DeKalb County Department of Planning & Sustainability

FLOODPLAIN MANAGEMENT

Floodplain management means the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including but not limited to emergency preparedness plans, flood control works, floodplain management regulations, and open space plans. In the furtherance of the program…

There are 9,443 acres of FEMA special flood hazard area (SFHA) plus an additional 2,735 acres of local flood prone area in unincorporated DeKalb County. In DeKalb County the local flood hazard area is referred to as the AFCF, area adjacent to future-conditions floodplain. The total floodplain area, both SFHA and AFCF, comprises roughly 9.7% of the County. Though a relatively small area as a percent of the County the hazard posed due to possible loss of life, property, and livelihood can be significant if the floodplain is not well managed. Several thousand structures including residential, and non-residential as well as roads, bridges, culverts, and dams exists within regulated floodplain.
DeKalb County's regulatory framework and policies for floodplain management are considered reasonable based on scientific and engineering principles. The scientific and engineering methods applied to produce the models for flood prediction have limiting conditions. The result is that floods larger that the models can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. It must be noted that land outside of the mapped flood hazard areas and uses permitted within such areas will not be free from flooding or flood damages.

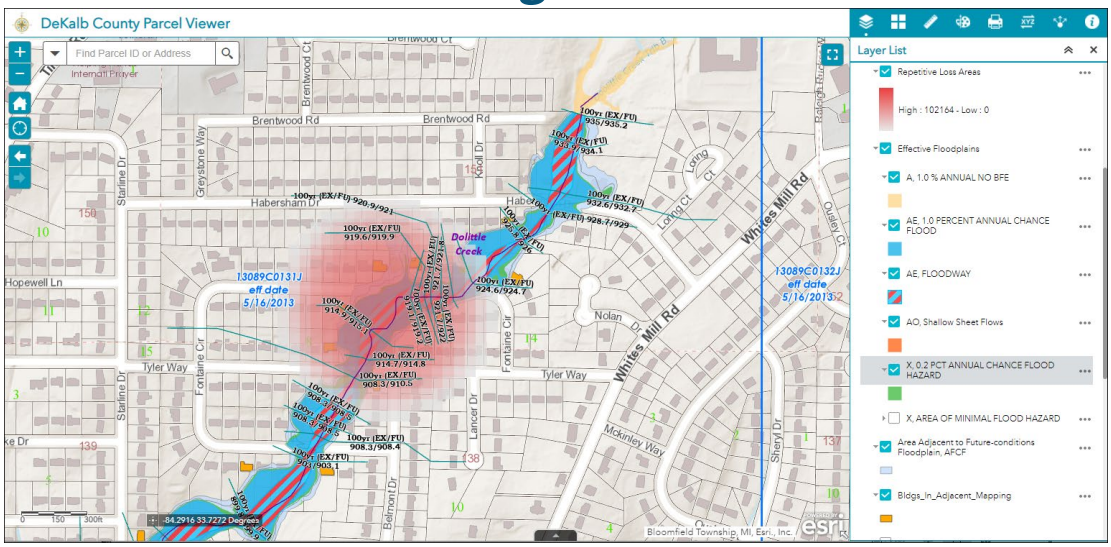
Some measures used to minimize losses due to flooding include but is not limited to:

- Mandatory flood insurance for federally backed mortgages for buildings in the floodplain
- Substantial damage and or improvement standard to bring existing structures in regulated areas to comply with current codes
- Repetitive loss and cumulative substantial damage standard
- Establishment of development permit requirement before any construction or other development begins within any area of special flood hazard
- Make map determinations and interpretations where needed, as to the exact location of the boundaries of the areas of special flood hazard
- Obtain and maintain for public inspection and make available, as needed, various flood related certifications
- Take action to remedy violations of the codes
- Respond to requests for listings of properties in the floodplain
- Acquisition and removal of structures on lands in regulated flood-prone areas
- Limit the alteration of natural floodplains, stream channels and natural protective barriers which are involved in the accommodation of flood waters
- Develop and maintain flood control works
- Maintain emergency notification system
- Establish codes and practices for open spaces

The degree of flood protection required by DeKalb County code is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This article does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages.

