Disaster and Emergency Preparedness for Flooding and Hurricanes



Fifth District-Southern

5SR Disaster and Emergency Preparedness for Flooding and Hurricanes

I. TIPS TO PREPARE FOR A FLOOD

Flooding can occur in several ways, including the following

- Strong winds from tropical cyclones cause a storm surge by pushing seawater onto land.
- Water containment systems break, such as levees, dams, and water or sewer systems.
- Excessive rain cannot be fully absorbed into the ground.
- Rivers and lakes cannot contain excessive rain.
- Waterways are blocked with debris and overflow.

The speed and duration of flooding can vary significantly.

- Flooding can occur slowly as rain continues for many days. This type of flooding, sometimes called a slow-onset flood, can take a week to develop and can last for months before floodwaters recede.
- Rapid-onset floods occur more quickly, typically developing within hours or days. These types of floods usually occur in smaller watersheds experiencing heavy rainfall, particularly in mountainous and urban areas, and water usually recedes within a few days.
- Some rapid-onset floods known as flash floods occur very quickly with little or no warning, such as during periods of extremely heavy rain or when levees, dams, ice jams, or water systems break. Densely populated areas are at a high risk for flash floods. In urban areas, flash floods can fill underpasses, viaducts, parking structures, low roads, and basements.
- The strong winds of a tropical cyclone or hurricane can push large amounts of seawater up onto the land, causing a storm surge. A storm surge combines with the ocean's tide to produce a storm-tide surge. Storm-tide surges have been registered as high as almost 35 feet above normal sea level and can cause significant flooding across a large area. This generally occurs over a short period, typically 4 to 8 hours, but in some areas, it can take much longer for the water to recede to its pre-storm level.

Impact from flooding

The physical destruction caused by flooding depends on the speed and level of the water, the duration of the flood, terrain and soil conditions, and the built environment (e.g., buildings, roads, and bridges).

- Flooding can cause fatalities and serious injuries for people who are trapped or swept away by wading in, driving through, or boating across floodwaters.
- Transportation routes, power, water, gas, and other services may be disrupted.
- Commercial supplies and government support systems may be temporarily unavailable.
- Drinking water supplies and wells may become polluted.
- Floodwaters can cause erosion, which can damage roads, bridge structures, levees, and buildings
 with weak foundations, causing their collapse without warning. Floodwaters may carry the wornaway mud, rocks, and other sediment.
- Landslides and mudslides can occur.
- A few inches of floodwater in a home can cause tens of thousands of dollars in damage.

<u>Flood-related injuries and deaths are often the result of individuals trapped in floodwaters. The best way to stay safe is to leave areas that flood and avoid floodwaters.</u>

A. Evacuate

To avoid being trapped when floodwaters threaten your area, the best action to protect yourself and your family is to evacuate before flooding starts. Know and follow the directions from local officials for community evacuation or seek high ground for localized flooding. If you do not evacuate before the flooding occurs or you are trapped by flash flooding, do not enter flooded areas or moving water either on foot or in a vehicle, including areas that appear to have only inches of water.

B. Elevate, Waterproof, and Clear Debris

Your goal now, before a flood occurs, is to reduce the risk of damage to structures from flooding. This means elevating critical utilities, such as electrical panels, switches, sockets, wiring, appliances, and heating systems, and waterproofing basements. In areas with repetitive flooding, consider elevating the entire structure. Make sure that basements are waterproofed and that your sump pump is working and then install a battery-operated backup in case of a power failure. Installing a water alarm will also let you know if water is accumulating in your basement. Clear debris from gutters and downspouts. Anchor any fuel tanks. Move furniture, valuables, and important documents to a safe place.

C. Know Your Flood Risk

Learn whether you live, work, or travel through areas that are prone to flooding. To help communities understand their risk of flooding, the Federal Emergency Management Agency (FEMA) creates flood maps (Flood Insurance Rate Maps, or FIRMs) to show the locations of high-risk, moderate-to-low risk, and undetermined risk areas. To check flood risk, enter your address at https://www.floodsmart.gov/flooding

According to the National Flood Insurance Program (NFIP), more than 25 percent of all flood claims each year come from homes outside areas at high risk for flooding. To participate in the NFIP, local communities must adopt floodplain management regulations that meet or exceed its minimum requirements.

