whole is substantially damaged. Users are able to estimate damage percentages for each described building element. Using these percentages, SDE produces an aggregate "percent damage" for the structure as a whole.

The SDE tool includes assessment options for both residential structures (single-family homes, town or row houses, and manufactured homes) and common non-residential structures (e.g., office buildings, strip malls, restaurants). SDE is customizable, allowing users to develop estimated repair costs and market values, or to input professional estimates or valuations. The SDE tool is intended to be used in conjunction with an industry-accepted construction cost-estimating guide. Building-specific attributes that affect the estimates that the software produces are input by the user. The required attributes include the quality of construction, foundation type, number of stories, square footage, superstructure type, exterior finish, roof covering, and presence of HVAC systems. Additional inputs are requested for non-residential buildings, including building use, presence of elevators, escalators, and fire suppression systems.

Field Inspectors should be familiar with the SDE data requirements, how to use the SDE Tool or the SDE Damage Inspection Worksheets to record the data, and safety precautions for working in and around damaged structures.

A condensed procedural guide is provided in Appendix B.



Rapid Depth Damage Field Estimate

Another method for determination of substantial damage is to utilize the Rapid Depth Damage Field Estimate. Using the Depth Damage Field Estimate allows a community to quickly separate flood-damaged structures into three groups:

1. Clearly non-substantial damage (less than 40%);
2. Clearly substantial damage (greater than 60%); and
3. Uncertain whether substantial damage (40-60%).

For structures which are clearly NOT substantially damaged, permits can be issued to repair at the existing elevation; provided no additional improvements or additions will be made and it does not conflict with any other regulations.

The Depth Damage Field Estimate captures essential information to make substantial damage determinations for flood-related damages. The damage estimations are based upon the USACE published Generic Depth-Damage Relationships. A Depth Damage Field Estimate

worksheet is completed for each structure, indicating the depth (in feet) of floodwaters. This is done by actual measurement based on visual watermarks and/or observed flood damage to the structure. Ideally a photo of each structure should also be taken to accompany the worksheet. This helps identify the structure and document the condition of the structure.

There may be occasion when obvious structural damage has occurred, possibly from fire, floating debris, or contaminated water, or the condition of the existing home may be so poor such that even lesser depths of flood waters have caused significant damage. This should be noted on the Depth Damage Field Estimate worksheet. If it is uncertain whether substantial damage has occurred, additional improvements and/or additions are proposed, or there is a dispute regarding a damage assessment, more information will be required in order to accurately determine whether or not they are substantially damaged/improved.

A condensed procedural guide is provided in Appendix B.

PREPARE FOR FIELD DEPLOYMENT

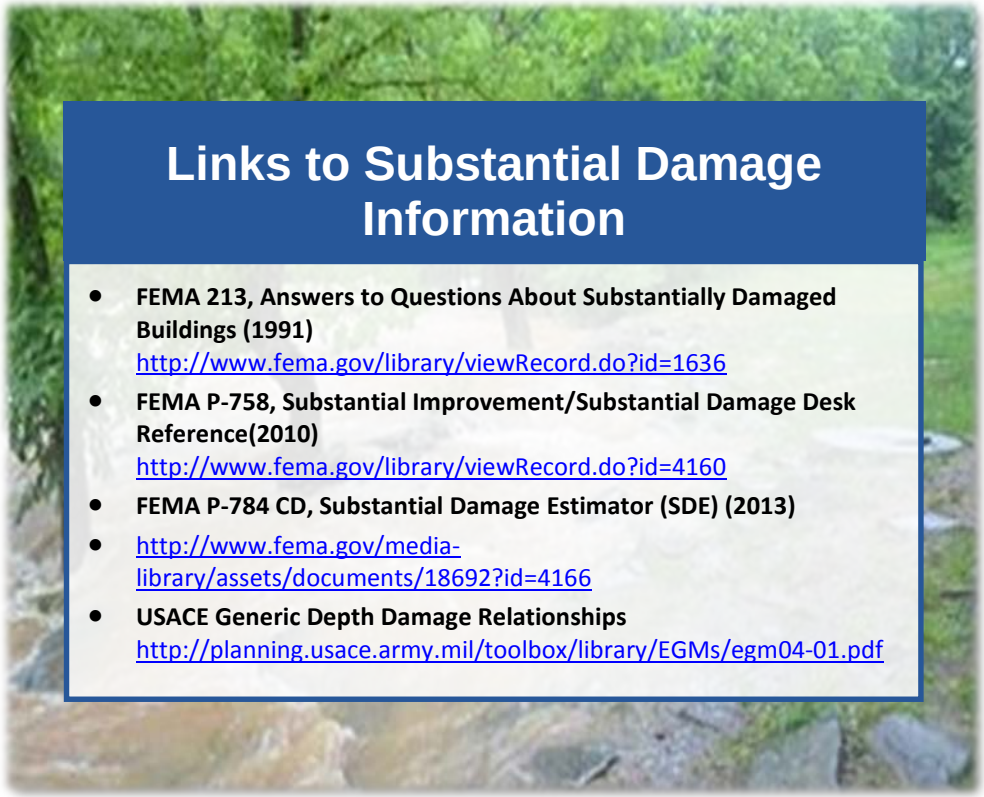
Step 5. Prior to beginning assessments, data preparations will need to include:

- Field maps for inspection teams with addresses and/or individual lot locations;
- Worksheets for data collection forms;
- Data population into SDE Tool for address and structure information, unit costs for determining reasonable structure value, and square footage (if possible);
- Identification of any inspection areas that may require permission or special access; and
- Procedures for performing damage assessments on locked or occupied structures.

Additional field equipment needs include:

- Digital data collection tools, i.e. laptop, tablets;
- Tape measure;
- Camera;
- White board and marker, or other method for identifying street address; and
- Appropriate field attire.

While documenting the damage, you may wish to leave a door tag notice to advise the owner that an initial damage assessment has been done and that they are to contact the local Floodplain Administrator and/or building official before proceeding with repair/reconstruction, and provide contact information for the Floodplain Administrator and/or building official. See Appendix B for an example door tag.



Links to Substantial Damage Information

- **FEMA 213, Answers to Questions About Substantially Damaged Buildings (1991)**
  http://www.fema.gov/library/viewRecord.do?id=1636
- **FEMA P-758, Substantial Improvement/Substantial Damage Desk Reference(2010)**
  http://www.fema.gov/library/viewRecord.do?id=4160
- **FEMA P-784 CD, Substantial Damage Estimator (SDE) (2013)**
- http://www.fema.gov/media-library/assets/documents/18692?id=4166
- **USACE Generic Depth Damage Relationships**
  http://planning.usace.army.mil/toolbox/library/EGMs/egm04-01.pdf

ii. Post-Flood Building Entry

Structures which have been inundated by the flood event may not be safe to enter. You and/or your local building official should post information advising property owners that a safety inspection is required before re-occupancy is authorized and entry to any flood-damaged building requires approval by local officials. This effort may occur simultaneously with the "windshield survey" and/or damage assessments.

The ATC-45 *Field Manual: Safety Evaluation of Buildings after Windstorms and Floods* provides guidelines and procedures to determine whether damaged or potentially damaged buildings are safe for use after wind storms or floods, or if entry should be restricted or prohibited. This publication of the Applied Technology Council (ATC) is not a manual for making substantial damage determinations. It provides guidelines and procedures for conducting both rapid evaluations and more detailed evaluations to determine the *safety* of damaged structures.

Green, yellow, and red placards are used by the local building officials to designate what types of restrictions are imposed on the building. The following are brief descriptions of the intent of the placards:

- **Green**—The building has been **inspected** and no restrictions on use or occupancy have been found. All placards should include the date of inspection and inspector's identification number. An evaluation form is prepared and given to the building official. Events after the inspection, such as severe weather could require additional inspections and a change of the placard.
- **Yellow**—The building has been inspected and found to be damaged as described on the placard. This placard can be used as a catchall to cover a wide range of hazards that **may limit use** of the building or portions of the building but not make it completely unsafe. Examples of such hazards include water saturated ceiling drywall, collapsed chimney on a portion of the roof or creating a falling hazard on an adjacent structure, electrical power lines that had been inundated during flooding, or a portion of the building has collapsed but other portions do not appear to have been damaged. A yellow card may allow for limited use of the building for removal of property, but restrict continuous habitation or sleeping in the building.
- **Red**—The building has been inspected and is damaged and **unsafe**. No entry is allowed, except as specifically authorized in writing by the jurisdiction. A red placard does NOT imply that the structure is condemned and must be demolished. It may be possible that repairs can be made to mitigate the hazard. Specific hazards are noted on the placard and may include falling hazards, hazardous materials, loss of safe exits or a potential for collapse.

It should be emphasized that the placement and removal of placards need to be performed under the authority of the controlling jurisdiction such as a building code official, if there is such authority. In the event of a major disaster, it is expected that the local jurisdictions will be overwhelmed. In that case, inspectors may be brought in from outside the area and be preferably paired with employees from the local jurisdiction to facilitate interaction with the public and explaining the reasons for the posting.

The ATC-45 *Field Manual* describes the differences between rapid and detailed building evaluations. The rapid evaluation procedure is primarily an assessment of the exterior of the structure and identifies if the building is apparently safe, unsafe or should have restricted use. Often after a disaster it is important to allow people to return to as many of the affected buildings as possible because of a shortage of shelter and housing or to collect personal belongings. The ATC Inspection protocols can be used to quickly determine if a building is habitable. If it is not apparent what the condition of the building is, then a detailed evaluation may be required. This should especially be done for any of the red placard buildings that have not been condemned.

A detailed evaluation includes visual observations of the external walls, cladding, parapets, and foundations; observation of geotechnical conditions; inspection of the internal structural framing, including vertical and lateral load carrying components; inspection for non-structural hazards such as falling ceiling tiles, or hazardous material spills; and any other potential hazards like debris blocking the exits. ATC-45 recommends that all essential

facilities such as hospitals or fire stations receive a detailed inspection if any damage is suspected.

Placard purchase and/or download information is provided in Appendix B.

iii. High Water Marks

Capturing and documenting the maximum flood elevations observed at different locations within the impacted area is beneficial to your community for several reasons. The high water marks may be used to:

- Estimate the flood frequency;
- Assess the accuracy of the Flood Insurance Rate Maps;
- Calibrate the existing or future hydraulic models;
- Conduct Loss Avoidance Studies;
- Prioritize mitigation projects;
- Assist in the preparation of benefit-cost analyses;
- Provide input for building performance assessments; and
- Determine the depth of flooding for structures.

In addition, your community may choose to post permanent markers in these locations to:

- Raise awareness of flood risk in your community;
- Drive action to reduce risk in your community;
- Earn Community Rating System (CRS) points to reduce the cost of flood insurance across the community.

High water marks should be collected for riverine and/or coastal 'wrack lines' as follows:

- Conduct reconnaissance of areas adjacent to significant flood sources to identify mudlines or waterlines of trees or structures;
- Record locations (including photographs) and general description of items to be marked;
- Place appropriate markers on selected items; and
- Utilize survey equipment to record elevations of high water marks.

High Water Mark Sign at Montgomery, Ala.
(Photo: David R. Wetzel Photography)

b. Code/Ordinance Enforcement

Once the location of the structure relative to the SFHA has been determined, damage determinations completed, and any applicable state and/or federal permits have been obtained, the permit official may proceed to the next step in the permit process. The permit official is responsible for seeing that all the applicable requirements of the community's floodplain regulations are met.

i. Triage Process

Implementing a "triage" process will help the Floodplain Administrator and staff keep the permit process on a timely and efficient schedule, helping to aid in the recovery process for your community. If damages have not resulted in a structure that is unsafe for re-entry, permit requests can be triaged as follows:

- Damaged structures located outside of the SFHA can be issued permits and the homeowner can begin repairs.
- For structures which are clearly NOT substantially damaged (<40%), permits can be issued to repair at the existing elevation; provided no additional improvements or additions will be made and it does not conflict with any other regulations. This includes structures constructed both Post-FIRM and Pre-FIRM.
- Pre-FIRM structures that possibly have received substantial damage (40% to 60%) should undergo a detailed assessment (SDE). To more accurately determine the extent of damage, the permit official needs to have two pieces of information: the structure's pre-damaged fair market value and the cost to restore the structure back to its pre-damaged condition. If additional improvements or additions are planned, the cost of the additional improvements or additions must also be considered. Post-FIRM regulatory standards apply to all substantially damaged structures. Provide information to property owners of the applicable flood safety standards, reconstruction, and permit requirements. Pre-FIRM standards apply to the structures that are determined not substantially damaged. Floodplain development permits are required.
- All Pre-FIRM structures that have obviously received substantial damage (60% or more) can forego a more detailed assessment. Post-FIRM regulatory standards apply. Notify property owners of the applicable flood safety standards and maintain enough documentation of the damage to avoid misunderstandings. Floodplain development permits are required.

ii. Permitting Process

Following the "triage" process, the Floodplain Administrator may begin to issue permits for reconstruction. The following items should be noted in this process:

Fair Market Value

The structure's pre-damaged value is the fair market value of the structure only, excluding the land. Some ways of determining the value are: a professional appraisal, a bill of sale (manufactured homes), an insurance settlement, or tax assessment records.

You may allow the property owner to provide an appraisal of the property (at their own expense) that represents the fair market value of the structure. Only accept appraisals performed by trained, qualified, state-licensed real estate appraisers.

Cost To Restore Structure to Pre-Damaged Condition

The two main items on a cost of repairs list should include the materials used and the cost of labor. When calculating the cost of materials and labor, the fair market value must be used – even if the materials and/or labor are donated. Some exclusions from in the cost of repair include debris removal, clean-up, building plans, and permit fees.

Permit Fees

There may be pressure following a flood event to waive your local permit fees. This decision must be carefully considered, as the cost for your staff, materials, and equipment will also be heavily burdened following the event.

Building Protection Requirements

Buildings located in a SFHA that are determined to be substantially damaged/improved, must be brought into compliance with the minimum requirements of the community's ordinance. This includes elevating the structure to/above the Base Flood Elevation (BFE), using flood resistant materials to/below the BFE, adequate/compliant flood vents for enclosures below the BFE, protecting utilities, elevating utilities and mechanical/electrical equipment, and ensuring that all other local floodplain regulations are met. An "as-built" Elevation Certificate is needed to verify compliance.

The regulations may require a residential building to be elevated, resulting in additional costs for the homeowner. Such costs may be covered under the NFIP's Increased Cost of Compliance (ICC) coverage. Information on the ICC can be found in the September 2003 FEMA Publication No. 301, NFIP's Increased Cost of Compliance Coverage, Guidance for State and Local Officials.

ICC is further discussed in the Mitigation Section.

Moratorium on Construction

With the influx of building permit requests and staffing capabilities of your community, it may be beneficial to consider a temporary moratorium on disaster repair construction. This may also include a moratorium on construction outside of the disaster area for a specified time frame or just a moratorium on construction until damage assessments have been completed.

II. Communication and Coordination Responsibilities

a. Local Agencies/Staff

Coordination items among your staff and community departments should include:

- Elected officials - There will be pressures to rebuild quickly and perhaps lesson current building code requirements. It is essential to brief your local elected officials on the flood damage prevention ordinance requirements and the permitting process, including the damage assessments. A sample flyer is included in the Appendix D for elected officials.
- Public Works, or similar, regarding cleanup activities within streams, at bridges and culverts, and flood control facilities/assets.
- Local utilities, electric cooperatives, and Alabama Power, regarding turning on service to damaged homes without an "approved to connect" sign.
- Public Information Officer (PIO) to disseminate information to the general public on the recovery process.
- Mutual Aid Agreements for disaster assessment teams.

b. State/Federal

Coordination items among state and federal agencies may include:

- State NFIP Coordinator can provide technical assistance with your flood damage prevention ordinance and enforcement procedures, training needs, and assistance with damage assessments.
- FEMA - Disaster Recovery Centers (DRC) and Reconstruction Information Center (RIC).
- FEMA - Long Term Community Recovery Emergency Support Function 14 (ESF 14).

- Alabama Emergency Management Agency (AEMA) is currently preparing guidance for Community Long-Term Recovery based upon FEMA's National Response Framework.
- Alabama Department of Environmental Management (ADEM) for stream cleanup and permits for other activities that impact the environment.
- Alabama Association of Floodplain Managers (AAFM) may be able to assist in the future with damage assessment teams.
- Alabama Department of Transportation (ALDOT) for debris removal along state highways and interstates.

c. Public

Flood victims will want to return to their homes to begin the process of clean-up and rebuilding as soon as possible. Information should be provided to the general public regarding the permitting process, as well as health and safety concerns. Public notification can be given through the mass media (newspapers, radio, and television.) Notices can also be posted at sites such as disaster recovery centers or emergency shelters. Examples of information include:

Permitting Process

- It should be clear that property owners must obtain appropriate permits from the community's Floodplain Administrator/building official/engineering department before beginning repairs or reconstruction.
- Clearly outline which activities do and do not require permits.
- Outline the damage assessment process that your department uses and substantial damage requirements.
- Special attention should be given to any local, state, or federal regulations that may conflict or overlap. Whichever regulation has more stringent requirements should be followed or civil and criminal penalties could be imposed.

Reconstruction

- Property owners should contact insurance agent to discuss claims for damages incurred from flooding.
- Encourage citizens to follow broadcast media for information on assistance that may be provided by the state or federal government or other organizations.
- Warn property owners that if cleanup or repair contractors are hired, check references and the Better Business Bureau, and be sure they are qualified to do the job. Be wary of people who drive through neighborhoods offering help in cleaning up or repairing their home.

Health and Safety Concerns

- Describe the ATC-45 green, yellow, and red placards.
- Avoid floodwaters; water may be contaminated by oil, gasoline or raw sewage.
- Damaged septic tanks, cesspools, pits and leaching systems should be serviced as soon as possible. Damaged sewer systems are serious health hazards.
- Provide public service announcements on whether or not the community's water supply is safe to drink.
- Warn citizens to clean and disinfect everything that got wet from floodwaters or rain. Mud left from floodwaters can contain sewage and chemicals.
- Citizens should be warned to rest often and eat well. They should keep a manageable schedule, make a list of jobs to do, and perform jobs one at a time.
- Encourage citizens to discuss their concerns with others and seek help. They should contact Red Cross for information on emotional support available in your area.