Flood Studies FEMA Library | Contacts | DeKalb County Parcel Viewer | Forms | Return to the top

Understanding Your Flood Zone



The DeKalb County Hazard Mitigation Plan identifies the following types of flood hazards:

*Most of the flooding that occurs in the DeKalb Region is riverine flooding. A **flood**, per FEMA, is a general and temporary condition of partial or complete inundation of 2 or more acres of normally dry land area or of 2 or more properties (at least 1 of which is the policyholder's property) from:*

1. *Overflow of inland or tidal waters; or*
2. *Unusual and rapid accumulation or runoff of surface waters from any source; or*
3. *Mudslides (i.e., mudflows) which are proximately caused by flooding and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.; or*
4. *Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.*

A flood inundates a floodplain. Most floods fall into three major categories: riverine flooding, coastal flooding, and shallow flooding. Alluvial fan flooding is another type of flooding more common in the mountainous western states.

According to the National Oceanic and Atmospheric Administration (NOAA) Flash Flood: A rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam-related), on a widespread or localized basis. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters. Flash floods do not exist for two or three consecutive days."

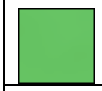
Sources of flood hazards in DeKalb include: the special flood hazard areas of: Ball Mill Creek, Nancy Creek, North Fork Peachtree Creek, South Fork Peachtree Creek, Jackson Creek, Peavine Creek, Stone Mountain Creek, Snapfinger Creek, Barbashela Creek, Shoal Creek, Sugar Creek, Indian Creek, Cobb Creeks, Crooked Creek tributary of Stone Mountain Creek, Yellow River, Pole Bridge Creek, Honey Creek/Plunkett Creek, Entrenchment Creek, Dolittle Creek, Blue Creek, South River, Conley Creek, Stephenson Creek; small drainage areas of 100 acres and more within the creeks and rivers listed above, and very localized upgradient flows to lower adjacent areas.

The DeKalb County Flood Insurance Rate Map (FIRM) provides expected Base Flood Elevations (BFEs) during the 1% annual chance flood event ("base flood").

A summary of flood zones relevant to DeKalb County is provided below.

Zones A are **within** the regulated Special Flood Hazard Area (SFHA). These are considered high hazard flood zones.

Zones X and AFCF are **outside** of the Special Flood Hazard Area (SFHA).

Flood Insurance Rate Map (FIRM) Zones			
A Zones	AE Floodway 	The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations.	Mandatory flood insurance purchase requirements and floodplain management standards apply. New construction is not permissible other than properly designed bridges, culverts, roads, and utilities.
	AE 	Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown.	Flood insurance requirements and floodplain management standards apply.
	AO 	Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet.	Flood insurance requirements and floodplain management standards apply.
	A 	Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown.	Flood insurance requirements and floodplain management standards apply including flood study with base flood determination.
X Zones	X (shaded) 	The areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood.	
	X (unshaded)	The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood.	
DeKalb County Local Flood Map Zones			
Future-condition	F-C 	Flood boundary due to predicted future increased development.	
Local 100+ Acres	L100+	Boundary of DeKalb County local flood prone areas draining	

Flood Prone Areas		100 acres and more and less than FEMA A zones.	
Area Adjacent to Future-conditions Floodplain	AFCF 	Flood protection area that is the higher of zone AE plus 3 feet or future-condition plus one foot elevation.	

Floodplain Mapping

Floods don't read maps; but people can. Beyond reading the map it is beneficial to understand the framework for the maps, their limits, and the impact of what is mapped and to be read. We do the best we can based on the standards to define the extent of flood hazards. However, the hazards defined are limited to model conditions.

Flood Models The maps are produced based on centuries of experience, science, technical material, and decades of rainfall data. In efforts to reduce the need for government support in response to loss of life and property due to flooding the U.S. Army Corps of Engineer USACE through their Hydrologic Engineering Center (HEC) have developed assets for water resource planning and management using hydrologic engineering. Source data used as input for computation come from NOAA National Oceanic and Atmospheric Administration, NRCS Natural Resources Conservation Service, and USGS U.S. Geological Survey among others. If the rainfall is in a certain amount and following particular patterns, if the stream channels are as documented (not otherwise altered or restricted), if the land cover and use are as described then the result is specific quantity, rate of flow, lasting a certain amount of time. The lands around us perform differently depending on conditions right before the storm. As an example: If the soil is either drier or wetter than normal there is a different response in the amount of water running off during the storm. The flow response changes if the land drains to natural channels or pipes. The amount of flow leaving an area differs for the same amount of rain if the rain falls on grass as opposed to concrete, a roof or other impervious feature.