D. Know How to Stay Informed

Receiving timely information about weather conditions or other emergency events can make all the difference in knowing when to take action to be safe.

- Monitor the weather reports provided by your local news media.
- Many communities have text or email alerting systems for emergency notifications. To find out what alerts are available in your area, do an Internet search with your town, city, or county name and the word "alerts."
- Consider buying a NOAA Weather Radio (NWR) All Hazards receiver, which receives broadcast
 alerts directly from NWS. You can purchase these at many retail outlets, such as electronics and big
 box stores, or online. Some NWR receivers are designed to work with external notification devices
 with visual and vibrating alerts for people who are deaf or hard of hearing. For more information on
 NWR receivers, visit http://www.nws.noaa.gov/nwr/info/nwrrcvr.html
- Think about how you will stay informed if there is a power outage. Have extra batteries for a battery-operated radio and your cell phone. Consider having a hand crank radio or cell phone charger.
- Use USGS's Water Alert system (https://maps.waterdata.usgs.gov/mapper/wateralert/) to receive texts or email messages when a stream in your area is rising to flood level.

E. Know Evacuation Routes; Plan Your Transportation and a Place to Stay

- The safest way to survive a flood is to evacuate the area if advised to leave. To ensure that you will be able to act quickly should the need arise, you need to plan ahead.
- Know your community's local flood evacuation plan and identify several escape routes for your location if roads are blocked; include plans to evacuate people with disabilities and others with access and functional needs, pets, service animals, and livestock.
- If you will evacuate by car, keep your car fueled and in good condition. Keep emergency supplies and a change of clothes in your car.
- If you will need to share transportation, make arrangements now. If you will need to use public transportation, including paratransit, contact your local government emergency management agency to ask how an evacuation will work, how you will get current information during an evacuation, the location of staging areas, and other information.
- If you need to relocate for an extended period of time, identify a place away from home now where you could go if you had to leave. Consider family or friends who live outside of the local area.

• If you expect to go to a shelter after evacuating, download the American Red Cross Shelter Finder app. This app displays open American Red Cross shelters and provides the capacity and current population of each shelter. Visit https://maps.redcross.org/website/maps/ARC_Shelters.html. You can also text SHELTER + your ZIP code to 43362 (4FEMA) to find the nearest shelter in your area. If you have pets and plan to go to a shelter, call to inquire whether the shelter can accommodate your pets. Shelters will accept service animals.

F. Flood Insurance

Purchasing flood insurance provides financial protection for the cost of repairs due to flood damage. Standard insurance policies do not cover flooding, but flood insurance is available for homeowners, renters, and business owners through the National Flood Insurance Program.

Protecting yourself today means having sources for information, preparing your home or workplace, developing an emergency communications plan, and knowing what to do when a flood is approaching your home or business. Taking action today can save lives and property.

G. Practice How You Will Communicate with Family Members

In a dangerous situation, your first thoughts will be the safety of your family and friends. In case you are not together when authorities issue a flood watch or flood warning, practice how you will communicate with each other. Remember that sending texts is often faster than making a phone call. Keep important numbers written down in your wallet not just in your phone. It is sometimes easier to reach people outside of your local area during an emergency, so choose an out-of-town contact for all family members to call or use social media. Decide where the members of your household will meet after the flood.

Visit https://www.ready.gov/make-a-plan for instructions on developing a Household Communication Plan.