Recommended documents for distribution to the public are included in the Appendix.

III. Administrative Responsibilities

a. Documentation of Labor, Equipment and Materials

As discussed in the Response Section, good documentation facilitates the Public Assistance project formulation, validation, approval, and funding processes. Permanent restoration of facilities in your community may be eligible for Public Assistance. An eligible facility is any building, works, system, or equipment that is built or manufactured, or any improved and maintained natural feature that is owned by an eligible applicant with certain exceptions. This may include bridges, culverts, and other elements of your maintained stormwater system.

To be eligible, a facility must:

- Be the responsibility of an eligible applicant;
- Be located in a designated disaster area;
- Not be under the specific authority of another federal agency; and
- Be in active use at the time of the disaster.

During the kickoff meeting with FEMA's Federal Public Assistance Officer, you will assess your community's individual needs, discuss disaster related damage, and set forth a plan of action for repair of the facilities. These repair projects are documented on Project Worksheets (PWs). Guidance will be provided at this meeting for the formulation of Project Worksheets. It may be necessary to request technical assistance to write the Project Worksheets from local, state and federal officials.

Keep separate folders for each project that must be completed before project approval is received. For example, damage to three culverts should have a separate folder set up for each culvert, not one folder for all three. When the Project Worksheets are completed and approved, a permanent folder can be established for each disaster event. It is easier to combine information from several folders than to separate information out of a single folder if information is required during the course of a project.

b. Satellite Office

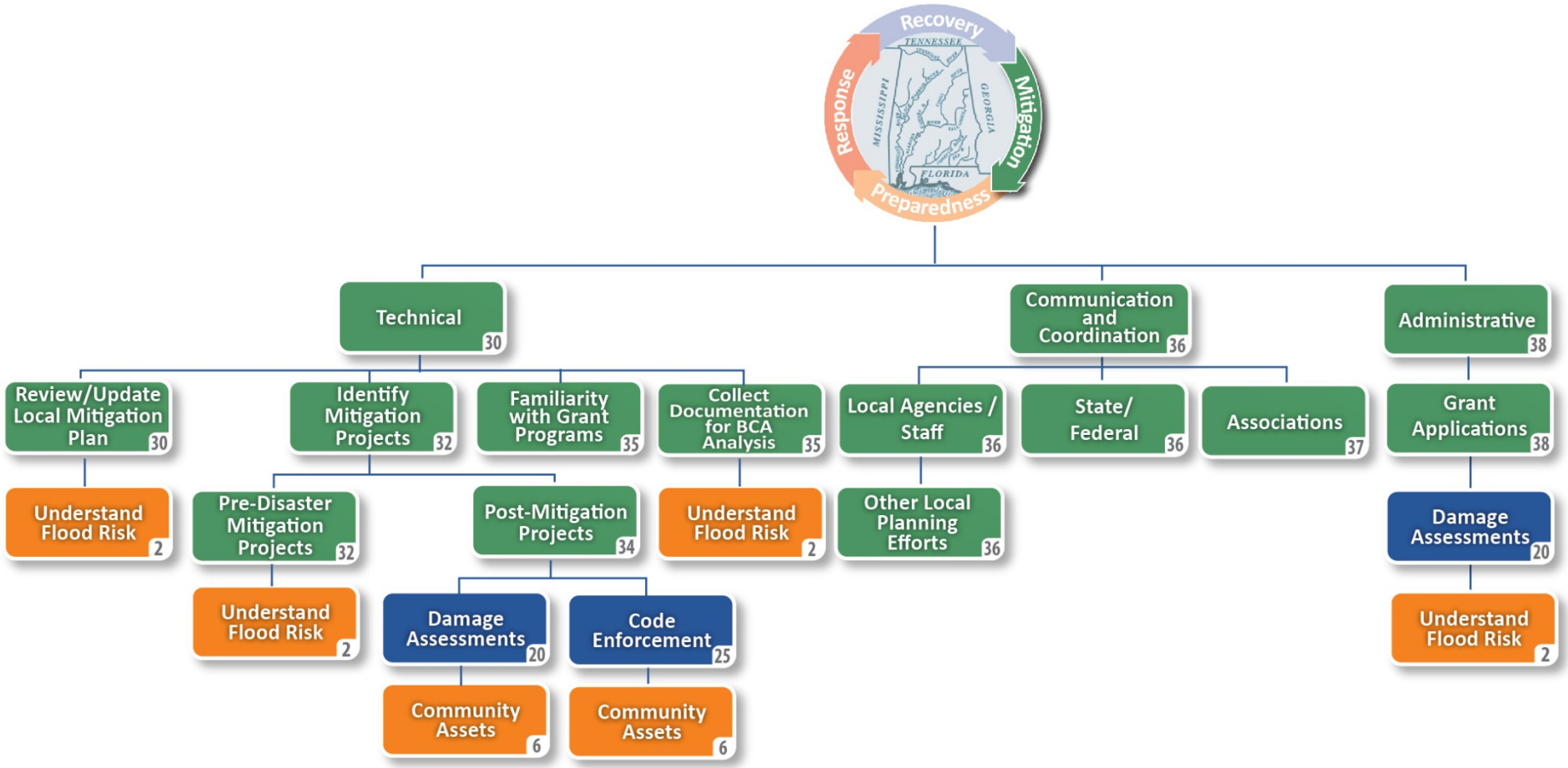
Based on the size and location of the flood event, it may be beneficial to set up a Satellite Permit Office adjacent to your impacted area to expedite the permitting process while maintaining the continuity of operations at the existing/current office location. This will help to minimize the impact to routine permitting activities and allow for any specialized procedures required for permitting repairs of damaged structures to be properly addressed.

c. Documentation of Permitting

Copies of all flood-related documents should be kept in the community's floodplain management permit files. Examples of the items that should be kept are:

- Floodplain development permits;
- Elevation certificates or "as-built" certifications;
- Floodproofing certificates;
- Correspondence with owners of damaged structures;
- Photographs of damaged structures;
- Damage assessments;
- Inventory of flood-damaged structures;
- Copies of FIRMs or FIRMettes used or marked up as part of disaster recovery; and
- Any other supporting documentation.

Mitigation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In the Preparedness, Response, Recovery, Mitigation cycle, Mitigation is most effective when it occurs prior to a flood event, avoiding flood damages entirely. However, as the bridge in the cycle between Recovery and Preparedness, Mitigation opportunities often present themselves most notably in a post-flood setting. This Mitigation section will discuss the technical, coordination/communication, and administrative responsibilities of the Floodplain Administrator relating to mitigation opportunities both prior to a flood event as well as in a post-flood environment.

I. Technical Responsibilities

a. Review/Update Local Hazard Mitigation Plan

The Federal Disaster Mitigation Act (DMA) of 2000 requires communities to develop an approved local hazard mitigation plan to be eligible to apply for certain federal Hazard Mitigation Assistance grants. In the Preparedness Phase, the Floodplain Administrator should be actively involved in development of the Local Hazard Mitigation Plan as it pertains to assessment of flood risk and identification of flood-related mitigation actions that would make the community more resistant to damage from future flood events.

Local Mitigation Plans
44 CFR 201.6 (c)(3)(ii)

The implementing regulations for DMA 2000 stipulate that that the Hazard Mitigation Plan's mitigation strategy **"must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate".**

The DMA requirements stipulate that communities must develop a plan for how the Hazard Mitigation Plan will be reviewed and updated. At a minimum, the plan must be updated and submitted for State EMA and FEMA approval every five years. Many communities have included a provision in the Hazard Mitigation Plan maintenance strategy to review the plan annually and/or after damaging events. As the local expert on flood risk and potential mitigation opportunities in flood hazard areas, the Floodplain Administrator should have a key role in the planning committee's efforts to review and update the Local Hazard Mitigation Plan.

Even if the Local Hazard Mitigation Plan maintenance strategy does not include a formal review of the plan after a damaging flood event, the Floodplain Administrator should review the flood-related sections of the plan. A recent flood event may reveal additional vulnerabilities that were previously unknown. If that is the case, it should be added to the Risk Assessment portion of the Hazard Mitigation Plan. In addition, the Mitigation Strategy of the Hazard Mitigation Plan should be reviewed to determine if any of the identified actions should be pursued in the post-flood environment to prevent similar damages from occurring during the next flood event. The Floodplain Administrator should provide a document that summarizes the information below. It should be submitted to the local official responsible for keeping the Local Hazard Mitigation Plan current.

- Description of the flood event and damages caused. If known, the flood frequency should be provided. This information will be used to update the section on previous events, which is required in the Local Hazard Mitigation Plan.
- New information relating to flood risk. Did the flood occur in areas known to be at risk? Or, were areas flooded, and structures damaged, that are outside the mapped flood hazard areas?
- Are there mitigation initiatives included in the current Local Hazard Mitigation Plan that should be pursued based on

observations made and information gathered from the recent event?
- Are there additional mitigation initiatives that should be added to the Local Hazard Mitigation Plan?

Remember that any applications which a community submits for funding from the FEMA Hazard Mitigation Assistance (HMA) Programs must "be consistent with" the mitigation strategy outlined in the Local Hazard Mitigation Plan. If new mitigation projects are identified for funding as a result of the recent event, a formal amendment to the Local Hazard Mitigation Plan may be necessary if the project is not consistent with the currently approved mitigation strategy.

No Adverse Impact (NAI)

No Adverse Impact principles (see ASFPM's *A Toolkit For Common Sense Floodplain Management [2003]* and *Mitigation: A How-To-Guide for NAI [2013]*) support a multi-objective approach to mitigation planning at the local level that will identify all of the impacts of the flood hazards and all the alternative measures to address those impacts. Often floodplain management or mitigation plans focus on the hazard - something to avoid or get away from. To be really effective, plans need to address many other concerns and be proactive toward building a more viable and sustainable community.

To enhance mitigation at the local level, NAI principles could be incorporated into the community's mitigation activities as well as daily activities that the community undertakes. To incorporate NAI principles into the community's mitigation processes, a community or watershed-based management plan is essential. The community or watershed-based management plan should include:

- A technical analysis to quantify current and future conditions;
- Exploration of all mitigation options;
- Incorporation of the most effective mitigation techniques to minimize impacts in the community;
- Identification of implementation measures to manage all of the hazard factors identified;
- Inclusion of strong citizen involvement so the plan is equitable; and
- A vision for future use of the community's land within and outside of the floodplain.

The community or watershed-based management plan defines the process by which all future development will be analyzed. It requires that the effects of proposed development activity anywhere within a watershed could or would have on flood stages, velocity, flows, and erosion or sedimentation elsewhere within that same watershed, be considered prior to approval of the proposed development activity.

When developing a mitigation strategy that goes beyond consideration of the extent of flood waters that result from typical hydrology and hydraulic engineering calculations, there are many other contributing factors to consider. A community needs to fully understand how to protect against or mitigate its flood hazards by considering these other contributing factors that may significantly increase the probability and magnitude of flooding. For Alabama those include:

- **Uncertain flow paths:** moveable bed streams and other floodplains where the channel moves during a flood;
- **Debris and sediment blockage:** flooding caused by debris, log jams, driftwood, gravel, silt and other material (natural or man-made) that moves during the flood and obstructs flood waters;
- **Land subsidence:** lowering of the land surface caused by withdrawal of subsurface water or minerals or by compaction of organic soils;
- **Mudflow hazards:** a river, flow, or inundation of structures or land by liquid mud down a hillside. Usually occurs as a result of a dual condition of loss of brush cover, and the subsequent accumulation of water on the ground preceded by a period of heavy or sustained rain;
- **Dam failure inundation:** areas that would be flooded if an upstream dam were to fail or overtop that may happen due to structural failure or improper operation;

- **Coastal erosion:** areas subject to the wearing away of land masses caused primarily by waves on the Gulf of Mexico;
- **Riverine erosion:** areas subject to scouring or loss of streambank due to stream velocity, usually along the outside meanders of a channel.
- **Channel Modification:** natural or man-made induced changes to the location of the channel of the stream and its floodplain;
- **Levee failure inundation:** areas that are behind a levee may be subject to residual risk if the levee is susceptible to failure or overtopping depending on whether levees are periodically inspected to ensure they meet current levee safety standards, are properly operated and have an adequate Emergency Evacuation Plan; and
- **Sea level rise:** global warming is contributing to a rise in the sea level, a problem that is compounded in coastal areas subject to subsidence.

FIRMs do not reflect most of these flood hazards. Therefore, Floodplain Administrators should have awareness of areas where these additional hazards exist or areas where conditions exist that may be susceptible to creating those hazards. An example of one of these types of conditions would be an area along a river that was recently clear-cut for logging operations, is located upstream of a bridge, and the logged area is sloped toward the river. Logs from that area could wash into the river, flow downstream, and become lodged in the bridge decking which would result in flooding. Floodplain Administrators should help identify these types of hazards in their communities and include them in mitigation strategies.

b. Identify Potential New Mitigation Projects

The Floodplain Administrator should be the primary resource in a community to identify flood-related mitigation measures that can be implemented pre- or post-disaster to reduce or eliminate damages prior to future flooding events. The Floodplain Administrator should be equipped with knowledge of the flood risks facing the community; an in-depth familiarity with the federal, state, and local regulations that should be considered during execution of mitigation projects; and an understanding of the community's ability to warn its citizens in advance of a flood. These capabilities will help identify and set appropriate priorities for future mitigation projects.

Pre-Disaster Mitigation Projects

Many of the types of mitigation projects/initiatives that are relevant to a pre-disaster environment relate to prevention and public education activities such as more stringent floodplain development requirements or media campaigns to alert citizens of the availability of flood insurance. The NFIP's Community Rating System (CRS) is an excellent program that has several of its activities involved in pre-disaster mitigation initiatives that a community can undertake. Alabama currently has 14 communities participating in CRS. See the box on the following page for additional details on joining CRS and available resources.

One of the many benefits of the CRS Program is that communities with repetitive loss properties are required to develop a Floodplain Management Plan that addresses its repetitive loss areas and a strategy for reducing flood risk for a community. While the CRS requirements for development of the plan are extensive and require public involvement, a less formal yet very beneficial plan can be developed to address mitigation initiatives that a community can undertake prior to a flooding event. The plan should include an assessment of the hazard(s); an assessment of the impact of the hazard(s) on a community's and its citizen's property, safety, health, and economic well-being; goals for reducing the risk; possible activities to reduce the risk; and a prioritized action plan to mitigate risks that result from the flood hazards.

Depending on the level of risk and the goals for risk reduction, there are several possible activities that can be selected to reduce the risk. The FEMA 551 manual entitled "Selecting Appropriate Mitigation Measures for Floodprone Structures" (March 2007) provides guidance on selection of mitigation measures. The most common mitigation measures that should be considered by the community include:

1. **Drainage Improvements** – Developing or improving stormwater conveyance and storage system to provide greater carrying capacity to move floodwaters from areas where damage occurs.
2. **Barriers** – Constructing floodwalls or levees around a single or multiple structures to hold back floodwaters or the installation of temporary barriers that block the flow of floodwaters through openings in structures (windows, doors, gates).
3. **Wet Floodproofing** – Making uninhabitable portions of a structure resistant to flood damage and allowing water to enter the structure during a flood which reduces the hydrostatic pressure on the structure's walls.
4. **Dry Floodproofing** – Sealing structures to prevent floodwaters from entering habitable and uninhabited areas by using waterproof coatings, impermeable membranes, watertight shields over openings, and sewer backflow prevention measures. Typically only done for non-residential structures and requires a structural analysis to determine if walls are capable of withstanding hydrostatic and hydrodynamic forces.
5. **Elevation** – Raising the entire structure so the lowest floor (or lowest horizontal structural component for high hazard coastal zones) is at or above the base flood elevation is one of the most effective and most common mitigation measures methods used to keep habitable areas of a residential structure from being flooded.
6. **Acquisition** – Purchasing and demolishing a structure located in a high hazard flood zone from the existing property owner is the most successful way to ensure that a structure will not accumulate additional losses from future flood events. Typically it is purchased by a local government agency through grant funds and the parcel is to remain in open space use in perpetuity with applicable deed restrictions.

National Flood Insurance Community Rating System

The National Flood Insurance Program (NFIP) Community Rating System (CRS) was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities exceeding the minimum NFIP standards. Any community in full compliance with the minimum NFIP floodplain management requirements may apply to join the CRS.

In the CRS, a community accrues points to improve its Class rating to receive flood insurance premium discounts for all NFIP policy holders in the community. For each CRS Class improvement, all flood insurance policy holders receive a 5 percent discount on insurance premiums. Points are awarded for engaging in any of 18 creditable activities, organized under four categories:

- Public information
- Mapping and regulations
- Flood damage reduction
  - Floodplain management planning
  - Acquisition and relocation
  - Flood protection
  - Drainage system maintenance
- Emergency warnings and response

Formulas and adjustment factors are used to calculate credit points for each activity.

A list of resources is available at the CRS website:
www.fema.gov/nfip/crs.shtm
and FEMA's CRS outreach website:
www.crsresources.org/

For more information about the CRS or to obtain the CRS application, contact the ADECA State NFIP Coordinator, Corey Garyotis at corey.garyotis@adeca.alabama.gov or (334) 353-0853; or the Insurance Services Office, CRS Coordinator for Alabama, Jonathan Smith by phone at (228) 235-6506 or by e-mail at jlsmith@iso.com.

Post-Flood Mitigation Projects

The question, "Could these damages have been prevented?" should be asked as the Floodplain Administrator surveys and documents the damages that have occurred in the community as a result of a recent flood event. Although various risk assessment models exist to estimate what types of damages a community might face in a flood, a real-world event may reveal vulnerabilities that were not previously anticipated. As damage is surveyed, the Floodplain Administrator should keep a log of all potential solutions that could prevent similar future damage. This log of potential mitigation solutions should be reviewed with others in the community. Further details are discussed in the Mitigation - Administrative Responsibilities Section.