There are two primary applications used to produce the engineered flood studies: HEC-HMS, and HEC-RAS. Both are products of the HEC and are free to download. Per USACE "The Hydrologic Modeling System (HEC-HMS) is designed to simulate the complete hydrologic processes of dendritic watershed systems. Simulation results are stored in HEC-DSS (Data Storage System) and can be used in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation." For flood modelling HEC-HMS can be used in the simulation of the precipitation-runoff relationships of branching watercourses within and between watersheds. Any excesses in precipitation above losses in the system are transformed into surface runoff forecasting streamflows. The result of the transformed runoff is tabulated as total volumes, peak flows, and other variables in time-series and graphs.

HEC-RAS is designed to perform one and two-dimensional hydraulic calculations for a full network of natural and constructed channels to define floodplains. The River Analysis System uses resultant flow attributes, from HEC-HMS, with the hydraulic feature parameters inputted, into HEC-RAS, for the watercourse and surrounding areas in simulations producing water surface profiles to be graphicly represented in maps. Inundation mapping of water surface profiles on terrain models produces geospatial data. Depth grid s and boundary datasets can then be generated for use in other geospatial software for map production.

From the results in the models comes volumes of flow, velocities, volume flow rates, water surface elevations and other information usefully in planning for the flood hazard. How the information is used can modify the risk of harm and loss. The model data is then classified into flood hazard zones based on event frequency and other parameters. The flood zones are then used in maps to illustrate where the modelled flows will occur. Insurable structures in these zones are assigned risk rates depending on whether the structures incorporate flood resilience features as well as the extent of risk exposure.

Flood Maps: There are flood hazard boundaries, among other things, shown in the DeKalb County Parcel Viewer, the Georgia DFIRM website, and FEMA Map Service Center. These boundaries describe the limits of special flood hazard areas (SFHA's) as regulated by FEMA, the National Flood Insurance Program (NFIP) as well as other flood prone areas beyond the SFHA's based on specific local codes. These maps are produced from data in engineering studies based on widely used national methods for documenting the predicted stormwater runoff patterns during a series of storm events. The models use statistically derived precipitation amounts published for the local area by NOAA. These boundaries are categorized and presented on the maps by color codes.

These flood maps are generated based on large areas with the watershed basins typically hundreds to thousands of acres. In the DeKalb County, unincorporated area many drainage basins are greater than 100 acres. While significant portions of the County have been re-studied using the more recent high resolution LiDAR topographic datasets and the new NOAA precipitation values very detailed localized elevation surveys or flood studies may benefit some properties.

FEMA accepts updated and or more detailed information to make changes to flood maps and or redefine a building or land proximity to flood hazard. This is done through the Letter of Map Change (LOMC).

Here are several types of LOMC's:

- Letters of Map Amendment (LOMAs) – Typically, a LOMA is issued when the scale of the FIRM does not allow for small areas of natural high ground to be shown outside the SFHA
- Conditional Letter of Map Amendment (CLOMA) – A letter from FEMA stating a proposed structure that is not to be elevated by fill (natural grade) would not be inundated by the base flood if built as proposed
- Letters of Map Revision based on Fill (LOMR-F) – A LOMR-F is like a LOMA, but instead of being based on natural ground elevations, the property or structure has been elevated by fill to elevate it above the flood elevation
- Conditional Letter of Map Revision-Fill (CLOMR-F) – A letter from FEMA stating a parcel of land or proposed structure that will be elevated by fill would not be inundated by the base flood if fill is placed on the parcel as proposed or the structure is built as proposed
- Letters of Map Revision (LOMRs) – A LOMR is an official revision to an effective FIRM map that may change flood insurance risk zones, floodplain and/or floodway boundary delineations, plain metric features, and/or BFE. Unlike LOMAs and LOMR-Fs, a LOMR usually results in reprinting a portion of a FIRM
- Conditional Letter of Map Revision (CLOMR) – A CLOMR is a letter from FEMA's stating a proposed project that would, upon construction, affect the hydrologic or hydraulic

characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFE or SFHA

Note that 25% of flood loss claims occur outside SFHA's. Insurance premiums for those properties are lower than for structures in the SFHA so it is recommended to get and keep flood insurance.