If you would like more information, the following resources may be helpful

FEMA Above the Flood: Elevating Your Flood prone House:

https://www.fema.gov/media-library-data/20130726-1443-20490-3026/fema347cvr toc.pdf

FEMA After a Flood: The First Steps: https://www.fema.gov/media-library-data/20130726-1511-20490-0446/after a flood.pdf

312.pdf

FEMA Hurricane Sandy Issue Paper: Guidance for Turning the Power Back On:

https://sites.wp.odu.edu/VAHH/wp-content/uploads/sites/1768/2016/06/turning power back on 11 13 12.pdf

FEMA Hurricane Sandy Recovery Fact Sheet #1: Cleaning Flooded Buildings:

https://www.fema.gov/media-library-data/1381405548275-

ec9f9b9de186f1874b92ecda6c33182b/SandyFactsheet1CleaningFloodedBldgs 508 FINAL2.pdf

FEMA Protecting Building Utilities From Flood Damage:

https://www.fema.gov/media-library/assets/documents/130314

NWS Flood Safety calendar: https://www.weather.gov/safety/events_calendar

NWS Hurricane Flooding: A Deadly Inland Danger: http://www.tohsep.com/uploads/files/HurricaneFlooding.pdf

NWS NOAA River Forecast: Middle Atlantic Region https://www.weather.gov/marfc/Forecasts

Southeast Region https://www.weather.gov/serfc/

NWS Tropical Cyclone Inland Flooding: http://www.noaa.gov/stories/inland-flooding-hidden-danger-of-tropical-cyclones

Turn Around Don't Drown®: https://www.weather.gov/safety/flood-turn-around-dont-drown

USGS Water Alert: http://maps.waterdata.usgs.gov/mapper/wateralert

Ready: www.Ready.gov/floods

II. BUILDING A SURVIVAL KIT

A. Basic Disaster Supplies Kit

To assemble your kit, store items in airtight plastic bags and put your entire disaster supplies kit in one or two easy-to-carry containers such as plastic bins or a duffel bag.

A basic emergency supply kit could include the following recommended items:

- Water one gallon of water per person per day for at least three days, for drinking and sanitation,
- Food at least a three-day supply of non-perishable food / manual can opener,
- Battery-powered or hand crank radio and a NOAA Weather Radio with tone alert,
- Flashlight / Extra batteries,
- First aid kit,
- Whistle to signal for help,
- Dust mask to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place,
- Moist towelettes, garbage bags and plastic ties for personal sanitation,
- Wrench or pliers to turn off utilities,
- Local maps,
- Cell phone with chargers and a backup battery.

Recommended Supplies List https://www.fema.gov/media-library-data/1390846764394-dc08e309debe561d866b05ac84daf1ee/checklist 2014.pdf

B. Additional Emergency Supplies

Consider adding these items to your emergency supply kit based on your individual needs:

- Prescription medications,
- Non-prescription medications such as pain relievers, anti-diarrhea medication, antacids or laxatives,
- Glasses and contact lens solution,
- Infant formula, bottles, diapers, wipes, diaper rash cream,
- Pet food and extra water for your pet,
- Cash or traveler's checks.
- Important family documents such as copies of insurance policies, identification and bank account, records saved electronically or in a waterproof, portable container,
- Sleeping bag or warm blanket for each person,
- Complete change of clothing appropriate for your climate and sturdy shoes,
- Household chlorine bleach and medicine dropper to disinfect water,
- Fire extinguisher,
- Matches in a waterproof container,
- Feminine supplies and personal hygiene items,
- Mess kits, paper cups, plates, paper towels and plastic utensils,
- Paper and pencil.
- Books, games, puzzles or other activities for children.

C. Maintaining Your Kit

After assembling your kit remember to maintain it so it's ready when needed:

- Keep canned food in a cool, dry place,
- Store boxed food in tightly closed plastic or metal containers,
- Replace expired items as needed,
- Re-think your needs every year and update your kit as your family's needs change.

D. SENIORS – Get Informed and Make a Plan

Know what disasters could affect your area, which could call for an evacuation and when to shelter in place.

- Keep a NOAA Weather Radio tuned to your local emergency station and monitor TV, radio, and follow mobile alert and mobile warnings about severe weather in your area.
- Download the FEMA app, receive weather alerts from the National Weather Service for up to five different locations anywhere in the United States.

Next, determine any special assistance you may need, and include in your emergency plan.