In some instances, the post-flood environment provides the most effective opportunity to initiate mitigation projects. For example, if a floodplain acquisition project has been identified as a viable solution to repetitive flooding, the post-flood environment may prove to be the most effective time to demonstrate the benefits of the project. With a flood-damaged home, homeowners may be more willing to participate in the voluntary program. In addition, if the flood event resulted in a Presidential major disaster declaration, additional mitigation funds may be available. Another example of a mitigation project that is most effective in a post-flood environment is elevation of substantially damaged structures. To remain in compliance, structures that were substantially damaged may need to be elevated. This may provide a good opportunity to combine various funding programs together for maximum benefit. Various programs available to fund mitigation projects are discussed in additional detail in the Mitigation - Administrative Responsibilities Section.

FEMA's Publication, *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards,* provides specific mitigation actions that can be undertaken in communities to mitigate damages from multiple hazards. This publication includes 23 categories of flood mitigation activities that can be implemented in a pre-flood or post-flood environment. Each of the 23 categories lists additional specific activities that can be accomplished.

"Mitigation Ideas" is FEMA's resource guide for communities to use to identify and evaluate a range of potential mitigation actions for reducing risk to natural hazards and disasters.

- Incorporate Flood Mitigation in Local Planning
- Manage the Floodplain Beyond Minimum Requirements
- Protect Infrastructure
- Form Partnerships to Support Floodplain Management
- Participate in the Community Rating System
- Protect Critical Facilities
- Limit or Restrict Development in Floodplain Areas
- Establish Local Funding Mechanisms for Flood Mitigation
- Construct Flood Control Measures
- Adopt and Enforce Building Codes and Development Standards
- Remove Existing Structures from Flood Hazard Areas
- Protect and Restore Natural Flood Mitigation Features
- Improve Stormwater Management Planning
- Improve Stormwater Drainage System Capacity
- Preserve Floodplains as Open Space
- Adopt Policies to Reduce Stormwater Runoff
- Conduct Regular Maintenance for Drainage Systems and Flood Control Structures
- Increase Awareness of Flood Risk and Safety
- Improve Flood Risk Assessment
- Elevate or Retrofit Structures and Utilities
- Educate Property Owners about Flood Mitigation Techniques
- Join or Improve Compliance with NFIP
- Floodproof Residential and Non-Residential Structures

c. Become Familiar with Grant Funding Opportunities

Although there are others in the community, such as local emergency management officials that may be aware of mitigation grant funding opportunities available following a disaster, the Floodplain Administrator is in a unique position to maintain an understanding of the various grant programs and how they relate specifically to flood mitigation. An understanding of the various funding streams and opportunities will enable the Floodplain Administrator to assist the local official responsible for mitigation grants in matching up identified mitigation projects with the programs that are most likely to fund them. Additionally, some of the funding opportunities can be utilized together. See the Mitigation - Administrative Responsibilities Section for more information on the mitigation-related grant programs that may be available to your community.

d. Collect documentation for Benefit-Cost Analysis

The FEMA Hazard Mitigation Assistance grant requirements stipulate that FEMA provide funding for mitigation measures that are cost-effective or are in the interest of the National Flood Insurance Fund. Therefore, FEMA requires applicants to demonstrate that mitigation projects are cost-effective. The Floodplain Administrator is in a position to assist with the mitigation grant effort and with compiling much of the documentation that may be necessary to demonstrate cost-effectiveness. Projects for which benefits exceed costs are generally considered cost-effective. FEMA provides software that performs a Benefit-Cost Analysis (BCA), resulting in a calculated Benefit-Cost Ratio (BCR). Some of the data that may be needed for various types of mitigation projects are:

- First Floor Elevation;
- Flood Hazard Data (Flood Elevation and Discharge Data);
- Documentation of previous damages that will be avoided by the project; and
- Frequency of Occurrence of event that caused damages.

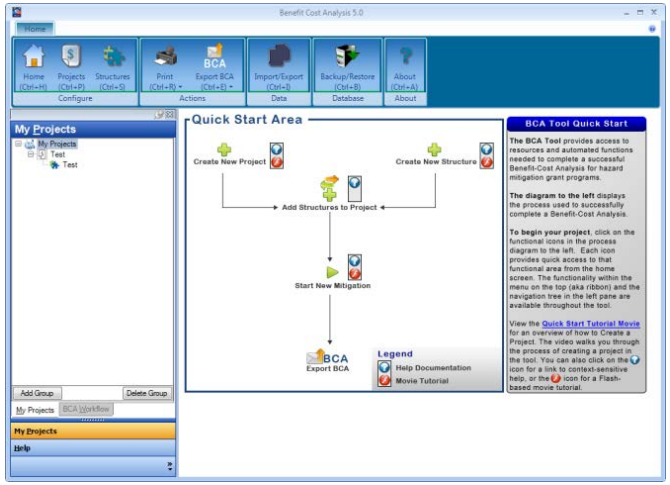
The current software and additional information on determining cost-effectiveness is available at www.bchelpline.com

Benefit-Cost Analysis

Starting March of 2014, FEMA released the Benefit-Cost Analysis Tool version 5.0. It is available to be used to demonstrate cost-effectiveness for FEMA's Hazard Mitigation Assistance (HMA) grant programs.

To use FEMA's Benefit-Cost Analysis Tool you must first download the compressed file, extract and save the file in one folder on your computer. While the program is installing, additional file sets will be downloaded from the internet. Make sure to maintain access to the internet until the program is fully installed. If you have any questions about the new BCA software program, please contact the BC Helpline at bchelpline@dhs.gov or at 1-855-540-6744.

The compressed file is available here:
www.fema.gov/media-library/assets/documents/92923



II. Communication and Coordination Responsibilities

a. Local Agencies/Staff

Besides local planning officials, the Floodplain Administrator should maintain a working relationship with other officials in the community. Local officials that can provide valuable information on flood risk and specific flood-related damages include:

- Emergency Management Officials — These local officials should be familiar with FEMA program availability and requirements. The local emergency manager can also provide insight into mitigation opportunities. For example, local emergency managers will know where evacuations were necessary as well as transportation routes that are impacted by flooding. This information will be important to understand in development of potential mitigation projects to make the community more disaster resistant/resilient.

- Public Works Officials — These officials can provide information on public infrastructure that has been damaged as well as provide insight on how damages could be avoided in the future. The Floodplain Administrator and public works officials should discuss optimum use of FEMA's Public Assistance Section 406 Mitigation funding. This is discussed in greater detail in the Mitigation - Administrative Responsibilities Section.

- Public Utility Providers — Similar to public works officials, public utility providers can provide information on damages incurred by utility lines as well as ideas on prevention of similar future damages.

b. Other Local Planning Efforts

As the community's authority on flood risk and potential solutions to prevent future flood damage, the Floodplain Administrator should coordinate regularly with other planning officials and participate in planning initiatives in the community. The best form of mitigation is prevention of the risk. As your community is developing other plans such as Comprehensive Plans, Master Plans, Capital Improvement Plans, and Future Growth Plans, the Floodplain Administrator should provide flood risk information to ensure planned development areas will not increase the community's vulnerability to flooding.

If your community has Geographic Information Systems (GIS) capabilities, the Floodplain Administrator should work closely with others in the community to use available GIS tools to compare flood risk layers such as the digital Flood Insurance Rate Maps with other planning products such as future land use maps. If GIS capabilities are not present, other mapping products should be compared to ensure future development does not increase a community's flood risk. This up-front coordination in the early planning stages can help communities avoid future development in areas at risk to flooding.

c. State/Federal

Floodplain Administrators should maintain communication with state officials that work in programs focused on floodplain management and flood hazard mitigation. They have access to resources and recent programmatic updates that could prove useful to local Floodplain Administrators.

- State floodplain management officials - ADECA's Office of Water Resources, Floodplain Management Unit works closely with the Federal Emergency Management Agency (FEMA) and local communities to build relationships that can help strengthen mitigation efforts and lead to actions that better protect residents. Those actions, when properly selected and planned, will reduce flood risk in communities through the utilization of flood studies and mapping, and non-regulatory tools that are created with FEMA's Risk

MAP Program. State floodplain management officials can provide assistance to local Floodplain Administrators in all areas of managing local floodplains including floodplain mapping, National Flood Insurance Program requirements, floodplain development permitting assistance, substantial damage determination, Community Rating System, Revisions/Amendments to flood studies and maps, etc.

- State emergency management officials - AEMA's Mitigation Branch is a valuable resource to Floodplain Administrators when it comes to hazard mitigation planning, HMA grants, hazard mitigation project development, etc.

- Natural resources management officials - Another lead mitigation agency at the state level for coastal areas is the Alabama Department of Conservation and Natural Resources (ADCNR). The Department's Coastal Section administers the Alabama Coastal Area Management Program (ACAMP). Natural hazards mitigation is an important component to this program.

- State environmental and water quality officials - Alabama Department of Environmental Management (ADEM) is the state agency responsible for protection and improvement of the quality of Alabama's environment and the health of all its citizens. Mitigation projects involving channel improvements or stream rehabilitation should be coordinated with ADEM.

d. State/National Associations

In addition to local and state officials, the Floodplain Administrator should coordinate with and/or participate in the state and national associations focused on flood risk and mitigation.

Association of State Floodplain Managers (ASFPM)

Similar to the Alabama Association of Floodplain Mangers (next page), the national Association of State Floodplain Managers (ASFPM) provides additional networking opportunities for Floodplain Administrators. Local Floodplain Administrators should maintain awareness through ADECA's floodplain management staff concerning activities and initiatives being pursued by these associations. In particular, ASFPM has the Flood Mitigation, No Adverse Impact, and Nonstructural Floodproofing Committees that are active in national mitigation policies. For more information, visit www.floods.org

Alabama Association of Regional Councils (AARC) The Alabama Association of Regional Councils (AARC) is a statewide association comprised of the 12 regional planning councils (RPCs). AARC has been an active participant in both state and local hazard mitigation planning initiatives. The regional councils in Alabama that make up the AARC are typically called either Regional Planning Commissions (RPC) or Councils of Government (COG). They are public organizations encompassing a multi-jurisdictional regional community and are also comprised of every town, city, and county within the State.

Through planning, policymaking, coordination, advocacy, and technical assistance, the regional commission serves the local governments and citizens in the region. The governing bodies of councils are primarily composed of local government elected officials and appointed representatives of local communities and state government. The AARC and RPCs are directly tied to mitigation planning through the generous contributions of RPC

members, who developed the vast majority of Alabama's initial local hazard mitigation plans.

Alabama Association of Floodplain Managers (AAFM)

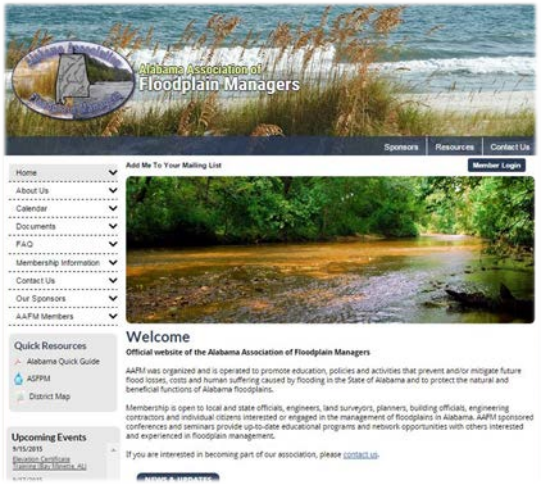
The Alabama Association of Floodplain Managers (AAFM) provides networking opportunities for Floodplain Administrators across the State. Additional information is provided below:

Alabama Association of Floodplain Managers

AAFM was organized and is operated to promote education, policies and activities that prevent and/or mitigate future flood losses, costs and human suffering caused by flooding in the State of Alabama and to protect the natural and beneficial functions of Alabama floodplains.

Membership is open to local and state officials, engineers, land surveyors, planners, building officials, engineering contractors and individual citizens interested or engaged in the management of floodplains in Alabama. AAFM sponsored conferences and seminars provide up-to-date educational programs and network opportunities with others interested and experienced in floodplain management.

For more information, visit www.aafmfloods.org



III. Administrative Responsibilities

a. Grant Applications

Depending on assigned roles and responsibilities in each community, the Floodplain Administrator may be tasked with completing mitigation grant applications for various flood-related mitigation projects. Several of the key mitigation grant programs are detailed below:

FEMA Hazard Mitigation Assistance (HMA) Grants

The Hazard Mitigation Branch of AEMA administers the Hazard Mitigation Assistance (HMA) Grants. There are three main types of HMA grants: (1) Hazard Mitigation Grant Program, (2) Pre-Disaster Mitigation Program, and (3) Flood Mitigation Assistance Program. Eligible applicants for the HMA include state and local governments, certain private-non-profits, and federally recognized Indian tribal governments. While private citizens cannot apply directly for the grant programs, they can benefit from the programs if they are included in an application sponsored by an eligible applicant. According to Alabama's 2013 State Hazard Mitigation Plan, the state has identified the following flood-related mitigation project activities as priorities for funding under these grants:

- Elevation;
- Acquisition;
- Drainage improvements; and
- Improved identification of threat through floodplain mapping.

Although these are indicated as the current flood-related priorities for use of HMA funds, the Floodplain Administrator should maintain awareness of future priorities established by the AEMA.

Hazard Mitigation Grant Program (HMGP): Available Post-Disaster

HMGP is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (the Stafford Act), Title 42, U.S. Code (U.S.C.) 5170c. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster. HMGP is available, when authorized under a Presidential major disaster declaration, in the areas of the state requested by the Governor. Indian Tribal governments may also submit a request for a major disaster declaration within their impacted area.

The amount of HMGP funding available to the applicant is based upon the estimated total of federal assistance, subject to the sliding scale formula outlined in 44 CFR Section 206.432(b) that FEMA provides for disaster recovery under each Presidential major disaster declaration. The formula provides for up to 15 percent of the first $2 billion of estimated aggregate amounts of disaster assistance, up to 10 percent for amounts between $2 billion and $10 billion, and up to 7.5 percent for amounts between $10 billion and $35.333 billion. For states with enhanced plans, the eligible assistance is up to 20 percent for estimated aggregate amounts of disaster assistance not to exceed $35.333 billion. Submission of the enhanced plan elements of the Alabama State Hazard Mitigation Plan was anticipated for January 2014.

Pre-Disaster Mitigation (PDM) Program: Available Pre-Disaster

The **PDM** Program is authorized by Section 203 of the Stafford Act, 42 U.S.C. 5133. The PDM Program is designed to assist states, territories, Indian tribal governments, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in future disasters.

Flood Mitigation Assistance (FMA): Available Pre-Disaster

The **FMA** program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (NFIA), 42 U.S.C. 4104c, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). The National Flood Insurance Fund (NFIF) provides the funding for the FMA program.

FEMA Hazard Mitigation Assistance (HMA) Grant Submittal Information

AEMA maintains a website with up-to-date information about HMA grant submittal requirements and opportunities: http://ema.alabama.gov/mitigation.cfm.

- For HMGP, a letter of intent must be submitted to AEMA, followed by a full application, including a SF-424, if requested by AEMA.
- For PDM and FMA, applications and sub-applications are submitted via the eGrants system, https://portal.fema.gov/famsVuWeb/home.
- Application submission due dates and times are posted to the HMA website at www.fema.gov/hazard-mitigation-assistance.
- The PDM and FMA programs are subject to the availability of appropriation funding, as well as any program-specific directive or restriction made with respect to such funds.
- More information about FEMA's Hazard Mitigation Assistance grants can be found on the FEMA HMA Web site at www.fema.gov/hazard-mitigation-assistance.
- Applications for the FEMA Hazard Mitigation Assistance grants can be found on the AEMA website at: http://ema.alabama.gov/mitigation.cfm

FEMA Public Assistance Section 406 Mitigation

The Robert T. Stafford Disaster Relief and Emergency Assistance Act provides FEMA the authority to fund the restoration of eligible facilities that have sustained damage due to a presidentially declared disaster. The regulations contain a provision for the consideration of funding additional measures that will enhance a facility's ability to resist similar damage in future events.

Community Development Block Grants (CDBG)

Since 1982, ADECA has administered the State's Community Development Block Grant (CDBG) program with funding provided by the U.S. Department of Housing and Urban Development. The program is available to all non-entitlement communities that meet applicable threshold requirements. All projects must meet one of the national objectives of the program – projects must benefit 51 percent low- and moderate-income people, aid in the prevention or clearance of slum and blight, or meet an urgent need.

There are three ways CDBG funds can impact hazard mitigation. First, CDBG funds can be used as local planning grants for up to $50,000. This is another opportunity for assuring local comprehensive plans and regulations address state and regional hazard mitigation objectives. Second, annual CDBG appropriations are used for community development projects, which often include local mitigation projects. Third, CDBG Disaster Recovery funds are allocated after some federally declared disasters. Grant funds can generally be used in federally declared disaster areas for CDBG eligible activities including the replacement or repair of infrastructure and housing damaged during, or as a result of, the declared disaster.

Since grants under the CDBG program are considered non-federal funds, they can also be used to meet the non-federal match requirements for grant programs such as FEMA's Hazard Mitigation Assistance (HMA) Grants.

Additional information is available at the following websites:
www.adeca.alabama.gov/Divisions/ced/cdp/Pages/CDBG.aspx
or
www.hud.gov/offices/cpd/communitydevelopment/programs/drsi/index.cfm.

Small Business Administration (SBA) Loans

SBA offers low interest, fixed rate loans to disaster victims, enabling them to repair or replace property damaged or destroyed in declared disasters. It also offers such loans to affected small businesses to help them recover from economic injury caused by such disasters. Loans may also be increased up to 20 percent of the total amount of disaster damage to real estate and/or leasehold improvements to make improvements that lessen the risk of property damage by possible future disasters of the same kind.

Increased Cost of Compliance Coverage

Increased Cost of Compliance (ICC) coverage is one of several resources for flood insurance policyholders who need additional help rebuilding after a flood. It provides up to $30,000 to help cover the cost of mitigation measures that will reduce flood risk. ICC coverage is a part of most standard flood insurance policies available under the Federal Emergency Management Agency's (FEMA's) National Flood Insurance Program (NFIP).