Flood maps provide an image of areas determined through engineering analysis likely to experience a 1% chance or higher chance of flooding each year. This is considered a special flood hazard area. In an effort to protect families, homes, and businesses from flood risks FEMA, the National Flood Insurance Program and DeKalb County have standards for a range of activities in and immediately adjacent to flood prone areas.

Constructing in the Floodplain, FAQs, and Form

Trail near Mason Mill Park

Yes, you can build or otherwise develop in the floodplain.

However, there are many more challenges than for typical development and construction activity on non-flood prone lands. And it will cost you more. Keep in mind these areas are identified and designated hazard areas that are flood prone and as such the risk of flooding should be accepted and proposed activity managed with flood resilience and sustainability in mind. These flood prone areas are environmentally sensitive and provide beneficial functions to the community. As such they are protected by ordinance.

Floodplain trees are not to be removed except for constructing roads, bridges, culverts, and utilities. Further if stream buffer is present a variance can't be granted if the lot was platted on or after February 24, 2009 or if the project is for addition or redevelopment of existing commercial, institutional, multifamily residential, or single-family residential structures. For additions, new structures, and redevelopment a flood study, using HEC-RAS analysis, is required that either documents no rise of more than 0.01 foot and compliant with 14-431.(a) and (b)(1) through (b)(5), as well as 14-37.(b)(5) or, per 14-431.(b)(6), the flood study must be submitted for approval to FEMA to modify the published federal Flood Insurance Study and corresponding flood map(s).

DeKalb County has flood hazard mitigation standards that limits the amount of work that can be done to an existing structure in the regulated floodplain before full compliance with the current floodplain building codes is required. These are the cumulative substantial improvement, the substantial damage, and the substantial improvement standards. If the value of work on the building over a ten-year period reaches fifty-percent or more of the current building value at the time of permit application the building must be brought up to floodplain standards as if it was new construction.

Reference FEMA publications:

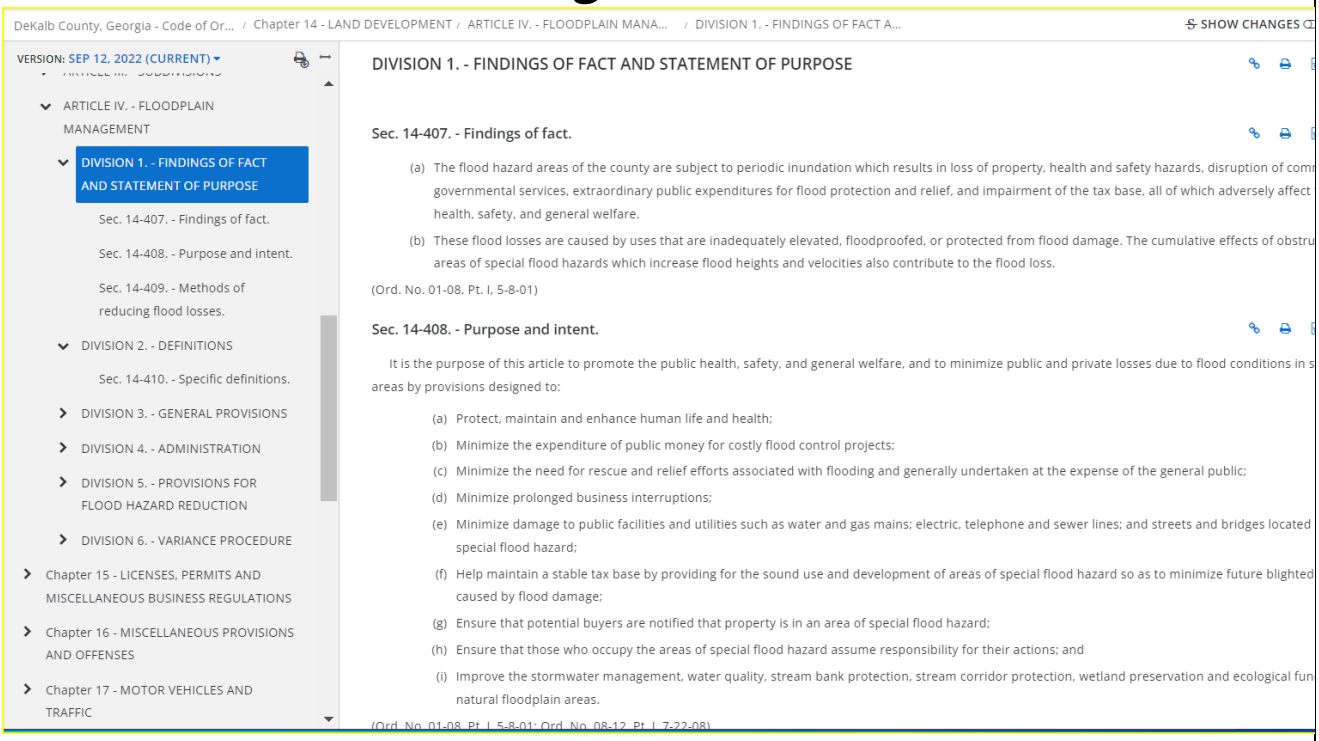
- P-213 Answers to Questions About Substantially Improved/Substantially Damaged Buildings
- P-312 Homeowner's Guide to Retrofitting
- P-348 Protecting Building Utility Systems From Flood Damage
- P-758 Substantial Improvement Substantial Damage Desk Reference
- TB-1 Requirements for Flood Openings In Foundation Walls and Walls of Enclosures
- TB-2 Flood Damage-Resistant Materials Requirements
- TB-6 Requirements for Dry Floodproofed Below-Grade Parking Areas Under Non-Residential and Mixed-Use Buildings