- Create a support network of family, friends and others who can assist you during an emergency, and share your disaster plans with them. Practice your plan with them.
 - Make sure they have an extra key to your home, know where you keep your emergency supplies and how to use lifesaving equipment or administer medicine.
- If you undergo routine treatments administered by a clinic or hospital, find out their emergency plans and work with them to identify back-up service providers.
- If you have a communication-related disability, note the best way to communicate with you.
- Don't forget your pets or service animals. Not all shelters accept pets, so plan for alternatives.
- Prepare an emergency kit for your pet.
- Consider loved ones or friends outside of your immediate area.
- For related information visit our page on Individuals with disabilities. https://www.ready.gov/individuals-access-functional-needs

For additional detailed information please visit this web link: https://www.ready.gov/build-a-kit

III. STOCKING A SURVIVAL KIT FOR YOUR VEHICLE

In case you are stranded, keep an emergency supply kit in your vehicle with the addition of these automobile extras: Jumper cables / Flares or reflective triangle / Ice scraper / Car cell phone charger / Cat litter or sand for better tire traction.

A. Prepare Your Vehicle for Emergencies

Have a mechanic check the following on your vehicle prior to an emergency: Antifreeze levels / Battery & ignition system / Brakes / Exhaust system / Fuel and air filters / Heater and defroster / Lights and flashing hazard lights / Oil / Thermostat / Windshield wiper equipment and washer fluid level.

B. Vehicle Safety Tips

- Keep your gas tank full in case of evacuation or power outages. A full tank will also keep the fuel line from freezing.
- Install good winter tires; ensure they have adequate tread or any jurisdiction-required chains or studs.
- Do not drive through flooded areas. Six inches of water can cause a vehicle to lose control or possibly stall. A foot of water will float many cars.
- Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a car.
- If a power line falls on your car you are at risk of electrical shock, stay inside until a trained person removes the wire.
- If there is an explosion or other factor that makes it difficult to control the vehicle, pull over, stop the car and set the parking brake.

If the emergency could impact the physical stability of the roadway avoid overpasses, bridges, power lines, signs and other hazards.

IV. SHORE UP FINANCES BEFORE DISASTER

Americans at all income levels have experienced the challenges of rebuilding their lives after a disaster or other emergency. In these stressful circumstances, having access to personal financial, insurance, medical, and other records is crucial for starting the process of recovery quickly and efficiently. Taking the time now to collect and secure these critical records will give you peace of mind and, in the event of an emergency, will ensure that you have the documentation needed to start the recovery process without delay.

- 1. Gather financial and critical personal, household, and medical information.
- 2. Consider saving money in an emergency savings account that could be used in any crisis.
- 3. Keep a small amount of cash at home in a safe place. It is important to have small bills on hand because ATM's and credit cards may not work during a disaster when you need to purchase necessary supplies, fuel or food
- 4. Obtain property (homeowners or renters), health, and life insurance if you do not have them. Review existing policies for the amount and extent of coverage to ensure that what you have in place is what is required for you and your family for all possible hazards.

Homeowners insurance does not typically cover flooding, so you may need to purchase flood insurance from the <u>National Flood Insurance Program</u>. For more financial preparedness tips and download the <u>Emergency</u> Financial First Aid Kit (EFFAK) to get started planning today.

EFFAK link: https://www.ready.gov/financial-preparedness

V. TIPS TO KEEP PETS SAFE

Make a plan. Remember, during a disaster what's good for you is good for your pet, so get them ready today. If you leave your pets behind, they may be lost, injured – or worse. Never leave a pet chained outdoors. Plan options include:

- Create a buddy system in case you're not home. Ask a trusted neighbor to check on your animals.
- Identify shelters. For public health reasons, many emergency shelters cannot accept pets.

Find pet friendly hotels along your evacuation route; keep a list in your pet's emergency kit. Locate boarding facilities or animal hospitals near your evacuation shelter.

Consider an out-of-town friend or relative.