ICC coverage can help pay for four different types of mitigation activities to bring a building into compliance with the community's floodplain management regulations:

- Elevation is this process consists of raising the building to or above the BFE.
- Floodproofing applies only to non-residential buildings. For a building to be certified as floodproofed, it must be watertight below the BFE. The walls must be substantially impermeable to water and designed to resist the stresses imposed by flood waters.

- Relocation involves moving the entire building to another location on the same lot, or to another lot, usually outside the floodplain.
- Demolition may be necessary in cases where damage is too severe to warrant elevation, floodproofing, or relocation; or where the building is in such poor condition that it is not worth the investment to undertake any combination of the above activities.

For obtain more information on ICC coverage, visit: www.fema.gov/library/viewRecord.do?id=3010

Combining Mitigation Programs

Some of the grant programs can be combined or "packaged" together. For example, although CDBG funds originate from the United States Department of Housing and Urban Development (HUD), they are considered "non-federal" funds and can therefore be used as the non-federal match requirement for FEMA Hazard Mitigation Assistance Grants. Similarly, Increased Cost of Compliance Coverage under the NFIP can also be used as the non-federal match portion of a Hazard Mitigation Assistance grant. Your community can then use FEMA mitigation grant funds to help pay for any additional portion of the cost of elevation, floodproofing, relocation, or demolition that is more than the ICC claim payment.

More information about FEMA's Hazard Mitigation Assistance grants can be found on the FEMA HMA Web site at www.fema.gov/hazard-mitigation-assistance.

Applications for the FEMA Hazard Mitigation Assistance grants can be found on the AEMA website at: http://ema.alabama.gov/mitigation.cfm

FEMA Hazard Mitigation project in Alabama - Raising this utility box prevents future damage in the event of a flood. Photo by: Dave Gately/ FEMA News Photo

Baldwin County, Alabama – Residential elevation and installation of breakaway walls saved this home from flood damage. FEMA News Photo

ALABAMA

Post-Flood Recovery Guidebook Appendices

December 2014

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A Division of ADECA

amec

Appendices

A. Preparedness

- Recommended Training Courses

B. Recovery

- SDE – Condensed Procedural Guide
- Rapid Depth-Damage Estimate – Condensed Procedural Guide
- Sample Door Tag
- ATC-45 Placard Information
- Recommended Public Outreach Information

C. Mitigation

- HMGP Letter of Intent
- HMGP Main Application

D. References

A. Preparedness

Recommended Training Courses

The following training courses and information sources are compiled from an evolving list of recommended training and resources for local floodplain managers. Many of the recommended trainings are available through independent study courses with FEMA's Emergency Management Institute: http://training.fema.gov/IS/

PREPAREDNESS

ADECA Office of Water Resources
www.adeca.alabama.gov/Divisions/owr/floodplain/Pages/default.aspx

The OWR Floodplain Management website provides information, publications, and links to such topics as Risk MAP, "Am I in a Floodplain?" County Flood Map Information and Status, LOMRs, Flood Insurance Reform Act, Safe Dams, and Frequently Asked Questions.

Alabama Association of Floodplain Managers (AAFM)
www.aafmfloods.org/

AAFM sponsored conferences and seminars provide up-to-date educational programs and network opportunities with others interested and experienced in floodplain management.

Association of State Floodplain Managers (ASFPM) – Training Resource Library
www.floods.org/index.asp?menuID=354&firstlevelmenuID=182&siteID=1

The Association of State Floodplain Managers maintains an online Training Resource Library for the convenience of its members and the public.

Certified Floodplain Manager Program
(ASFPM-accredited certification program; FEMA 480 *Floodplain Management Requirements: A Study Guide and Desk Reference for Local Officials*)

The role of the nation's floodplain managers is expanding due to increases in disaster losses, the emphasis being placed upon mitigation to alleviate the cycle of damage-rebuild-damage, and a recognized need for professionals to adequately address these issues. This certification program will lay the foundation for ensuring that highly qualified individuals are available to meet the challenge of breaking the damage cycle and stopping its negative drain on the nation's human, financial, and natural resources.

Managing Floodplain Development through the National Flood Insurance Program
(EMI Course 273)

This course is designed to provide an organized training opportunity for local officials responsible for administering their local floodplain management ordinance. The course will focus on the NFIP and concepts of floodplain management, maps and studies, ordinance administration, and the relationship between floodplain management and flood insurance.

RESPONSE

Introduction to Incident Command System
(FEMA Independent Study IS-100.b)

As an introduction to the Incident Command System (ICS), this course provides the foundation for higher level ICS training. This course describes the history, features, principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and the National Incident Management System (NIMS). (0.3 CEUs)

National Incident Management System (NIMS): An Introduction
(FEMA Independent Study IS-700.a)

This course introduces and overviews the National Incident Management System (NIMS). NIMS provides a consistent nationwide template to enable all government, private-sector, and nongovernment organization to work together during domestic incidents. (0.5 CEUs)

National Response Framework, an Introduction
(FEMA Independent Study IS-800.b)

This course introduces participants to the concepts and principles for the National Response Framework. This course is intended for government executives, private-sector and non-governmental organizations (NGO) leaders, and emergency management practitioners. (0.3 CEUs)

RECOVERY

National Disaster Recovery Framework (NDRF) Overview (FEMA Independent Study IS-2900)

This course provides individuals supporting disaster recovery efforts with a foundation in National Disaster Recovery Framework (NDRF) key concepts, core principles and roles and responsibilities of NDRF leadership (including those of individuals and households to governmental entities at the local, State, tribal, and Federal levels, and between public, private and nonprofit sectors. (0.2 CEUs)

Local Damage Assessment (FEMA Independent Study IS-559)

This course provides information and resources that will enable participants to plan an effective damage assessment program and conduct rapid and effective damage assessments in order to save lives, protect property and the environment, and begin the process of recovery and mitigation. (0.2 CEUs)

Introduction to Individual Assistance (IA) (FEMA Independent Study IS-403)

This course provides a basic introduction to IA, the Individual Assistance program. This information should assist FEMA personnel with basic knowledge to provide applicants with accurate information. (0.1 CEUs)

Introduction to FEMA's Public Assistance Program (FEMA Independent Study IS-634)

This course will familiarize students with the Public Assistance Program and the process applicants follow to receive grant funding assistance in the aftermath of a disaster. (0.4 CEUs)

Substantial Damage Estimator (SDE) Tool, 2.0 (FEMA Independent Study IS-284)

This course will enable learners to successfully use the Substantial Damage Estimator 2.0 tool. Successful use is defined as accurately populating the electronic forms within the tool; saving individual-structure and community-wide data; running all reports available in the tool; and importing and exporting data to other formats, such as Excel. Learners must download, install and use the SDE 2.0 Software to complete the course. (0.3 CEUs)

MITIGATION

Introduction to Hazard Mitigation (FEMA Independent Study IS-393.a)

This course provides an introduction to mitigation for those who are new to emergency management and/or mitigation. (1.0 CEUs)

Mitigation eGrant System for the Subgrant Applicant (FEMA Independent Study IS-30)

This interactive computer-based course is part of a series designed to provide various users with basic knowledge about using the web-based Mitigation Electronic Grants (eGrants) Management System. This course is specifically targeted for Subgrant Applicants. (0.5 CEUs)

Benefit-Cost Analysis Fundamentals (FEMA Independent Study IS-276)

This course serves as an overview of fundamental Benefit-Cost Analysis concepts and theory and is the framework and prerequisite for the classroom, field or facilitated distance learning Benefit-Cost Analysis course. (0.1 CEUs)

Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures (FEMA Independent Study IS-279)

This course provides essential, non-technical background knowledge about retrofitting. The retrofitting measures presented are creative and practical, comply with applicable floodplain regulations, and are satisfactory to homeowners. It is assumed that students planning to attend the technical course at EMI will have mastered this ISP course. (1.0 CEUs)

Introduction to Residential Coastal Construction (FEMA Independent Study IS-386)

This course will introduce the student to basic information about residential coastal construction. This is a very comprehensive, advanced level course. The target audience includes; engineers, architects, building code officials, floodplain management, hazard mitigation, planning, and building officials with building science knowledge. (1.4 CEUs)

B. Recovery

SDE – Condensed Procedural Guide

The SDE Tool was developed by FEMA to assist State and local officials in determining substantial damage for residential and non-residential structures in accordance with a local floodplain management ordinance meeting the requirements of the National Flood Insurance Program (NFIP). A condensed procedure guide for utilizing the SDE Tool and sample forms are provided.

Rapid Depth-Damage Estimate – Condensed Procedural Guide

The Rapid Depth-Damage Field Estimate method captures essential information to make substantial damage determinations for flood-related damages. The substantial damage determinations are based upon USACE published Generic Depth-Damage Relationships. A condensed procedure guide for utilizing the Rapid Depth-Damage Estimate method and sample forms are provided.

Sample Inspection Door Tag

A sample door tag notice to advise the property owner that an initial damage assessment has been completed, along instructions on repair/reconstruction procedures, is provided.

ATC-45 Placard Information

ATC-45 safety assessment forms and links to placards for download are provided.

Recommended Public Outreach Information

Links to available public outreach information and sample materials are provided for the following:

- FloodSmart – Flood Outreach Toolkit
- FEMA - Sample Notices to Property Owners, Sample Affidavits, and Other Material
- FEMA - Sample Letters of Determination

SDE – Condensed Procedural Guide (RIVERINE or COASTAL)

FEMA's SDE software offers a formalized approach to developing reasonable estimates of building values and reasonable estimates of the cost to repair or reconstruct buildings. The SDE enables local officials to calculate a reasonable and defensible estimate of whether a building has been substantially damaged. While SDE can be used to evaluate damage by any cause (flood, tornado, earthquake, etc.), flooding is the most frequently-occurring natural hazard. Therefore, the software and companion workbook focus primarily on developing inventories of flood-damaged structure.

Guidance on collecting and recording SDE data is presented in the SDE User's Manual and SDE Field Workbook. Available here:

http://www.fema.gov/media-library/assets/documents/18692?id=4166

SDE Field Preparations

Prior to conducting substantial damage estimations using the FEMA SDE software, it is recommended to identifying available resources. This includes:

- Selecting the SDE inspection lead, data and QA lead, and emergency management points-of-contact (POCs);
- Reviewing FIRMs and other maps for floodplain and street locations;
- Compiling tax data; and
- Pre-loading available property data into the SDE tool.

Curbside Information

After arriving at a structure, the field inspector should photograph a curbside view of the front or side of the structure, log the photograph, and record basic data for the property on a Damage Inspection Worksheet or in the SDE tool on a laptop computer. Basic data includes:

- Building Address;
- Structure Attributes (residential only);
- Structure Information;
- Inspector Information; and
- NFIP Information.

A sample residential damage inspection worksheet is provided on the following pages.

Exterior Inspections

Data collected during the exterior inspection include the building dimensions, information about exterior-related items, and damage information (e.g. exterior depth of flooding). After recording the basic data, the inspector should estimate the structure area and perform an exterior inspection by walking around the entire exterior of the structure. The field inspector should evaluate the exterior elements of residential and non-residential structures to estimate the percent damage of each exterior element including:

- Roof damage;
- Foundation damage;
- Post, pier, or column damage; and
- Exterior wall damage.

Interior Inspections

When inspecting a residential building, field inspectors need to remember ATALL TIMES that they are inside someone's home or when inspecting non-residential buildings, that they are on someone's property. Field Inspectors should always verify that they have permission to enter the property. Appropriate care and respect for the structure and contents should be demonstrated during the inspections. The inspection team should evaluate the interior construction elements for damage including:

- Interior finish;
- Doors and windows;
- Cabinets and countertops;
- Floor finish;
- Plumbing;
- Electrical;
- Built-in appliances; and
- HVAC.

SDE Determinations

When the field inspection is complete and the percent damage of all elements (exterior and interior) have been estimated and entered into the SDE tool, the SDE determination is made by the SDE tool. If necessary, users may edit and/or revise data for any data fields in the assessment. Once the assessment has been reviewed for quality assurance/quality control by a field inspection team lead and/or supervisor, the assessments can be considered final.

Residential

SDE DAMAGE INSPECTION WORKSHEET

Single-Family, Town or Row House (Site Built Residences), or Manufactured House

Address: _____

SDE ADDRESS Tab

Subdivision Information

Subdivision: _____ Parcel Number: _____

Lot Number: _____ Elevation of Lowest Floor: _____ Datum: _____

Community Information

NFIP Community ID: _____ NFIP Community Name: _____

Latitude: _____ Longitude: _____

Building Address

Owner First Name: _____ Owner Last Name: _____

Street Number: _____ Street Name: _____ Street Suffix: _____

City: _____ State: _____

County: _____ Zip: _____

Phone: _____ Cell Phone: _____

Mailing Address ***Check here if same as above:*** _____

First Name: _____

Last Name: _____

Street Number: _____ Street Name: _____ Street Suffix: _____

City: _____ State: _____

County: _____ Zip: _____

Phone: _____ Cell Phone: _____

Care of: _____

SDE STRUCTURE / DAMAGE / NFIP INFO Tab

Structure Attributes

Residence Type: ____ Single Family ____ Town or Row House ____ Manufactured House

Foundation: ____ Continuous Wall w/Slab (Standard) ____ Basement ____ Crawlspace

____ Piles ____ Slab-on-Grade ____ Piers and Posts

Superstructure: ____ Stud-Framed (Standard) ____ Common Brick ____ ICF ____ Masonry

Roof Covering: ____ Shingles – Asphalt, Wood (Standard) ____ Clay Tile ____ Standing Seam (Metal)

____ Slate

Exterior Finish: ____ Siding or Stucco (Standard) ____ Brick Veneer ____ EIFS

____ None – common brick, structural

HVAC System: ____ Heating and/or Cooling ____ None

Story: ____ One Story (Standard) ____ Two or More Stories

Structure Information

Year of Construction: _____

Quality of Construction: ____ Low ____ Budget ____ Average ____ Good ____ Excellent

Residence Information (if needed): _____

_____

_____

Damage Information

Date Damage Occurred (mm/dd/yyyy): _____

Cause of Damage: ____ Fire ____ Flood ____ Flood and Wind ____ Seismic ____ Wind ____ Other

Cause of Damage (if "Other" is selected): _____

No Physical Damage (check here if none): _____

Duration of Flood: _____ Hours _____ Days

SDE STRUCTURE / DAMAGE / NFIP INFO Tab

Depth of Flood Above Ground (estimated to nearest 0.5 foot): _____

Depth of Flood Above First Floor (estimated to nearest 0.5 foot): _____

Inspector Information:

Inspector's Name: _____

Inspector's Phone: _____ Date of Inspection (mm/dd/yyyy): _____

NFIP Information

FIRM Panel Number: _____ Suffix: _____ Date of FIRM Panel (mm/dd/yyyy): _____

FIRM Zone: _____ Base Flood Elevation: _____

Regulatory Floodway: ___ Yes ___ No ___ Possible

Community Information *(if needed):* _____

_____

_____

_____

_____

_____

COST Tab

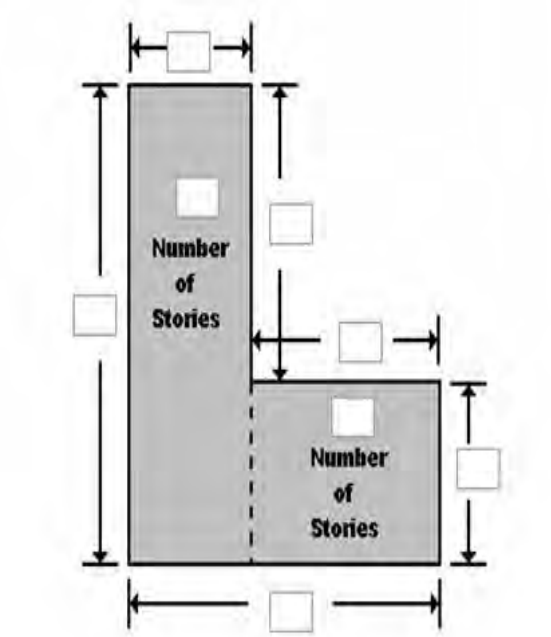
Square Footage

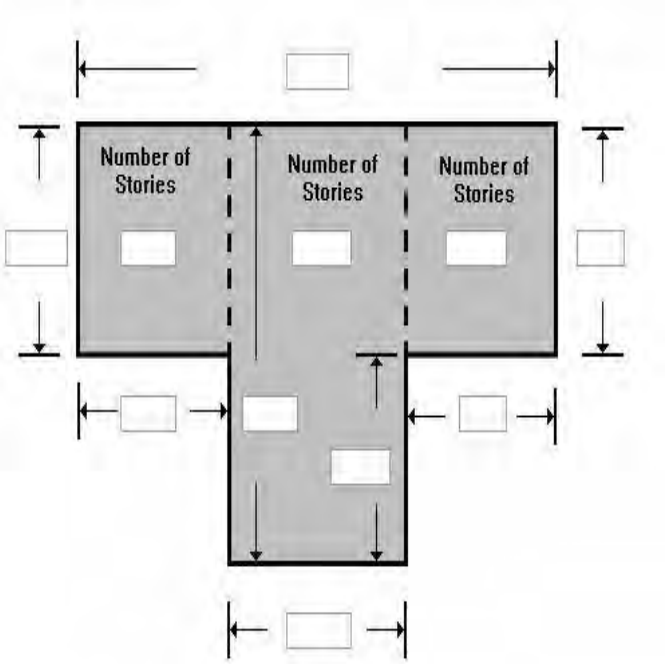
Calculate (on next page) or Enter Square Footage

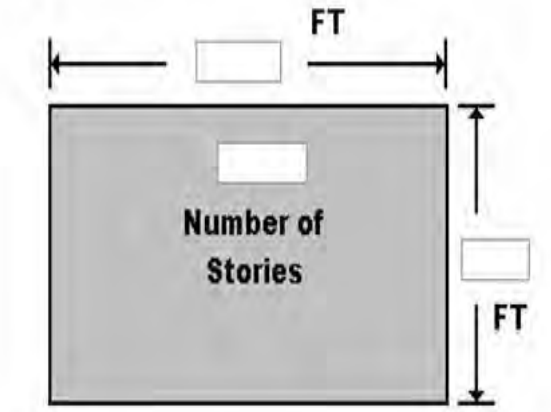
Total Square Footage (if available): _____