- P-936 Floodproofing Non-Residential Buildings

Forms

Know Before you Buy
Building Permit Applications with Activity in the Floodplain and Need for Elevation Certificate
Site Plan in Flood Hazard Areas
Nonconversion Agreement and Recordation Guide
Substantial Damage or Improvement Guidance
Foundation Wall Design Certification Statement
Elevation Certificates Basic Training for CRS on YouTube

4 DeKalb County Floodplain Ordinances, and NFIP Regulations



Here are references and resources relating to floodplain management ordinances as well as the base NFIP regulations.

Sec. 14-407. - Findings of fact
Sec. 14-408. - Purpose and intent
Sec. 14-409. - Methods of reducing flood losses
Sec. 14-410. - Specific definitions
Sec. 14-411. - Lands and structures to which this article applies
Sec. 14-412. - Basis for establishing the areas of special flood hazard
Sec. 14-413. – Compliance
Sec. 14-414. - Repetitive loss structure and cumulative substantial damage
Sec. 14-415. - Mandatory purchase of flood insurance
Sec. 14-416. - Abrogation and greater restrictions
Sec. 14-417. - Interpretation
Sec. 14-418. - Warning and disclaimer of liability
Sec. 14-419. – Severability
Sec. 14-420. - Establishment of development permit
Sec. 14-427. - Stream dumping penalties
Sec. 14-429. - Definitions of floodplain boundaries
Sec. 14-430. - Engineering study requirements for floodplain encroachments
Sec. 14-431. - General standards
Sec. 14-432. - Standards of construction within a floodplain
Sec. 14-433. - Standards for utilities
Sec. 14-434. - Standards for subdivisions
Sec. 14-435. - Standards for manufactured homes
Sec. 14-436. - Standards for recreational vehicles
Sec. 14-438. - Building standards for structures and buildings authorized adjacent to the future-conditions floodplain
Sec. 14-439. - Building standards for residential single-lot developments on streams without established base flood elevations and/or floodway (A-zones)