- Locate a veterinarian or animal hospital in the area where you may be seeking temporary shelter, in case your pet needs medical care. Add the contact information to your emergency kit.
- Have your pet microchipped and make sure that you not only keep your address and phone number up-to-date, but that you also include contact info for an emergency contact outside of your immediate area.
- Call your local emergency management office, animal shelter or animal control office to get advice and information.
- If you are unable to return to your home right away, you may need to board your pet. Find out where pet boarding facilities are located.
- Most boarding kennels, veterinarians and animal shelters will need your pet's medical records to make sure all vaccinations are current.
- If you have no alternative but to leave your pet at home, there are some precautions you must take, but remember that leaving your pet at home alone can place your animal in great danger!

For additional information please visit https://www.ready.gov/animals.

VI. HELPING NEIGHBORS

Comprehensive preparedness requires the whole community to participate and FEMA places tremendous value on communities that embrace a local "Neighbors Helping Neighbors" approach. Neighbors Helping Neighbors empowers community leaders to involve and educate individuals from their community about simple steps one can take to become more prepared. Forty-six percent of individuals expect to rely a great deal on people in their neighborhood for assistance within the first 72 hours (minimum) after a disaster.

When the whole community comes together to respond to and help recover from these emergencies - neighbor helping neighbor - we can often meet the needs of everyone.

The Neighbor Helping Neighbor approach seeks to support state, tribal and local agencies, civic organizations, faith-based groups and other community organizations that serve the whole community. FEMA works to provide these organizations with additional tools and preparedness training opportunities so they can become more prepared. For additional information please visit https://www.ready.gov/neighbors.

VII. AFTER THE DISASTER (How to Reconnect with Loved Ones)

A. Household Information

Write down phone numbers and email addresses for everyone in your household. Having this important information written down will help you reconnect with others in case you don't have your mobile device or computer with you or if the battery runs down. If you have a household member(s) who is Deaf or hard of hearing, or who has a speech disability and uses traditional or video relay service (VRS), include information on how to connect through relay services on a landline phone, mobile device, or computer.

B. Out-of-Town Contact

It is also important to identify someone outside of your community or State who can act as a central point of contact to help your household reconnect. In a disaster, it may be easier to make a long-distance phone call than to call across town because local phone lines can be jammed.

C. School, Childcare, Caregiver and Workplace Emergency Plans

Because a disaster can strike during school or work hours, you need to know their emergency response plans and how to stay informed. Discuss these plans with children, and let them know who could pick them up in an emergency. Make sure your household members with phones are signed up for alerts and warnings from their school, workplace, and/or local government. For children without mobile phones, make sure they know to follow instructions from a responsible adult, such as a teacher or principal.

D. Emergency Meeting Places

Decide on safe, familiar places where your family can go for protection or to reunite. Make sure these locations are accessible for household members with disabilities or access and functional needs. If you have pets or service animals, think about animal-friendly locations. Identify the following places:

- Indoor: If you live in an area where tornadoes, hurricanes, or other high-wind storms can happen, make sure everyone knows where to go for protection. This could be a small, interior, windowless room, such as a closet or bathroom, on the lowest level of a sturdy building, or a tornado safe room or storm shelter.
- In your neighborhood: This is a place in your neighborhood where your household members will meet if there is a fire or other emergency and you need to leave your home. The meeting place could be a big tree, a mailbox at the end of the driveway, or a neighbor's house.
- Outside of your neighborhood: This is a place where your family will meet if a disaster happens when you're not at home and you can't get back to your home. This could be a library, community center, house of worship, or family friend's home.
- Outside of your town or city: Having an out-of-town meeting place can help you reunite if a disaster happens and:
 - You cannot get home or to your out-of-neighborhood meeting place; or
 - Your family is not together and your community is instructed to evacuate the area.

Please visit the following web link for additional information: https://www.fema.gov/media-library-data/1440449346150-1ff18127345615d8b7e1effb4752b668/Family Comm Plan 508 20150820.pdf

VIII. PLACES TO TURN TO FOR ASSISTANCE

This web link will provide disaster assistance: https://www.disasterassistance.gov/
The site will provide links for the following: Application Checklist / FAQs / National Flood Insurance Program / Food, Housing & Other Immediate Needs / Other Recovery Help / Form of Assistance / Transitional Sheltering Assistance (TSA) Hotel Locator.