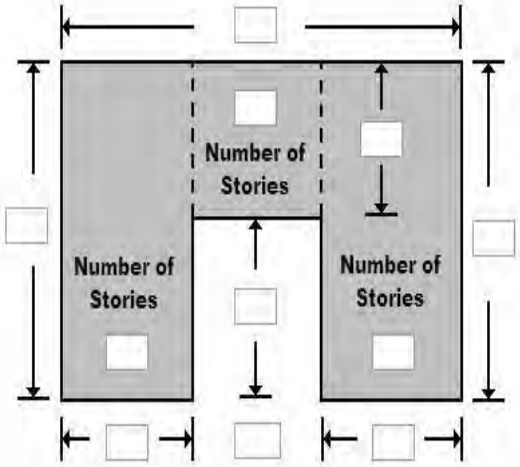
COST Tab

Select appropriate diagram of structure footprint and enter structure dimensions and the number of stories:









COST Tab

Base Cost per Sq Ft: _____ Geographic Adjustment: _____

Adjustments

Single-Family House	**Quantity**	**Units**	**Unit Cost**	**Item Cost**
Roofing		Sq Ft		
Heating / Cooling		Each		
Appliances		Each		
Fireplaces		Each		
Porch / Breezeways		Sq Ft		
Garage		Sq Ft		
Manufactured House	**Quantity**	**Units**	**Unit Cost**	**Item Cost**
Expando		Sq Ft		
Carport		Sq Ft		
Open Porch		Sq Ft		
Enclosed Porch		Sq Ft		
Decks		Each		
Skirting		Sq Ft		
Fireplaces		Each		

COST Tab

Additional Adjustments

Adjustments	Quantity	Unit Cost	Item Cost

Cost Data Reference (source or name): _____

_____

_____

Cost Data Date: _____

Depreciation Rating:

____ 1. Very Poor Condition ___ 2. Requires Extensive Repairs ___ 3. Requires Some Repairs

____ 4. Average Condition ____ 5. Above Average Condition ____ 6. Excellent Condition ___ 7. Other

Depreciation Percentage (if 'Other' selected for Depreciation Rating): _____

Depreciation Explanation (if 'Other' selected for Depreciation Rating*):* _____

_____

_____

_____

_____

_____

ELEMENT PERCENTAGES Tab

Element Percentages

Residence Type: ____ Single-Family **(SF)** House ____ Manufactured House **(MH)**

Item	% Damaged	Element %	Item Cost	Damage Values
Foundation **(SF only)**				
Superstructure				
Roof Covering				
Exterior Finish				
Interior Finish				
Doors and Windows				
Cabinets and Countertops				
Flood Finish				
Plumbing				
Electrical				
Appliances				
HVAC				
Skirting / Forms Piers **(MH only)**				

SDE OUTPUT SUMMARY Tab - *Optional User Entered Data*

Professional Market Appraisal: _____

Tax Assessed Value: _____ Factor Adjustment: ___ Adjusted Tax Assessed Value: _____

Contractor's Estimate of Damage: _____

Community's Estimate of Damage: _____

Sample Rapid Depth-Damage Field Estimate (RIVERINE)

The Rapid Depth-Damage Field Estimate method captures essential information to make substantial damage determinations for flood-related damages. The substantial damage determinations are based upon USACE published Generic Depth-Damage Relationships:

http://corpsnedmanuals.us/FloodDamageReduction/FDRID022DamageDpthRel.asp?ID=22

The Rapid Depth-Damage Field Estimate method allows a community to quickly separate flood-damaged structures into three groups:

- Clearly non-substantial damage (less than 40%)
- Clearly substantial damage (greater than 50%), and
- Uncertain whether substantial damage (40-50%)

Structures within these categories should be addressed as follows:

Clearly non-substantial damage (less than 40%)

- Structure is non-substantially damaged, no building protection requirements apply, obtain local permit.
- Note, construction requirements within the floodway may vary based on local flood damage prevention ordinance.

Uncertain whether substantial damage (40-50%)

- Compare the structure's pre-damage value to the cost of repair.
- If repair costs are less than 50% of the value of the structure, then the structure is non-substantially damaged.
- If repair costs equal or exceed 50% of the value of the structure, then the structure is substantially damaged.
- Note, your local flood damage prevention ordinance may have more restrictive regulations than 50%.

Clearly substantial damage (greater than 50%)

- Substantially Damaged structures must be brought into compliance with the current local flood damage prevention ordinance requirements.
- Obtain local permit and meet building protection requirements of the local flood damage prevention ordinance.

A Rapid Depth-Damage Field Estimate worksheet (see next page) should be completed for each structure, indicating the depth (in feet) of floodwaters. This method requires an actual measurement of flood depth based on visual watermarks and/or observed flood damage to the structure. A photo of each structure should also be taken to accompany the worksheet. This helps identify the structure and document the condition of the structure.

There may be occasion when obvious structural damage has occurred or poor condition of the existing home may be such that even the lesser depths of flood water appear to have caused great damage. This should be noted on the Rapid Depth- Damage Field Estimate worksheet. If uncertain whether substantial damage has occurred, additional improvements and/or additions are proposed, or there is a dispute regarding a damage assessment, more information will be required in order to accurately determine whether or not the structure is substantially damaged.

While documenting the damage, the Floodplain Administrator and/or other authorized staff may also wish to leave a notice to advise the owner that an initial damage assessment has been done and include instructions on the repair/reconstruction and permit process. A sample door tag is provided following the sample Rapid Depth-Damage Field Estimate worksheet.

Note: The rapid depth-damage estimate is recommended for riverine flooding events only due to the use of the USACE generic depth-damage relationships. The depth-damage relationships were developed based on the premise that water depth, and its relationship to structure elevation, is the most important variable in determining the expected value of damage to buildings. Similar properties, constructed, furnished, and maintained alike, and exposed to the same flood stages and forces, may be assumed to incur damages of similar magnitudes or proportion to actual values. However, for coastal storm events, a very large percentage of damages are related to erosion (i.e., undermining of structures) and/or wave forces rather than actual inundation of structures, and often discontinuous or stepwise depth-damage relationships are more indicative of the actual damage potential.

DEPTH DAMAGE FIELD ESTIMATE

(jurisdiction) (County)

(owner or renter) Spoken to? Yes / No (phone)

(street address) (PO Community) IN (zip)

DATE OF INSPECTION	DATE OF CONSTRUCTION	FIRM PANEL	SOURCE OF DAMAGE	DURATION OF FLOODING	TIME OF INSPECTIO
/ /	/ /		Flood	/ /	M.

Structure located in: Floodway | Flood Fringe | Floodway/Flood Fringe Limits Not Determined | Outside Identified Floodplain

TYPE OF STRUCTURE:		ONE STORY		TWO OR MORE		SPLIT LEVEL		MANUFACTURED HOME	
Does structure have a basement?	Depth in feet to LAG	Yes	No	Yes	No	Yes	No	Yes	No
Structures with damages of ≥ 50% require use of Post-FIRM flood protection standards.	16	81.1%	80.7%	76.4%	69.2%	69.3%	84.4%	SD	SD
	15	81.1%	80.2%	76.4%	67.7%	69.3%	83.8%	SD	SD
	14	81.1%	79.5%	75.4%	65.9%	69.3%	81.7%	SD	SD
	13	81.1%	78.5%	73.7%	63.8%	69.3%	78.4%	SD	SD
	12	81.1%	77.2%	71.4%	61.4%	68.8%	73.9%	SD	SD
	11	81.1%	75.4%	68.4%	58.7%	67.2%	68.6%	SD	SD
	10	80.1%	73.2%	64.8%	55.7%	64.8%	62.6%	SD	SD
	9	77.7%	70.5%	60.8%	52.4%	61.6%	56.1%	SD	SD
Structures with damage estimates between 40% & 50% require further information to determine which flood protection standards apply.	8	74.2%	67.2%	56.4%	48.8%	57.8%	49.2%	SD	SD
	7	69.8%	63.2%	51.8%	44.9%	53.5%	42.3%	SD	SD
	6	64.5%	58.6%	46.9%	40.7%	48.6%	35.5%	SD	SD
	5	58.6%	53.2%	41.9%	36.2%	43.8%	28.9%	SD	SD
	4	52.2%	47.1%	36.9%	31.4%	38.6%	22.8%	SD	SD
	3	45.5%	40.1%	31.9%	26.3%	33.4%	17.4%		
	2	38.7%	32.1%	27.0%	20.9%	28.2%	12.9%		
	1	32.0%	23.3%	22.3%	15.2%	23.2%	9.4%		
Post-FIRM flood protection standards may be used to repair structures with damages of <50% but are not required.	0	25.5%	13.4%	17.9%	9.3%	18.5%	7.2%		
	-1	19.4%	2.5%	13.9%	3.0%	14.2%	6.4%		
	-2	13.8%	0.0%	10.2%	0.0%	10.4%	0.0%		
	-3	9.0%		7.2%		7.2%			
	-4	5.2%		4.7%		4.7%			
	-5	2.4%		2.9%		3.1%			
	-6	0.8%		1.9%		2.5%			
	-7	0.7%		1.7%					
	-8	0.0%		1.7%					

Notes

For help with completing and using this form, see explanatory notes on reverse.

INSPECTED BY: (name/telephone)

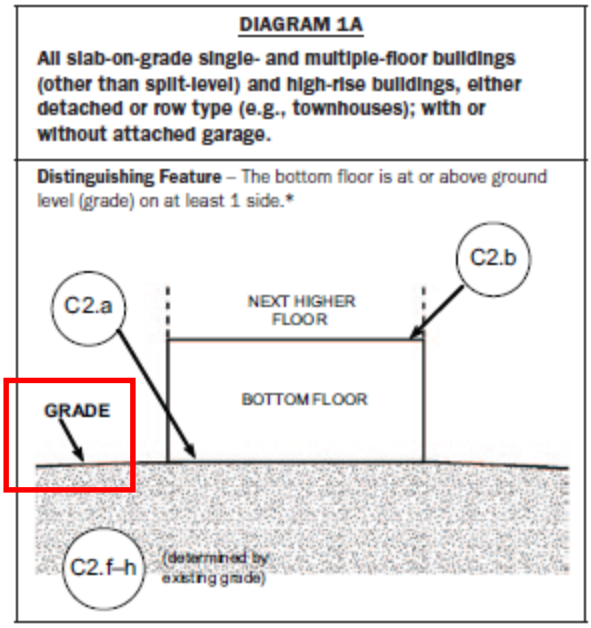
Posted (Yes / No) / / as: | INITIAL FIRM DATE | Rev

Reference: *Post-Flood Guidance for Local Floodplain Administrators*, Indiana Department of Natural Resources, Division of Water, Oct. 2008

Additional Instructions for the Rapid Depth-Damage Field Estimate Worksheet:

1. **JURISDICTION:** Since a property's mailing address (*e.g., Post Office Community*) is not always the same as jurisdiction, enter the correct information for each structure.
2. **SOURCE OF DAMAGE** indicates whether the damage was the result of flood, fire, wind, etc. or a combination of sources. Use the RAPID DEPTH-DAMAGE FIELD ESTIMATE worksheet for flood-related damages.
3. **DATE OF INITIAL FIRM** refers to the community's Flood Insurance Rate Map (FIRM). The initial date indicates when the flood area was first identified by FEMA. A building constructed before this initial FIRM date (i.e., pre-FIRM) that is substantially damaged—from any source—(and/or improved), must be brought into compliance with your Post-FIRM standards.
4. **FIRM PANEL**: Communities may have multiple panels. The panel number is found below the map title.
5. The **DEPTH IN FEET TO LOWEST ADJACENT GRADE (LAG)** refers to the level of the flood water. The table uses -8 feet as the basement floor level, so a depth of -6 feet results from 2 feet of floodwater in a basement. Round depths to the nearest whole foot.
6. Property owners with structures that have damages in the 40% (shaded on table) should be asked for documentation of damage and repairs to ensure that the structure is not substantially damaged.
7. For a structure with a compliant **Enclosure Below Lowest Floor** (see diagrams 7, 8, and 9) use lowest floor instead of lowest adjacent grade to measure depth of flooding. Compliant enclosures must have openings.
8. **Manufactured Homes** are not included in the USACE depth-damage tables; consider a floodwater depth of one foot above the lowest floor to indicate substantial damage.
9. Local Floodplain Official must give property owners **written notice** that their structure has been determined to be substantially damaged along with instructions to comply with local permit requirements.

Examples for locating Lowest Adjacent Grade (LAG) utilizing FEMA's *Elevation Certificate and Instructions, 2012 Edition*



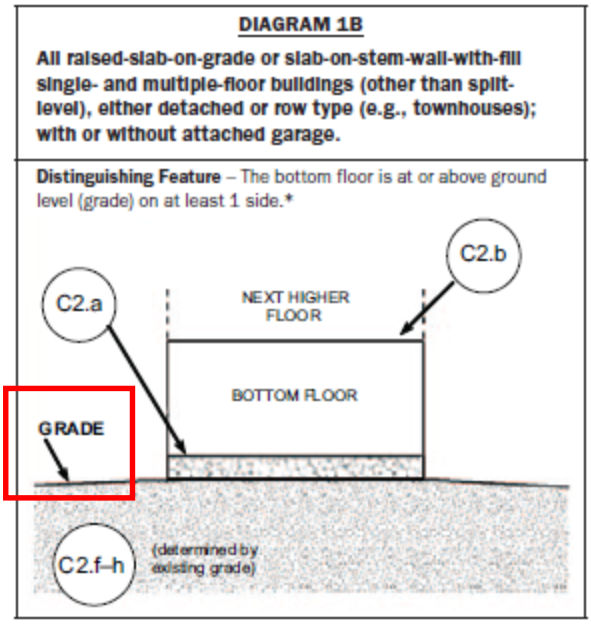


DIAGRAM 2

All single- and multiple-floor buildings with basement (other than split-level) and high-rise buildings with basement, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides.*

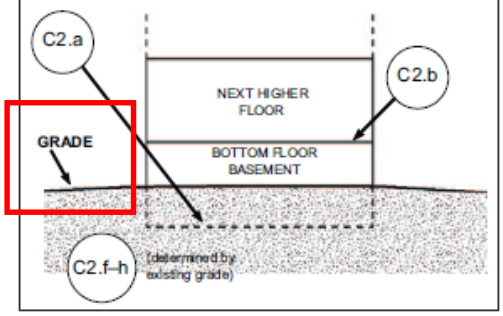


DIAGRAM 3

All split-level buildings that are slab-on-grade, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (excluding garage) is at or above ground level (grade) on at least 1 side.*

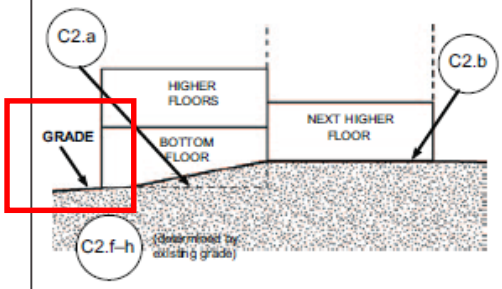


DIAGRAM 4

All split-level buildings (other than slab-on-grade), either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides.*

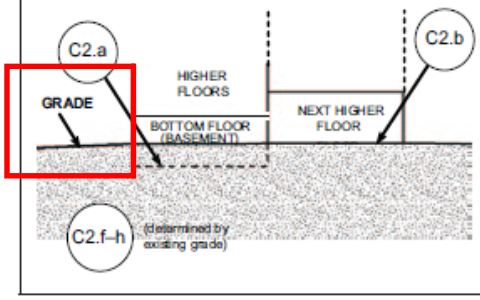


DIAGRAM 7

All buildings elevated on full-story foundation walls with a partially or fully enclosed area below the elevated floor. This includes walkout levels, where at least 1 side is at or above grade. The principal use of this building is located in the elevated floors of the building.

Distinguishing Feature – For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings** present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A – Property Information.

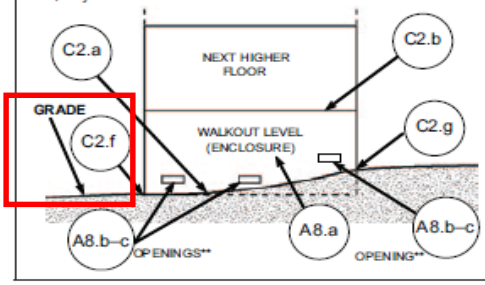


DIAGRAM 8

All buildings elevated on a crawlspace with the floor of the crawlspace at or above grade on at least 1 side, with or without an attached garage.

Distinguishing Feature – For all zones, the area below the first floor is enclosed by solid or partial perimeter walls. In all A zones, the crawlspace is with or without openings** present in the walls of the crawlspace. Indicate information about crawlspace size and openings in Section A – Property Information.