Sec. 14-440. - Building standards for areas of shallow flooding (AO-zones)
Sec. 14-441. - Definition of floodway boundaries
Sec. 14-442. - Floodway encroachments
Sec. 14-443. - Maintenance requirements
Sec. 14-444. - Nature of variance
Sec. 14-445. - Appeal board
Sec. 14-446. - Conditions for variances
Sec. 14-448. - Violations, enforcement and penalties
Sec. 14-450. – Penalties
Sec. 14-39.(g) - Tree preservation and replacement requirements. (10) Removal of trees from floodplain not permitted
Sec. 14-44.4. - Administrative variance criteria, standard of review and process. (h)
Sec. 14-37. – Grading. (b)(5)
Sec. 14-40. - Stormwater management (b)(12), (13), (16)(D), (17), (18), (19) (20) and (22)

FEMA Laws and Regulations
FEMA National Flood Insurance Program
Title 44 Code of Federal Regulations (CFR), sections 59 through 80
U.S. Code, title 42 - National Flood Insurance Program

Beneficial, Natural, and Useful Functions of the Floodplain

Benefits of the Floodplain

What does all this mean and (how) does it relate to you? The floodplain impacts quality of life. Some people reading this may have little if any interest in the benefits of having, maintaining, and improving the floodplains. Some may not be aware of the good in the floodplain areas. The cleaner the water is in the floodplain the less treatment including disinfection products that will be needed to provide clean drinking water.

Conveyance and Storage

Floodplains convey and store floodwaters and help protect community assets not in the floodplain. Floodplains modify volume flow rates and speeds and provide space for runoff during storms and flood events, reducing the possible damage to homes, businesses, roads and utilities.

Water Quality

Natural vegetation in DeKalb County protected water ways serves to filter some transported pollutants for runoff and overland flows, reduce sediment loads and can improve lower water temperatures. Wetlands and other important floodplain ecological areas benefit the local environment in response to improved water quality.

Habitat

Floodplains supports diverse avian, aquatic and terrestrial life through robust aquatic and terrestrial habitats for plants and animals. These are important ecosystems for many plant and animal lifecycles.

Some unique species, such as migratory birds or salmon - some of which cannot live anywhere else – find their habitat in floodplains.

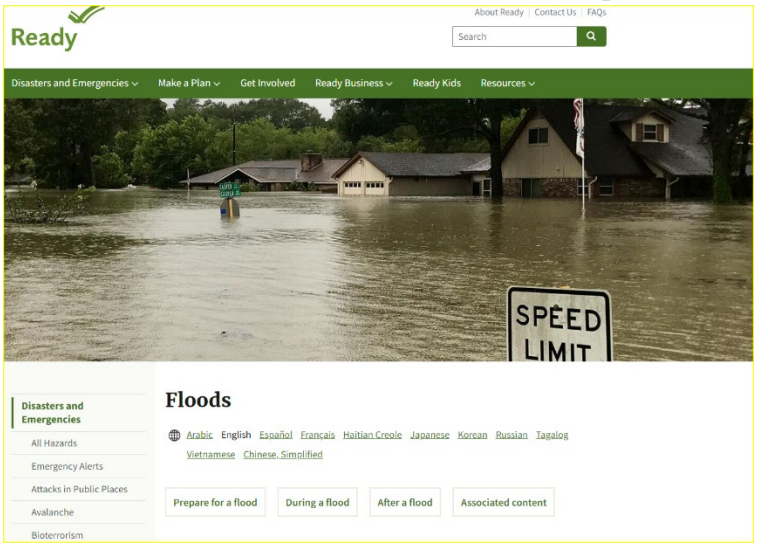
Recreation
The natural functions of floodplains benefit our communities, supporting our recreational areas, cultural identity, places for industry, commerce, agriculture, and access to transportation. Floodplains collect water for drinking and irrigation, for

Differences in the landform in the path of runoff water flow allows for the settlement of transported sediment, reduction in pollutant loads, and flood water storage. The lower areas of these landforms result in the floodplain. Discrete benefits of the floodplain include :

- Flow regulation during non-flood events
- Groundwater recharge
- Fish and wildlife habitat protection
- Biological diversity
- Biological productivity
- Recreational opportunity (fishing, bird watching, nature trails, aesthetic enjoyment, boating, etc)