A. FEMA Mobile App

https://www.fema.gov/mobile-app



- This app will provide the user with alerts form the National Weather Service and will provide severe weather alerts for up to five locations across the U.S. and see information about how to say safe.
- Maps of disaster resources: Locate and receive driving directions to open shelters and disaster recovery centers.
- Apply for assistance: Easily access DisasterAssistance.gov to apply for federal disaster assistance.
- Custom emergency safety information: Save a custom list of the items in your family's emergency kit, as well as the places you will meet in case of an emergency.
- Safety tips: Receive safety and preparedness reminders and learn how to stay safe before, during, and after over 20 types of hazards, including floods, hurricanes, tornadoes and earthquakes.
- Information in Spanish: Easily toggle between English and Spanish for all features of the app.

B. Disaster Apps

These apps are *examples* of available applications that may help during disaster and are only examples.



Zello Walkie-talkie app. Zello is a free push-to-talk application for smartphones, tablets, and PCs. When Category 5 Hurricane Irma (one of the strongest hurricanes ever recorded in the Atlantic) was on its way toward the Caribbean and the US, a little-known walkie-talkie app has shot to the top of Apple's App Store. The free app, called Zello Walkie Talkie, lets your phone communicate as a two-way radio so long as you have a network or Wi-Fi connection. What makes it useful is that it allows immediate voice communication to others in a shared channel, as opposed to having to place a phone call and hope someone on the other end picks up. The ad-free service can also be used to send texts and photos.

GasBuddy will assist drivers to find the cheapest gasoline in their area. During Hurricane Irma many drivers downloaded the GasBuddy app to help in finding gas stations that had fuel and electricity.



https://gasbuddy.com



The Weather Channel app will provide reliable forecasts, interactive radar and real-time rain alerts. The app will also allow the user to track severe weather events like hurricanes, tornadoes and other storms.

https://weather.com/apps

Disaster-Alert App This app will assist the user in tracking what is occurring in the United States.

https://www.pdc.org/







Disaster Apps will deliver information when and where you need it most.

http://www.redcross.org/get-help/how-to-prepare-for-emergencies/mobile-apps

Part location and part communication Life360 keeps millions of families and close friends connected.

https://www.life360.com/





ICE (for In Case of Emergency) (Android) is an abbreviation that a cell phone user can enter into the device's directory to identify the telephone number of a primary contact, such as next of kin. In an emergency situation, when a person may not be able to speak, the ICE listing allows rescue workers or other helpers to notify the appropriate person and get relevant information as quickly as possible.

https://play.google.com/store/apps/details?id=com.clusor.ice&hl=en

This app will provide the following information: Local Weather / Road Conditions / Power Outages / Open Shelters / Evacuations / NC Hazards / Emergency Plan & Kit info. / Flood Gages / Disaster Assistance

https://readync.org/EN/Index.html





This app will provide the following information: Alerts / Planning / Supply Kit / Local Recourses / Disaster News / Threats

http://www.vaemergency.gov/prepare-recover/readyvirginia-mobile-app/



This app will provide the following information:

- Prepare Emergency Kits through interactive checklists
- View Emergency Preparation Guides for different types of emergencies
- Create customized Family Communication Plans
- Send an "I'm Safe" message via email, text, and social networks
- View real-time alerts for emergencies, weather and traffic
- Monitor current cyber threats and suspicious activity
- Access Maryland Emergency Management Agency news and events
- View current and extended national weather forecasts based on current location; ability to save multiple locations
- Locate Maryland Emergency Management Agency contacts and other useful emergency resources
- Customizable application settings and privacy controls

http://www.maryland.gov/Pages/Mobile-App-Helps-Marylanders-Prepare-for-Severe-Weather-and-Disasters.aspx



This utility that can help you monitor your iPhone, iPod or iPad current percentage of electricity, and help you to charge. Prompted by Battery HD in real time charging to extend battery life, increase the efficient use of the battery.



http://www.smallte.ch/cute-battery en.html

Greenify (Android)

Cute-Battery