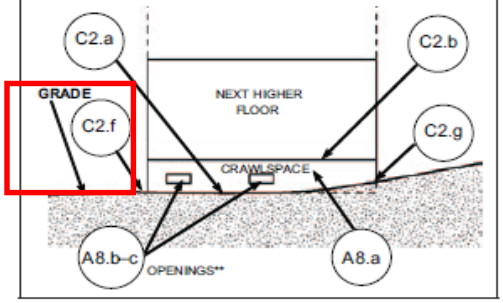
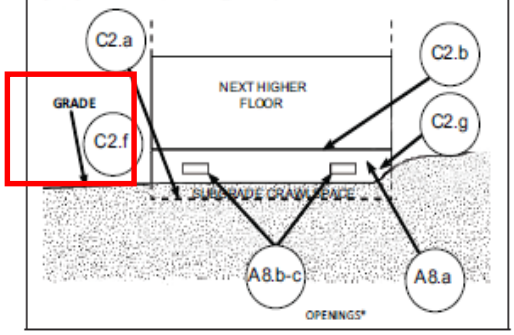


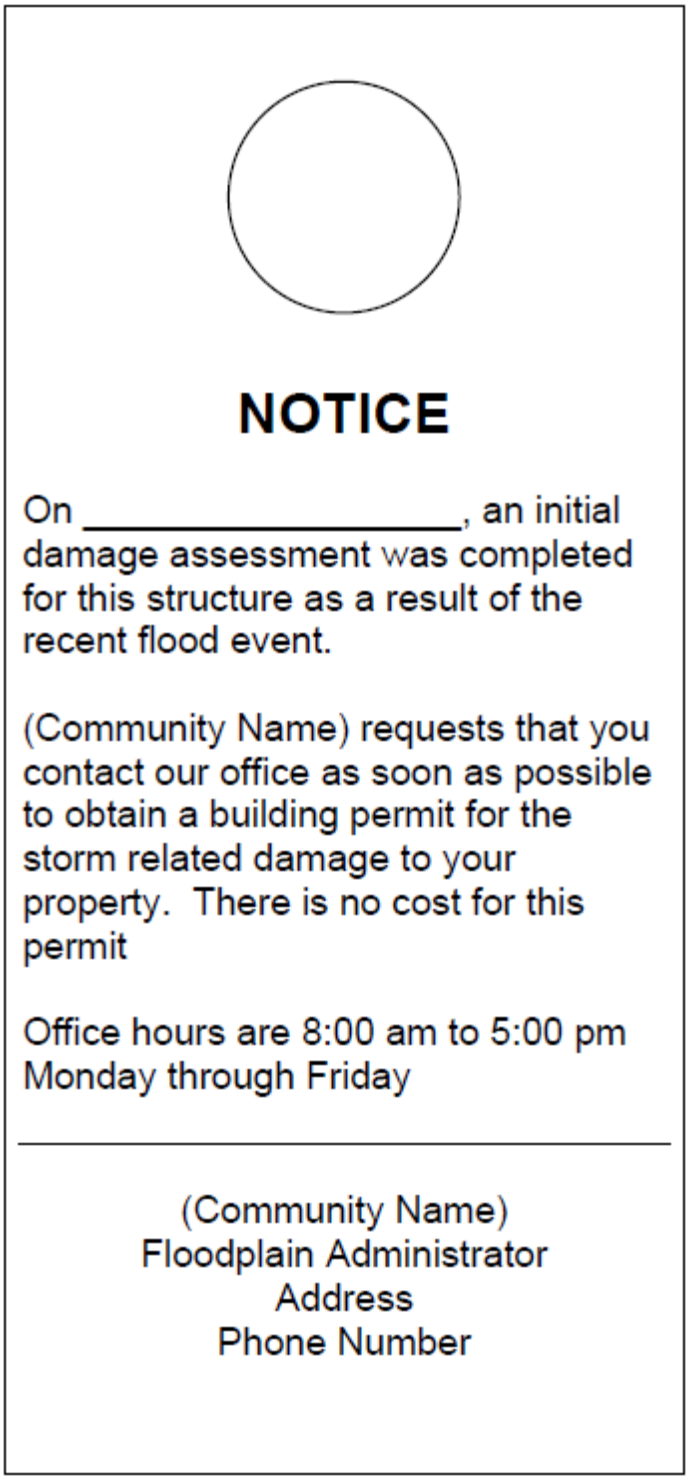
DIAGRAM 9

All buildings (other than split-level) elevated on a sub-grade crawlspace, with or without attached garage.

Distinguishing Feature – The bottom (crawlspace) floor is below ground level (grade) on all sides.* (If the distance from the crawlspace floor to the top of the next higher floor is more than 5 feet, or the crawlspace floor is more than 2 feet below the grade [LAG] on all sides, use Diagram 2.)



Sample Door Tag:



NOTICE

On _____, an initial damage assessment was completed for this structure as a result of the recent flood event.

(Community Name) requests that you contact our office as soon as possible to obtain a building permit for the storm related damage to your property. There is no cost for this permit

Office hours are 8:00 am to 5:00 pm Monday through Friday

(Community Name)
Floodplain Administrator
Address
Phone Number

ATC-45 Placard Information

The ATC-45 *Field Manual: Safety Evaluation of Buildings after Wind Storms and Floods* is intended to be used by building officials, building inspectors, engineers, and others involved in post-disaster safety evaluation of building types commonly found in the United States. The *Field Manual* explains three different building safety evaluation procedures. Two of the procedures (Rapid Evaluation and Detailed Evaluation) are discussed in detail. For each of these procedures, the document provides guidance on where to look for damage.

The ATC-45 *Field Manual* has been printed in an easy-to-use, pocket-sized format. The document can be obtained from the Applied Technology Council, 201 Redwood Shores Parkway, Suite 240, Redwood City, California 94065 (phone, 650/595-1542; fax, 650/593-2320; e-mail, ATC@ATCouncil.org).

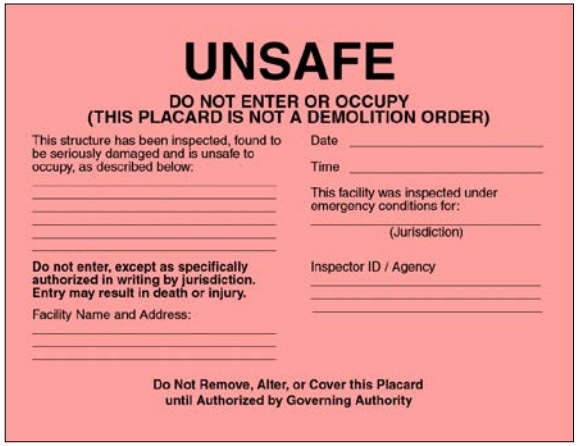
Available for immediate download in PDF format are the following ATC-45 placards and safety assessment forms:

- ATC-45 Rapid Evaluation Safety Assessment Form
- ATC-45 Detailed Evaluation Safety Assessment Form
- ATC-45 Fixed Equipment Checklist
- ATC-45 UNSAFE Posting Placard
  (print on red cardstock)
- ATC-45 RESTRICTED USE Posting Placard
  (print on yellow cardstock)
- ATC-45 INSPECTED Posting Placard
  (print on green cardstock)
- ATC-45 Appendix E: Guidelines for Owners and Occupants of Damaged Buildings

These documents are available here:

https://www.atcouncil.org/index.php?option=com_content&view=article&id=182%3Aatc-45-placards&catid=45%3Adownloads&Itemid=1

The Rapid and Detailed Evaluation Safety Assessment Forms are provided on the following pages.



ATC-45 Rapid Evaluation Safety Assessment Form

Inspection

Inspector ID: _____ Inspection date: _____

Affiliation: _____ Inspection time: _____ ☐ AM ☐ PM

Areas inspected: ☐ Exterior only ☐ Exterior and interior

Building Description

Building name: _____

Address: _____

_____

Building contact/phone: _____

Number of stories: _____

"Footprint area" (square feet): _____

Number of residential units: _____

Type of Building

☐ Mid-rise or high-rise ☐ Pre-fabricated

☐ Low-rise multi-family ☐ One- or two-family dwelling

☐ Low-rise commercial

Primary Occupancy

☐ Dwelling ☐ Commercial ☐ Government

☐ Other residential ☐ Offices ☐ Historic

☐ Public assembly ☐ Industrial ☐ School

☐ Emergency services ☐ Other: _____

Evaluation

Investigate the building for the conditions below and check the appropriate column.

Observed Conditions:	Minor/None	Moderate	Severe
Collapse, partial collapse, or building off foundation	☐	☐	☐
Building significantly out of plumb or in danger	☐	☐	☐
Damage to primary structural members, racking of walls	☐	☐	☐
Falling hazard due to nonstructural damage	☐	☐	☐
Geotechnical hazard, scour, erosion, slope failure, etc.	☐	☐	☐
Electrical lines / fixtures submerged / leaning trees	☐	☐	☐
Other (specify) _____	☐	☐	☐

Estimated Building Damage
(excluding contents)

☐ None
☐ > 0 to < 1%
☐ 1 to < 10%
☐ 10 to < 30%
☐ 30 to < 70%
☐ 70 to < 100%
☐ 100%

☐ See back of form for further comments.

Posting

Choose a posting based on the evaluation and team judgment. Severe conditions endangering the overall building are grounds for an Unsafe posting. Localized Severe and overall Moderate conditions may allow a Restricted Use posting.

☐ **INSPECTED** (Green placard) ☐ **RESTRICTED USE** (Yellow placard) ☐ **UNSAFE** (Red placard)

Record any use and entry restrictions exactly as written on placard: _____

_____

_____

Number of residential units vacated: _____

Further Actions

Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

_____

☐ Detailed Evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other: _____

☐ Substantial Damage determination recommended

☐ Other recommendations: _____

_____

☐ See back of form for further comments.

ATC-45 Detailed Evaluation Safety Assessment Form

Inspection

Inspector ID: _____ Inspection date: _____

Affiliation: _____ Inspection time: _____ ☐ AM ☐ PM

Final Posting
from page 2

- ☐ Inspected
- ☐ Restricted Use
- ☐ Unsafe

Building Description

Building name: _____

Address: _____

_____

Building contact/phone: _____

Number of stories: _____

"Footprint area" (square feet): _____

Number of residential units: _____

Type of Building

- ☐ Mid-rise or High-rise
- ☐ Low-rise multi-family
- ☐ Low-rise commercial
- ☐ Pre-fabricated
- ☐ One- or two-family dwelling
- ☐ Other: _____

Primary Occupancy

- ☐ Dwelling
- ☐ Other residential
- ☐ Public assembly
- ☐ Emergency services
- ☐ Commercial
- ☐ Offices
- ☐ Industrial
- ☐ Other: _____
- ☐ Government
- ☐ Historic
- ☐ School

Evaluation

Investigate the building for the conditions below and check the appropriate column. There is room on the second page for a sketch.

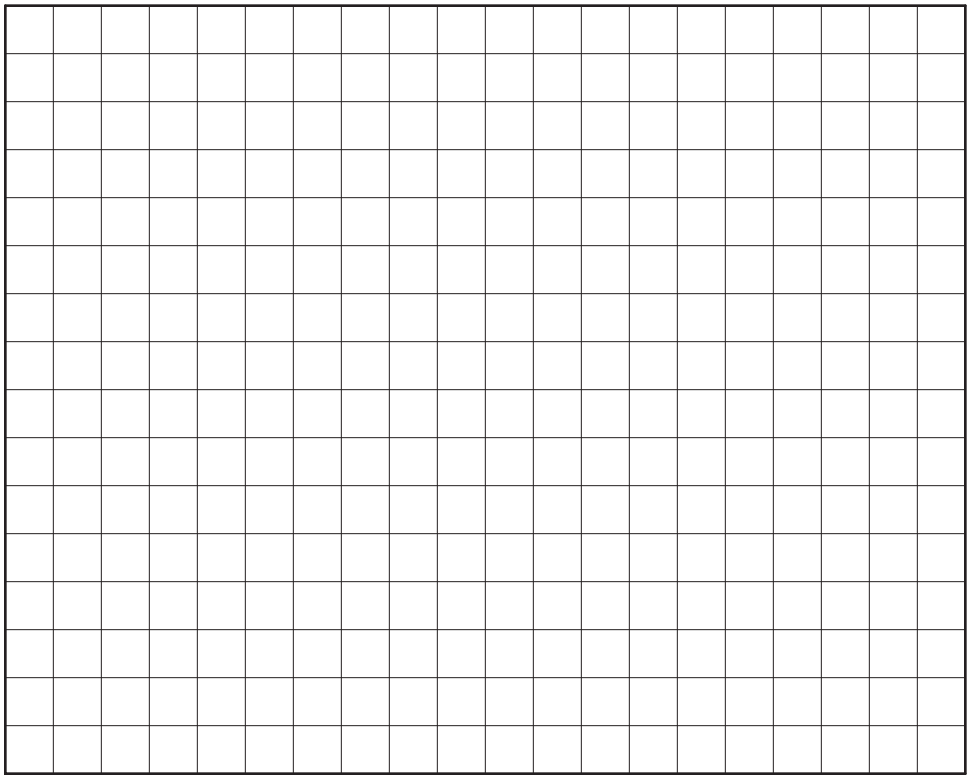
	Minor/None	Moderate	Severe	Comments
Overall hazards:				
Collapse or partial collapse	☐	☐	☐	_____
Building or story lean or drift	☐	☐	☐	_____
Fractured or displaced foundation	☐	☐	☐	_____
Structural hazards:				
Failure of significant element/connection	☐	☐	☐	_____
Column, pier, or bearing wall	☐	☐	☐	_____
Roof/floor framing or connection	☐	☐	☐	_____
Superstructure/foundation connection	☐	☐	☐	_____
Moment frame	☐	☐	☐	_____
Diaphragm/horizontal bracing	☐	☐	☐	_____
Vertical bracing	☐	☐	☐	_____
Shear wall	☐	☐	☐	_____
Nonstructural hazards:				
Parapets, ornamentation	☐	☐	☐	_____
Canopy	☐	☐	☐	_____
Cladding, glazing	☐	☐	☐	_____
Ceilings, light fixtures	☐	☐	☐	_____
Stairs, exits, access walkways, gratings	☐	☐	☐	_____
Interior walls, partitions	☐	☐	☐	_____
Mechanical & electrical equipment	☐	☐	☐	_____
Elevators	☐	☐	☐	_____
Building contents, other _____	☐	☐	☐	_____
Geotechnical hazards:				
Slope failure, debris impact	☐	☐	☐	_____
Ground movement, erosion, sedimentation	☐	☐	☐	_____
Differential settlement	☐	☐	☐	_____

Continue on page 2

Building name: _____ Inspector ID: _____

Sketch

Make a sketch of the damaged building in the space provided. Indicate damage points.



Estimated Building Damage
(excluding contents)

- ☐ None
- ☐ > 0 to < 1%
- ☐ 1 to < 10%
- ☐ 10 to < 30%
- ☐ 30 to < 70%
- ☐ 70 to < 100%
- ☐ 100%

Posting

If there is an existing posting from a previous evaluation, check the appropriate box.

Previous posting: ☐ INSPECTED ☐ RESTRICTED USE ☐ UNSAFE Inspector ID: _____ Date: _____

If necessary, revise the posting based on the new evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an Unsafe posting. Local *Severe* and overall *Moderate* conditions may allow a Restricted Use posting. Indicate the current posting below and at the top of page one, whether the posting has been revised or not.

☐ **INSPECTED** (Green placard) ☐ **RESTRICTED USE** (Yellow placard) ☐ **UNSAFE** (Red placard)

Record any use and entry restrictions exactly as written on placard: _____

_____

Number of residential units vacated: _____

Further Actions

Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

_____

☐ Engineering Evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other _____

☐ Substantial Damage determination recommended

☐ Other recommendations: _____

_____

Recommended Public Information Flyers

FloodSmart – Flood Outreach Toolkit

www.floodsmart.gov/toolkits/flood/index.htm

The National Flood Insurance Program (NFIP) developed the *Flood Outreach Toolkit* to assist the local Floodplain Administrator educate and inform communities and citizens about the importance of flood insurance coverage.

The toolkit provides resources to help the audiences you connect with on a regular basis—community members and the media—understand the importance of flood preparedness and protection. The suite of materials includes fact sheets, brochures and talking points that are indicated as either 1) resource material for the local Floodplain Administrator or 2) outreach materials for distribution to the public and the media. Documents available for "After a Flood Disaster" include:

Materials for Floodplain Administrator

- Flood Insurance 101
- Flood Maps
- ICC
- After the Flood

Materials for the Public

- After the Flood
- NFIP Flood Insurance Claims Handbook
- Appealing Your Flood Insurance Claim
- Consumer Brochure Managing Your Flood Insurance Claim

Documents available for general Flood Insurance 101 include:

Materials for Floodplain Administrator

- FloodSmart Campaign
- Flood Insurance: How It Works
- Flood Facts: Flood Risks Across the Country
- NFIP: Flood Insurance and Flood Maps
- Facts and Figures
- Answers to Tough Questions

Materials for the Public

- NFIP Summary of Coverage
- Consumer Brochure: Why You Need Flood Insurance
- Consumer Brochure: Flood Preparation and Safety
- Contents Only Coverage
- Map Change Effects on Insurance

Public Outreach Materials from ADECA OWR

The ADECA OWR Floodplain Management website provides a wide variety of resources, forms and links. These include information regarding:

- National Flood Insurance Program
  - NFIP Community Participation Resources
  - Biggert-Waters Flood Insurance Reform Act of 2012
  - NFIP Flood Insurance Guidance Fact Sheets
- Floodplain Mapping
- Forms
- Coastal Mapping Update
- FEMA Pamphlets
- Training
- Links to Other Agencies

For more information, visit
www.adeca.alabama.gov/Divisions/owr/floodplain

FEMA – Substantial Improvement/Substantial Damage Desk Reference

www.fema.gov/media-library/assets/documents/18562?id=4160

This *Substantial Improvement/Substantial Damage (SI/SD) Desk Reference* was prepared by FEMA to provide practical guidance and suggested procedures to implement the NFIP requirements for SI/SD. The desk reference includes the following sample documents for the local Floodplain Administrator:

Sample Notices to Property Owners, Sample Affidavits, and Other Material

- Sample Substantial Improvement/Damage Notice to Property Owners, Contractors, and Design Professionals
- Requirements for Applications for Permits for Substantial Improvements and Repair of Substantial Damage
- Costs for Substantial Improvements and Repair of Substantial Damage
- Owner's Affidavit: Substantial Improvement or Repair of Substantial Damage
- Contractor's Affidavit: Substantial Improvement or Repair of Substantial Damage
- Substantial Improvement Worksheet for Floodplain Construction
- Adjuster Preliminary Damage Assessment (FEMA Form 81-09)

Sample Letters of Determination

- Letter to Notify Property Owners of a Determination That Work Constitutes Substantial Improvement
- Letter to Notify Property Owners of a Determination That Work Constitutes Repair of Substantial Damage
- Letter to Notify Property Owners of a Determination That Work Does NOT Constitute Repair of Substantial Damage

The process for a major disaster declaration is summarized as follows:

Step 1. Local government responds to the emergency or disaster supplemented by neighboring communities and volunteer agencies. If the local government is overwhelmed, the county Emergency Management Agency requests an Emergency Declaration from the county commissioners declaring a state of disaster emergency and requesting state assistance.