These natural beneficial functions of a healthy floodplain is a renewable resource imparting social, economic and environmental value to the community.
There are two primary aspects of producing floodplain maps. These are the hydrologic analyses then the hydraulic analyses. The hydrologic analysis identifies, and describes, the sources and amounts of flows, the patterns and amounts of precipitation expected to be received, the areal limits, land features and surface responses receiving the predicted storm and the resulting quantities of stormwater discharges associated with particular statistically derived storm event. The hydrologic analysis is done using the software HEC-HMS. The outputted stormwater discharges are then used in the hydraulic analysis where the detailed input of localized land use with cross sections of the land shape along the path of channelized stormwater flows are used to compute the anticipated water surface elevation at each cross section for each of the storm events in the model. reflecting stream

Emergency Management, Hazard Mitigation and Flood Preparedness



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Zones X and AFCF are **outside** of the Special Flood Hazard Area (SFHA).

Ready.gov Make a Plan Build a Kit Financial Preparedness

Tech Ready Individuals with Disabilities Older Adults Businesses

Ready Kids Pets Get Involved FEMA App PSA's and Videos

Safety Skills Evacuation Ready in Your Language Free Publications

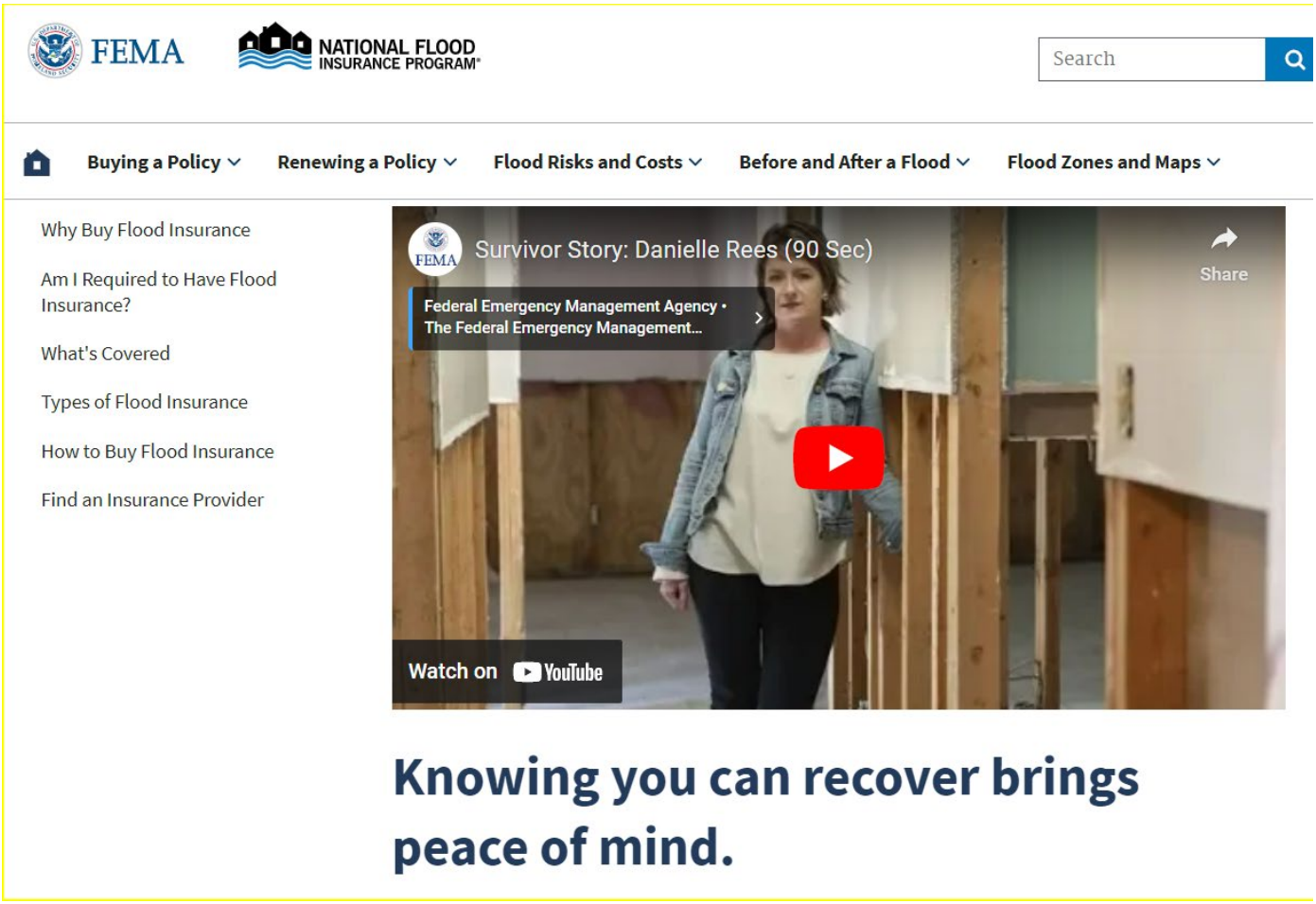
Floods Prepare for a flood During a Flood After a flood

FEMA Youtube FEMA Ready.gov Youtube

DeKalb Emergency Management Agency

OSHA Flood Preparedness and Response

Georgia Emergency Management and Homeland Security Agency



7 Resources

Resources [Reducing Flood Losses Through the International Codes]

Answers to Questions About Substantially Improved/ Substantially Damaged Buildings FEMA 213 / August 2018: [Answers to Questions About Substantially Improved/Substantially Damaged Buildings FEMA 213]
Substantial Improvement/ Substantial Damage Desk Reference FEMA P-758 / May 2010: [Substantial Improvement/Substantial Damage Desk Reference (fema.gov)]
Homeowner's Guide to Retrofitting Six Ways to Protect Your Home From Flooding FEMA P-312, 3rd Edition / June 2014: [FEMA P-312]
Requirements for Flood Openings in Foundation Walls and Walls of Enclosures Below Elevated Buildings in SFHAs NFIP Technical Bulletin 1 / March 2020: [Requirements for Flood Openings in Foundation Walls and Walls of Enclosures (fema.gov)]
Flood Damage-Resistant Materials Requirements Technical Bulletin 2 / August 2008: [Flood Damage-Resistant Materials Requirements (fema.gov)]
Non-engineered opening guide: https://usfloodsolutions.com/documents/Non-EngineeredOpeningGuide.pdf
Requirements for the Design and Certification of Dry Floodproofed Non-Residential and Mixed-Use Buildings Located in SFHAs NFIP Technical Bulletin 3 / January 2021: [Requirements for the Design and Certification of Dry Floodproofed Non-Residential and Mixed-Use Buildings (fema.gov)]
Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business Includes Construction Plans and Cost Estimates FEMA P-320, Third Edition / August 2008: [FEMA 320: Taking Shelter From the Storm (tornadoproject.com)]
Flood Protection Information

- Above the Flood: Elevating Your Floodprone House, FEMA-347 ([View in FEMA library])

- Answers to Questions About the National Flood Insurance Program, F-084 (View in FEMA library)
- Coastal Construction Manual, FEMA-P-55 (View in FEMA library)
- Elevated Residential Structures, FEMA-54 (View in FEMA library)
- Mandatory Purchase of Flood Insurance Guidelines, F-083 (2007) *This document has been rescinded by FEMA because of a change in the statute*
- Protecting Manufactured Homes from Floods and Other Hazards, FEMA P-85 (View in FEMA library)
- Mitigation of Flood and Erosion Damage to Residential Buildings in Coastal Areas, FEMA-257 (View in FEMA library)
- Protecting Building Utilities From Flood Damage, FEMA-P-348

Flood Insurance

Floods & Maps
Flood Insurance
Find an Insurance Form
Work with National Flood Insurance
Risk Rating 2.0
Insurance Outreach Publications
Rules and Legislation
Flood Insurance Advocate
Floodplain Management
Flood Maps
Know Your Risk

Flood Insurance

The National Flood Insurance Program provides insurance to help reduce the socio-economic impact of floods.

English Español Kreyòl 한국어 Tiếng Việt 简体中文

The National Flood Insurance Program (NFIP) is managed by the FEMA and is delivered to the public by a network of more than 50 insurance companies and the NFIP Direct.

Floods can happen anywhere — just one inch of floodwater can cause up to $25,000 in damage. Most homeowners insurance does not cover flood damage. Flood insurance is a separate policy that can cover buildings, the contents in a building, or both, so it is important to protect your most important financial assets — your home, your business, your possessions.