Step 2. AEMA responds with state resources, such as the National Guard and other state agencies. If these resources are overwhelmed, then AEMA requests assistance from the Federal Emergency Management Agency (FEMA).

Step 3. A damage assessment is performed by a Joint Preliminary Damage Assessment team composed of local, state, and federal agencies to determine losses and recovery needs.

Step 4. A Major Disaster Declaration is requested by the Governor, based on the impact assessment, along with an agreement to commit state funds and resources to long-term recovery.

Step 5. FEMA evaluates the request and recommends action to the White House based on the disaster, the local community and the state's ability to recover.

Step 6. The President considers the request and FEMA informs the Governor whether it has been approved or denied. This decision process could take a few hours to several weeks depending on the nature of the disaster.

Presidential Major Disaster Declaration Assistance

After a Presidential major disaster declaration has been made, FEMA will designate the area eligible for assistance and announce the array of Federal programs available to assist in the response and recovery effort. Not all programs, however, are activated for every disaster. The determination of which programs are activated is based on the needs found during the damage assessment and any subsequent information that may be discovered. These programs include:

- **Individual Assistance (IA)** - financial or direct assistance to individuals and families whose property has been damaged or destroyed as a result of a federally-declared disaster, and whose losses are not covered by insurance.

- **Public Assistance (PA)** - supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.

Prepared by:
AMEC Environment & Infrastructure, Inc.
3800 Ezell Road, Suite 100
Nashville, TN 37211

Alabama
Post-Flood Recovery Guide for Elected Officials

Regardless of community size or the nature of a disaster, local government leaders are responsible for overseeing all four p+9hases of emergency management—preparedness, response, recovery, and mitigation. Most agree that a key factor in recovering from any disaster is effective local leadership. As an elected official, your decisions and actions will influence all sectors of your community: local government, citizens, private sector, voluntary organizations, and the media. It is your duty to act in the best interest of your constituents and your community as a whole. In the emotion-filled response and aftermath of a flood or hurricane event, actions that will lead to a successful long-term recovery may not seem obvious. The key to successful long-term recovery is purposeful consideration of the eventual impact that activities in all phases of emergency management will have on the recovery of your community.

The Alabama Department of Economic and Community Affairs (ADECA), Office of Water Resources (OWR), with assistance from AMEC Environment & Infrastructure, Inc., developed an Alabama-specific "Post-Flood Recovery Guidebook" for local Floodplain Administrators. The purpose of the Floodplain Administrator's Guidebook is to assist communities in: responding to a flood or hurricane event, enforcing the National Flood Insurance Program (NFIP) requirements for rebuilding efforts, and outlining suitable disaster recovery measures that will help reduce future flood damages.

This companion Elected Officials' Guide is a quick-reference resource for elected officials of floodprone communities to highlight specific activities of elected officials in all four phases of emergency management that will lead to successful long-term recovery following flood and hurricane events.

Preparedness

During an event, elected officials will be called on to make important decisions. Involvement in preparedness activities by elected officials is necessary to bring about understanding required for effective decision-making.

- Be familiar with flood risk areas—coordinate with your Floodplain Administrator to understand what areas of the community are prone to flooding, including the number of vulnerable residents and specific businesses and critical facilities at risk.
- Understand your community's floodplain management ordinance—all communities that participate in the National Flood Insurance Program (NFIP) must adopt and enforce floodplain management regulations that meet or exceed minimum NFIP standards. The ordinance provides requirements for any development that occurs in floodplain areas as well as requirements that become relevant after a structure in the floodplain is damaged more than 50% (substantially damaged).
- Understand your community's flood warning capabilities and your role in decisions such as evacuation orders, road closures, sand-bagging, and/or moving contents above flood levels.
- Understand flood preparedness, response, recovery, and mitigation roles in your community—various departments within your community will have specific roles (i.e. Emergency Management, Public Works, Building Permit Office, Community Development, Fire Department, Police Department, etc.). Know who does what and when.
- Be familiar with procedures to request assistance—your community may have mutual aid agreements established with neighboring communities. If a disaster is beyond local capabilities, a local disaster emergency can be declared and State assistance can be requested. Elected officials should establish rapport with mutual aid partners and County Emergency Management Officials as well as understand the procedures to initiate a timely request (see step by step procedures on back of guide).
- Help coordinate/support local government activities to communicate flood risk to citizens.
- Participate in disaster response training and exercises—since elected officials will most definitely be involved in real events, it is crucial that you participate in training and exercises in advance of a real event. This includes familiarity with your Community Emergency Response Plan.
- Be prepared to talk to the media—elected officials are often asked to be the voice of the community's response and recovery efforts. It is a good idea to establish rapport with media outlets in advance as well as determine general types of information that will be released to the media.

Response

The recovery process begins even before the response phase is complete because decisions made while responding to the emergency can affect the recovery process

- Be involved in decisions to control access to flood impacted areas—these decisions are not always popular with residents of impacted areas. However, for the safety of the citizens and first responders access may need to be limited.
- Elected officials may be called on to assist in prioritization on response efforts. In this phase, the focus is first on life-safety, then protection of property and the environment.
- Coordinate with your Floodplain Administrator to be familiar with any impact assessments made in the flooded area.
- If a joint Preliminary Damage Assessment is warranted, be aware of the agencies involved and the steps for submitting the damage assessments.
- Fulfill your duties as outlined in your Community Emergency Response Plan, including your role in the Local Emergency Operations Center, if activated.
- If local response capabilities are overwhelmed, coordinate with the County Emergency Management Agency to request an Emergency Declaration from the County Commissioners (see step by step procedures on back of guide).
- Coordinate with government departments in your community to ensure staff time and resources are adequately tracked for potential reimbursement
- Be prepared to talk to the media—elected officials are often asked to report on the response activities after an event. This may include information on evacuations, damage assessments conducted, or other response activities.
- Coordinate with the Floodplain Administrator and EOC staff on messages that should be released to the public cautioning them not to repair damages without proper permits.
- The recovery process begins even before the response stage is complete because decisions made while responding to the emergency can affect the recovery process.

Recovery

The plan for recovery should include various phases, i.e., short, medium, and long-term planning. This will allow decision makers to focus time and resources appropriately while establishing clear expectations. Decisions made early on in the recovery phase can have an impact on the community's growth pattern for decades.

- Work with the Floodplain Administrator and the Building Permitting authority to ensure post-disaster reconstruction is done in compliance with your community's floodplain management ordinance.
- Your Floodplain Administrator and Building Permitting office will need your support in explaining to homeowners and business in the special flood hazard area (SFHA) that detailed damage assessments will need to be completed. Those with substantial damage may need to be brought into compliance with the current floodplain management ordinance as a condition of rebuilding.
    - For damaged structures located outside of the SFHA, permits can be issued and repair can proceed.
    - For structures in the SFHA that are clearly not substantially damaged or those determined not substantially damaged after a detailed substantial damage estimation(SDE), permits can be issued at repair at existing elevation can proceed. However, if additional improvements or additions are planned, additional information will need to be provided.
    - For structures that may be substantially damaged, a detailed SDE will need to be completed. If determined substantially damaged or if planned improvements and damage exceed 50% of structure value, structure must be brought into compliance with the minimum requirements of the community's ordinance.
- There may be pressure following a flood event to waive your local permit fees—this decision must be carefully considered, as the cost for your staff, materials, and equipment will also be a heavy burden following the event.
- It may be beneficial to consider a moratorium on construction due to the influx of permit requests and staffing capabilities. Additionally, if acquisition of flood-damaged properties utilizing FEMA Hazard Mitigation Assistance or other funds, a moratorium on construction would allow time to consider this as an alternative to rebuilding.
- Coordinate with the Floodplain Administrator to capture high water marks.

Mitigation

It is never too early to learn from the disaster and mitigate future disasters through thoughtful planning.

- Participate on the Hazard Mitigation Planning Committee charged with developing/updating the community's local hazard mitigation plan. An approved plan is required for jurisdictions to apply for FEMA Hazard Mitigation Assistance Grants. This plan should also be reviewed in light of any new information revealed by the recent event.
- Work with your Floodplain Administrator and others in your community to identify potential new mitigation projects. Ask the question, "Could these damages have been prevented?" If the answer is yes, the solution project might be eligible for funding through FEMA's Hazard Mitigation Assistance Grants.
- Become familiar with grant funding opportunities and requirements to ensure maximum utilization of these grants where applicable.
- Provide support to community staff in preparation of FEMA Hazard Mitigation Assistance grant applications for identified projects. The Hazard Mitigation Branch of the Alabama Emergency Management Agency administers the hazard mitigation assistance grants. Eligible applicants include the state and local governments, certain private-non-profits, and federally recognized Indian tribal governments. While private citizens and businesses cannot apply directly for the grant programs, they can benefit from the programs if they are included in an application sponsored by an eligible applicant.
- According to the 2013 Alabama State Hazard Mitigation Plan, the following flood-related mitigation project activities have been identified as priorities for funding under FEMA Hazard Mitigation Assistance Grants.
    - Elevation;
    - Acquisition;
    - Drainage improvements; and
    - Improved identification of threat through floodplain mapping.
- The post-flood environment may provide opportunities for other types of mitigation funding including: FEMA Public Assistance Section 406 Mitigation, Community Development Block Grants, Small Business Administration Loans, Increased Cost of Compliance coverage, and more. Coordinate with your Floodplain Administrator and local Emergency Manager to determine additional programs that may be available.

C. Mitigation

HMGP Letter of Intent

The purpose of the Letter of Intent (LOI) is to establish your community's interest in the Hazard Mitigation Grant Program (HMGP) and to identify projects that are priority for your jurisdiction to reduce or eliminate future emergency or disaster costs.

HMGP Main Application

The HMGP application is currently submitted as hard-copy only. The original application and one (1) copy should be submitted to AEMA. The application requires application information and project specific information. Information requested includes:

- Local hazard mitigation plan status
- History of hazards/damages in the area to be protected
- Project Description
- Project Location
- Scope of work/budget
- Benefit-Cost Ratio
- Alternative Actions Considered
- Environmental documents
- Maintenance agreement
- Applicants certification
- Historical Review

ALABAMA EMERGENCY MANAGEMENT AGENCY
LETTER OF INTENT
HAZARD MITIGATION GRANT PROGRAM (HMGP)
FEMA-1971-DR

The purpose of this form is to establish your community's interest in the HMGP and to identify projects that are priority for your jurisdiction to reduce or eliminate future emergency or disaster costs.
(This is NOT the Public Assistance permanent repair and restoration program)

NAME/ADDRESS OF JURISDICTION: **BASIS OF ELIGIBILITY:**

_____ _____ **_____ State Gov't ____ Indian Tribe**

_____ **____ Local Gov't ____ Other**

_____ **_____ Special Purpose District**

_____ **_____ Private Non-profit Organization**

COUNTY OF JURISDICTION_____

POINT OF CONTACT_____ PHONE NUMBER_____
EMAIL _____

(PLEASE Do Not Include projects that were covered under the Public Assistance permanent Repair and restoration section of the Disaster Relief Act)

1. **Brief Description of Problem:_____**
   _____
   _____
   _____
2. **Brief Description of Project: _____**
   _____
   _____
   _____
3. **Is the project consistent with your Local Hazard Mitigation Plan risk assessment, goals and actions? Yes☐ No☐ Identify its location in plan by page and section._____**
   _____
   _____
4. **Identification of Benefits:_____**
   _____
   _____
5. **Estimation of Cost:_____**
6. **Source of Local Share:_____**

Please Return Form To:

Kelli Alexander, State Hazard Mitigation Officer
Alabama Emergency Management Agency
P. O. Drawer 2160
Clanton, Alabama 35046-2160
Phone: (205) 280-2269 Fax Number: (205) 280-2493

Alabama Emergency Management Agency
Hazard Mitigation Grant Program

Project Application

Applicant_____
(Must be a State or Local government, Federally recognized Indian tribe, or certain PNP)

Project Location_____
(Street, city, county, and state)

Project Title (descriptive) _____

_____

Estimated Project Cost (total) $_____

Please submit the original application and one (1) copy.

THIS SECTION FOR STATE USE ONLY

☐ **Standard HMGP or**
☐ **HMGP 5% Initiative**
☐ **FMA**
☐ **Other** _____

☐ **Initial Submission** ***or***
☐ **Resubmission**

☐ **Completeness Checklist**
☐ **State 409 Plan**
☐ **Eligible Applicant**
☐ **B/C Analysis**

Project Type(s)
☐ Acquisition/Demolition
☐ Acquisition/Relocation
☐ Elevation
☐ Drainage
☐ Wind Retrofit
☐ Tornado
☐ Seismic Retrofit
☐ Other _____

Community NFIP Status:
☐ Participating Community
ID #: _____
☐ CRS Participant
☐ In Good Standing
☐ Sanctioned
☐ Regulatory Floodway
☐ Coastal V-Zone

State Application ID _____
Date Received _____
State Reviewer_____

Reviewer Phone #_____
Reviewer Fax #_____
Reviewer Email:_____

This application is for all Federal Emergency Management Agency (FEMA Region IV) Hazard Mitigation Grant Program (HMGP) proposals. Please complete ALL sections and provide the documents requested. If you require technical assistance with this application, please contact Alabama Emergency Management Mitigation Division at (205) 280-2476.

A. To Fill Out This Application: complete all sections of the main application AND the following worksheets, if applicable:

- ***Safe Room Worksheet:*** one per site
- ***Acquisition Worksheet***: Acquisition Projects only – one per structure; owners' names required
- ***Elevation Guidelines/Worksheet***: Elevation Projects only – one per structure
- ***Drainage Worksheet***: Drainage Projects only
- ***Wind Retrofit Worksheet***: Wind Retrofit Projects only – one per structure
- ***Alert and Notification Systems Worksheet***: one per site (see also III-B-5 below)
- ***Generator Worksheet***: one per site (see also III-B-5 below)
- ***Generator Data Sheet***: one per site (see also III-B-5 below)

B. Applicant Information

1. **Applicant (Organization)** _____
2. **Applicant Type**
   ☐ State or Local Government ☐ Recognized Indian Tribe ☐ Private Non-Profit
3. County / Counties
4. State Legislative district(s): H: S: Congressional District(s)
5. Tax I.D. Number FIPS Code DUNS Number
6. **Point of Contact**
   ☐Mr. ☐Ms. ☐Mrs. First Name Last Name

   Title

   Street Address

   City State Zip Code

   Telephone ( ) - Fax ( ) -

   Email Address
7. **Application Prepared by**
   ☐Mr. ☐Ms. ☐Mrs. First Name Last Name

   Title

   Telephone ( ) - Fax ( ) -

   Email Address
8. **Authorized Applicant Agent**
   ☐Ms. ☐Mr. ☐Mrs. First Name Last Name

   Title Telephone ( ) - Fax ( ) -

   Street Address

   City State Zip Code

   Email Address (if available)

   Date Signature

NOTE: If your project is approved, work must begin within 90 days of the obligation of funds

I. Planning Requirement

For all disasters declared after November 1, 2004, a community must have a FEMA approved Local Hazard Mitigation Plan in order to be eligible for HMGP.

Date of Plan Approval:
Section and Page in Plan Where Project is Included:
Describe how project is consistent with the risk assessment, goals and actions in plan:

Please include copy of page where project is included, not the entire plan

II. History of Hazards / Damages in the Area to be Protected*

In this section describe all past damages from hazardous events (include name of storms if applicable) in the project area. Include Presidentially declared disasters as well as events that did not result in a Presidential declaration. Do not list county-wide or community-wide damages. Damages described must be site specific.

A. *Overview of Past Damages*

Provide a detailed past history of damages in the project area, including direct and indirect costs. Include information for as many past incidents as possible. Attach any supporting documents, i.e. proofs of loss, PW's, force account logs. Direct costs should include damages to structures and infrastructure in the project area as a result of the hazard. Indirect costs should include the cost to the local government to respond to victims of the hazard in the project area, any interruption to local businesses, and losses of public services.

* **For Acquisitions and Elevations, provide an overview in this section and specific damages to each property in the Individual Property Worksheets.**

Date	Level of Event	Damages	Indirect costs (describe)
[e.g. 10/7/89	*50 year flood*	*Total of $195,000 in damages to 16 homes in project area*	*Emergency Services Evacuation of 58 people.]*
e.g. 8/18/92	*100 year flood*	*Total of $1,895,000 in damages to 23 homes in project area*	*Emergency Services Evacuation of 108 people.]*

III. Project Description

A. Project Description / Protection Provided

Describe, in detail, the proposed project. Also, explain how the proposed project will solve the problem(s) and provide the level(s) of protection described in Section B. If any other projects are underway or proposed in the project area, please describe. Also describe any planned, future development in the project area. Please include building code requirements for new development and substantial improvements in the community (use additional page, if necessary)

B. Hazards to be Mitigated / Level of Protection

1. Select the type of hazards the proposed project will mitigate:
   ☐ Flood ☐ Wind ☐ Seismic ☐ Other (or list) _____

2. Fill in the level of protection the proposed project will provide (e.g. 23 structures protected against the 100-year (1%) flood. List data in Flood Levels (10,25, 50, 100…) mph winds or Mercalli Scale Earthquake (1-12)

   _____ structures protected against the _____

   _____ structures protected against the _____

   _____ structures protected against the _____

   _____ structures protected against the _____

3. **Engineered Projects Only** (e.g. Drainage Improvements)
Include (attach to this page) **ALL** engineering calculations used to determine the above level of protection.
   The following documents are attached:

4. Useful life of the project

Proposed project will provide protection against the hazard(s) above for _____ years.

5. Alert and Notification/Generator Projects

Alert and Notification (Siren) projects require a specification sheet for each site, and Generator projects require a generator data sheet per each system on site.

IV. Project Location (If project is involving multiple locations, provide project location information for each site on worksheet). Fully describe the location of the proposed project.

A. Site

1. Physical Location

Describe the area and/or population affected/protected by this project, include the location (street number/name, city, county, zip codes, latitude/longitude in decimal format). **Please specify whether the site is in incorporated limits or unincorporated county.**

2. Population Affected

Provide the number for each type of structure (listed below) in the project area. Include **all** structures in project area.

_____ residential properties

_____ businesses / commercial properties

_____ public buildings

_____ schools / hospitals / houses of worship

_____ residents

B. Legible Copy of Flood Insurance Rate Map (**FIRM) showing Project Site.** ***Please provide either Letter (8.5" x 11") or Legal (8.5" x 14") size maps.***

☐ Attach a copy of the panel(s) from the FIRM, and, if available, the Floodway Map, (along With the appropriate flood profile and discharge tables from the community FIS) with the project site and structures marked on the map (FIRMs are typically available from your local floodplain administrator who may be located in the planning, zoning, or engineering office. Maps can also be ordered from the Map Service Center at 1-800-358-9616. For more information about FIRMs, contact your local agencies or visit the FIRM site on the FEMA WebPage at **http://msc.fema.gov**).

Using the FIRM, determine the flood zone(s) of the project site (Check all zones in the project area).

☐ VE or V 1-30
☐ AE or A 1-30
☐ AO or AH
☐ A (no base flood elevation given)
☐ B or X (shaded)
☐ C or X (unshaded)
☐ Floodway
☐ Coastal Barrier Resource Act (CBRA) Zone (Federal regulations strictly limit Federal funding for projects in this Zone; please coordinate with your state agency before submitting an application for a CBRA Zone project)

☐ **If the FIRM for your area is not published**, please attach a copy of the Flood Hazard Boundary Map (FHBM) for your area, with the project site and structures marked on the map

Project Location Continued

C. City or County Map with Project Site and Photographs (*All Maps Are Mandatory*)
Please provide either Letter (8.5" x 11") or Legal (8.5" x 14") size maps.

☐ Attach a copy of a city or county scale map (large enough to show the entire project area) with the project site and structures marked on the map.

☐ USGS 1:24,000 topo map with project site marked on the map.

☐ For **acquisition** or **elevation** projects, include a copy of the Parcel Map (Tax Map, Property Identification Map, etc.) with each property in the project clearly marked on the map. Use SAME ID number as in the property worksheet.

☐ Attach project area photographs from at least two different angles (2 copies each). The photographs should include relevant streams, creeks, rivers, etc. and drainage areas which affect the project site or will be affected by the project.

Attach 2 copies of each site photograph here

Clearly label the back of each photo

Notes:

V. Scope of Work / Budget

In this section, provide the details of all costs of the project. As this information is used for the Benefit-Cost Analysis, reasonable cost estimates are essential. List all items and costs in line item fashion. Please note if the line item is to be funded by cash or provided by in-kind resources by marking the C (for cash) or I (for in-kind) column as applicable. **Do not include contingency costs in the budget**. **Management costs can be included up to 6% of the total budget.**

A. Materials

C	I	Item	Dimension	Quantity	Cost per Unit	Total Cost
					$	$
					$	$
					$	$
					$	$
					$	$
					$	$
					$	$
					$	$
					$	$
					$	$
					$	$
					$	$

B. Labor (include equipment costs)

C	I	Description	Hours	Rate	Cost
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$

C. Fees Paid (include any other costs associated with the project, i.e., permit costs, etc.)

C	I	Description	Hours	Rate	Cost
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$
				$	$

Total Project Cost: **$**

Total In-Kind Cost: **$**

D. Funding Sources (round figures to the nearest dollar) The maximum FEMA share for HMGP projects is 75%. The other 25% can be made up of State and Local funds as well as in-kind services. HMGP funds may be packaged with other Federal funds, but other Federal funds (except for Federal funds which lose their Federal identity at the State level – such as CDBG, ARC, HOME) may not be used for the State or Local match.

Estimated FEMA Share $_____ _____ % of Total

Non-Federal Share

Estimated Local Share $_____ _____ % of Total
(Include In-Kind Value)

List Funding Sources _____

Estimated State Share $_____ _____ % of Total

List Funding Sources _____

Estimated Other Agency Share $_____ _____ % of Total

Identify Other Non-Federal Agency _____

Other Non-FEMA Federal Funds $_____ **Do Not Include In Total**

Identify Other Federal Agency _____

Scope of Work/ Budget Continued

E. Project Milestones List the major milestones in this project. Itemize each completion phase of project. For example, Ordering of Materials for Elevation – 60 days; Elevation of Structure – 90 days, etc.

Milestone — Number of Days to Complete

[e.g. Elevation of Structure — 90 days]

Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
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Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____
Description: _____ Timeframe: _____

Total Days: _____

F. Benefit Cost Ratio: _____

Attach Copy of Benefit Cost Analysis Report and All Supporting Documentation. ***Not Required for Initiative Projects.*** *For help or information on obtaining FEMA's BCA software, please go to http://www.bchelpline.com/.*

VI. Alternative Actions

This application cannot be reviewed if this section is incomplete.

List **two feasible** alternative projects to mitigate the hazards faced in the project area.
One alternative is the "No Action Alternative" (section A).

A. No Action Alternative. ***Note: As of July 2006, this is all that is required for Alert and Notification and Generator Projects in the Alternative Actions section.***
Discuss the impacts on the project area if no action is taken.

B. Other Feasible Alternative
Discuss a feasible alternative to the proposed project. This could be an entirely different mitigation method or a significant modification to the design of the current proposed project. Please include scope of work, engineering details (if applicable), estimated budget and the impacts of this alternative.

1. Other Feasible Project Description and Scope of Work
Describe, in detail, the alternative project. Also, explain how the alternative project will solve the problem(s) / provide protection from the hazard(s).

2. Other Feasible Project Location
☐ Attach a map or diagram showing the alternative site in relation to the proposed project site.
☐ Attach two Photographs of alternative site(s)

Attach 2 copies of each photograph here

Clearly label the back of each photo.

Alternative Actions Continued

C. Funding Sources (round figures to the nearest dollar) The maximum FEMA share for HMGP projects is 75%. The other 25% can be made up of State and Local funds as well as in-kind services. HMGP funds may be packaged with other Federal funds, but other Federal funds (except for Federal funds which lose their Federal identity at the State level – such as CDBG, ARS, HOME,) may not be used for the State or Local match.

Estimated FEMA Share $_____ _____ % of Total

Non-Federal Share

Estimated Local Share $_____ _____ % of Total
(Include In-Kind Value)

List Funding Sources _____

Estimated State Share $_____ _____ % of Total

List Funding Sources _____

Estimated Other Agency Share $_____ _____ % of Total

List Other Non-Federal Agency _____

Other Non-FEMA Federal Funds $_____ **Do Not Include In Total**

List Other Federal Agency _____

D. Impacts of Other Feasible Alternative Project

Discuss the impact of this alternative on the project area. Include comments on these issues: Environmental Justice; Endangered Species; Wetlands; Hydrology (Upstream and Downstream Impacts); Floodplain/ Floodway; Historic Issues; Hazardous Materials.

VI. Environmental Documents

The applicant ***must*** provide the following environmental documentation to FEMA before starting construction activity **or** jeopardize project funding.

The Following Types of Projects Do Not Require Environmental Documentation:

- Development of Mitigation Plans
- Inspection and monitoring activities
- Studies involving only staff time and funding
- Training activities using existing facilities

Other projects require certain environmental documentation depending upon the project type and its potential effects on the physical, biological and built environment. The various types of projects and their required environmental documentation follow: (x=required)

	Engineering Plans/Tech Specs	ADEM Concurrence	US Fish and Wildlife	US Army Corps of Engineers	US Dept. of Agriculture (NRCS)	National Marine Fisheries Service (NMFS)	State Historic Preservation Officer (SHPO)
Retrofits	x						x
Elevation	x						x
Acquisitions with demolition		x	x	x			x
Drainage	x	x	x	x	x	x	x
Construction on previously **disturbed** land	x	x					x
Construction on previously **undisturbed** land	x	x	x	x	x	x	x
Fixed Generators		x					X
Portable Generators							
Sirens	x	x					X

Warning Systems, Shutters, And Communication Projects

- Coordination from the State Historic Preservation Officer (SHPO) regarding cultural resources (archeological and historical). ***Provide the SHPO with:***
  - a description of the project referencing structure/site addresses
  - a map of sufficient scale and detail that shows the project site and surrounding project area (Area of Potential Effects)
  - several original photographs of the project site and adjacent area/structures

* See also - additional documentation section

Acquisition/Relocation Projects (Residential Only)
And
Stormwater Management Projects
(Road/Bridge/Culvert Repair, Detention Ponds and Drainage)

Coordination from the following Federal and State agencies:

- State Historic Preservation Officer (SHPO) regarding cultural resources (archeological and historical). ***Provide the SHPO with:***
  - several original photographs of the project site and adjacent area/structures
- Alabama Department of Environmental Management regarding required permits for erosion and sediment control, stormwater management, water and air quality
- Alabama Department of Environmental Management regarding hazardous and toxic materials
- U.S. Army Corp of Engineers District regarding Individual (404 Wetlands) Permit or approval under an existing Nationwide Permit
- U.S. Fish and Wildlife Service regarding Federal Threatened and Endangered Species
- Alabama Department of Conservation and Natural Resources regarding fish and wildlife
- Alabama Department of Conservation and Natural Resources regarding Threatened and Endangered Species

Provide the following documentation to each agency listed above:

- a description of the project referencing structure/site addresses
- a map of sufficient scale and detail that shows the project site and surrounding project area (Area of Potential Effects)

* See also - additional documentation section

Additional Documentation

- *If the project involves five or more acres of land* – provide a NPDES permit from the U.S. Environmental Protection Agency
- *If the project is located outside of town/city limits* - provide documentation from the USDA National Resource Conservation Service (Prime, Unique or other Important Farmlands).
- *If the project is located in a coastal area* - provide letters from the:
  - Alabama Department of Environmental Management (Coastal Unit)
  - U.S. Fish and Wildlife Service (Coastal Barrier Resources Act and Coastal Barrier Improvement Act)
  - U.S. Dept. of Commerce National Marine Fisheries Service (Commercial fishing and breeding grounds)
- *If the project will affect any low-income or minority groups in the project area* – provide applicable Environmental Justice information (census, economics, housing, and employment).

VIII. MAINTENANCE AGREEMENT

All applicants whose proposed project involves the retrofit or modification of existing public property or whose proposed project would result in the public ownership or management of property, structures, or facilities, must first sign the following agreement prior to submitting their application to FEMA.

(NOTE: those applicants whose project only involves the retrofitting, elevation, or other modification to private property where the ownership will remain private after project completion DO NOT have to complete this form.)

The _____ (*City, Town, County)* of _____, State of __, hereby agrees that if it receives any Federal aid as a result of the attached project application, it will accept responsibility, at its own expense if necessary, for the **routine** maintenance of any real property, structures, or facilities acquired or constructed as a result of such Federal aid**.** Routine maintenance shall include, but not be limited to, such responsibilities as keeping vacant land clear of debris, garbage, and vermin; keeping stream channels, culverts, and storm drains clear of obstructions and debris; and keeping detention ponds free of debris, trees, and woody growth.

The purpose of this agreement is to make clear the Subgrantee's maintenance responsibilities following project award and to show the Subgrantee's acceptance of these responsibilities. It does not replace, supercede, or add to any other maintenance responsibilities imposed by Federal law or regulation and which are in force on the date of project award.

Signed by _____(printed or typed *name of signing official*) the duly authorized

_____ (*title*) of _____ (*name of applicant*),

this _____(*day*) of _____ (*month*), _____*(year).*

Signature _____

IX. Applicants Certification

Each applicant whose proposed project involves elevation of one or more residential structures or relocation or acquisition and demolition of such structures shall sign the following certification: each owner must also provide "Model Acknowledgement of Conditions for Mitigation of Property in a Special Flood Hazard Area with FEMA Grant Funds" to ensure the property is insured in the National Flood Insurance Program (NFIP). For additional information, contact your State Hazard Mitigation Officer (SHMO).

I, _____, _____, of
(*print name*) (*title)*
_____ certify that that all owners of property listed in this *(town, city, or county organization)*
have been contacted and have voluntarily expressed a willingness to participate in the proposed project. Any structures elevated or retrofitted shall be covered by flood insurance for the life of the structure.

Additionally, the _____ understands that any and all *(town, city, or county organization)*
property acquired under the Hazard Mitigation Grant Program will be maintained by the applicant as openspace. All property acquired in this project will be governed by the following guidelines from the Code of Federal Regulations, Section 206.434(d):

(d) Property acquisition and relocation requirements. A project involving property acquisition or the relocation of structures and individuals is eligible for assistance only if the applicant enters an agreement with the FEMA Regional Director that provides assurances that:

1. The following restrictive covenants shall be conveyed in the deed to any property acquired, accepted, or from which structures are removed (hereafter called in section (d) the property):
   - (i) The property shall be dedicated and maintained in perpetuity for uses compatible with open space, recreational, or wetlands management practices; and
   - (ii) No new structure(s) will be built on the property except as indicated below:
     - (A) A public facility that is open on all sides and functionally related to a designated open space or recreational use;
     - (B) A rest room; or
     - (C) A structure that is compatible with open space, recreational, or wetlands management usage and proper floodplain management policies and practices, which the Director approves in writing before the construction of the structure begins.
   - (iii) After completion of the project, no application for additional disaster assistance will be made for any purpose with respect to the property to any Federal entity or source, and no Federal entity or source will provide such assistance.
2. In general, allowable open space, recreational, and wetland management uses include parks for outdoor recreational activities, nature reserves, cultivation, grazing, camping (except where adequate warning time is not available to allow evacuation), temporary storage in the open of wheeled vehicles which are easily movable (except mobile homes), unimproved, previous (sic; should read "pervious") parking lots, and buffer zones.
3. Any structures built on the property according to paragraph (d)(1) of this section, shall be floodproofed or elevated to the Base Flood Elevation plus one foot of freeboard.

Any other use of acquired structures or properties must be approved by both the State and Federal Emergency Management Agencies' Directors. (Please contact your State Hazard Mitigation Officer for further details)

Certified this _____ day of _____, _____.
(*day*) (*month*) (*year*)

By_____
(*signature of responsible official*)

X. HISTORIC REVIEW FORM

Please complete one of these forms for **EACH** project site and attach a cover letter with the contact person's mailing address and a brief description of the project.

Project Description: _____

Physical address of project area: _____

_____

Latitude: _____ **Longitude:** _____

Contact person's name and email address (our response letter will be sent to this email address):

---

(1) Township _____**N/S** Range _____**E/W** Section _____ (if known)

(3) ***Required***: Provide at least one representational photograph of the project area with directional information (facing east, northwest, etc.)

(4) Answer the following to the best of your abilities:

A. Has the ground at the project location been disturbed other than by agriculture?
Yes _____ No _____ Unknown _____

If you answered yes to question A, please check all that apply:
Trenching _____ Grading _____ Bulldozing _____ Fill _____
Erosion _____ Landscaping _____ Other _____ (explain) _____

_____

B. To your knowledge, have Indian or historic artifacts (such as arrowheads, old bottles, square nails) been found on or adjacent to the project area?
Yes _____ No _____

(5) What is the approximate size of the project area (acres)? _____

(6) Is there a building 50 years old or older within or near the project area? Yes _____ No _____

IF "NO" SKIP questions 7 and 8. IF "YES" then complete the following:

(7) What was the approximate date of construction? _____

(8) Attach photos of the front, rear, and side elevations of the building.

Optional: Feel free to elaborate on any of the above questions or include any additional information you think may be helpful in the review of your project. Attach additional pages if necessary.

Please mail the project form, photos and cover letter to the following address:

Alabama Historical Commission
468 S. Perry St.
Montgomery, AL 36130-0900
Attn: Gail Jones

D. References

- *Alabama State Hazard Mitigation Plan,* Alabama Emergency Management Agency, Atkins, Apr. 2013
- *Addressing Your Community's Flood Problems, A Guide for Elected Officials,* Association of State Floodplain Managers, Inc., and the Federal Interagency Floodplain Management Task Force, 1996.
- *Elevation Certificate and Instructions, 2012 Edition,* Federal Emergency Management Agency
- *Flood: Post-Disaster Community Responsibilities*, Mississippi Emergency Management Agency
- *How-To Guide for No Adverse Impact, Mitigation,* Association of State Floodplain Managers, Inc., and Michael Baker Corporation, 2013.
- *Long-Term Community Recovery Planning Process, A Self-Help Guide*, Federal Emergency Management Agency, Dec. 2005
- *Model Guide for Developing a Post-Flood Damage Standard Operating Procedure,* Federal Emergency Management Agency Region VII, Apr. 1997
- *Model Job Description for a Community Floodplain Manager,* Association of State Floodplain Managers, Mar. 2010
- *No Adverse Impact: A Toolkit for Common Sense Floodplain Management,* Association of State Floodplain Managers, Inc., 2003.
- *Post-Disaster Reconstruction, The Patchwork Quilt, A Creative Strategy for Save & Long Term Post-Disaster Rebuilding,* Ed Thomas and Sarah K. Bowen, CFM, Nov. 2008
- *Post-Flood Guidance for Local Floodplain Administrators*, Indiana Department of Natural Resources, Division of Water, Oct. 2008
- *Public Assistance, Alternative Procedures Pilot Program – Debris Removal*, Federal Emergency Management Agency, Sep. 2013
- *Reimbursement Procedure for FEMA Public Assistance,* Federal Emergency Management Agency
- *Substantial Damage Determinations, A* Guide *for Local Officials,* Division of Water, Ohio Department of Natural Resources, Floodplain Management Program, revised 2007
- *Substantial Damage Estimator, Best Practices, Approaches to Using FEMA's Substantial Damage Estimator Tool*, Federal Emergency Management Agency, May 2012.
- *Substantial Improvement/Substantial Damage Desk Reference*, Federal Emergency Management Agency. May 2010
- *Terminology and Standards for Community-Level Flood Preparedness Programs,* Flood Warning and Preparedness Subcommittee of the Association of State Floodplain Managers Flood Mitigation Committee, Feb. 1993