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This document is brought to you by Roanoke County, Department of Development Services, pursuant to the County's requirements under the Community Rating System (CRS), a voluntary program for recognizing and encouraging community floodplain management activities that exceed the minimum standards set up for the National Flood Insurance Program. Should you have any questions about the CRS Program or other material in this newsletter, please contact Butch Workman, Stormwater Operations & Floodplain Manager, at 540-772-2037 or via email at [bworkman@roanokecountyva.gov](mailto:bworkman@roanokecountyva.gov).



## Remember . . .

- Planning for a disaster is the best way to survive it.

## Quick Tips for Flood Preparedness

### MAKE AN EMERGENCY KIT

It should include the following:

- Important documents and contact information; water; non-perishable food.
- Battery operated radio; local maps; emergency blankets.
- Batteries; flashlight; solar chargers for cell phones; first aid kit; medications.
- Change of clothes; cash.
- Tools; duct tape.
- Can opener.
- Whistle; light sticks.
- Trash bags; sanitation supplies; re-closeable storage bags and/or waterproof containers.
- Toilet paper; hand sanitizer; "baby" wipes.

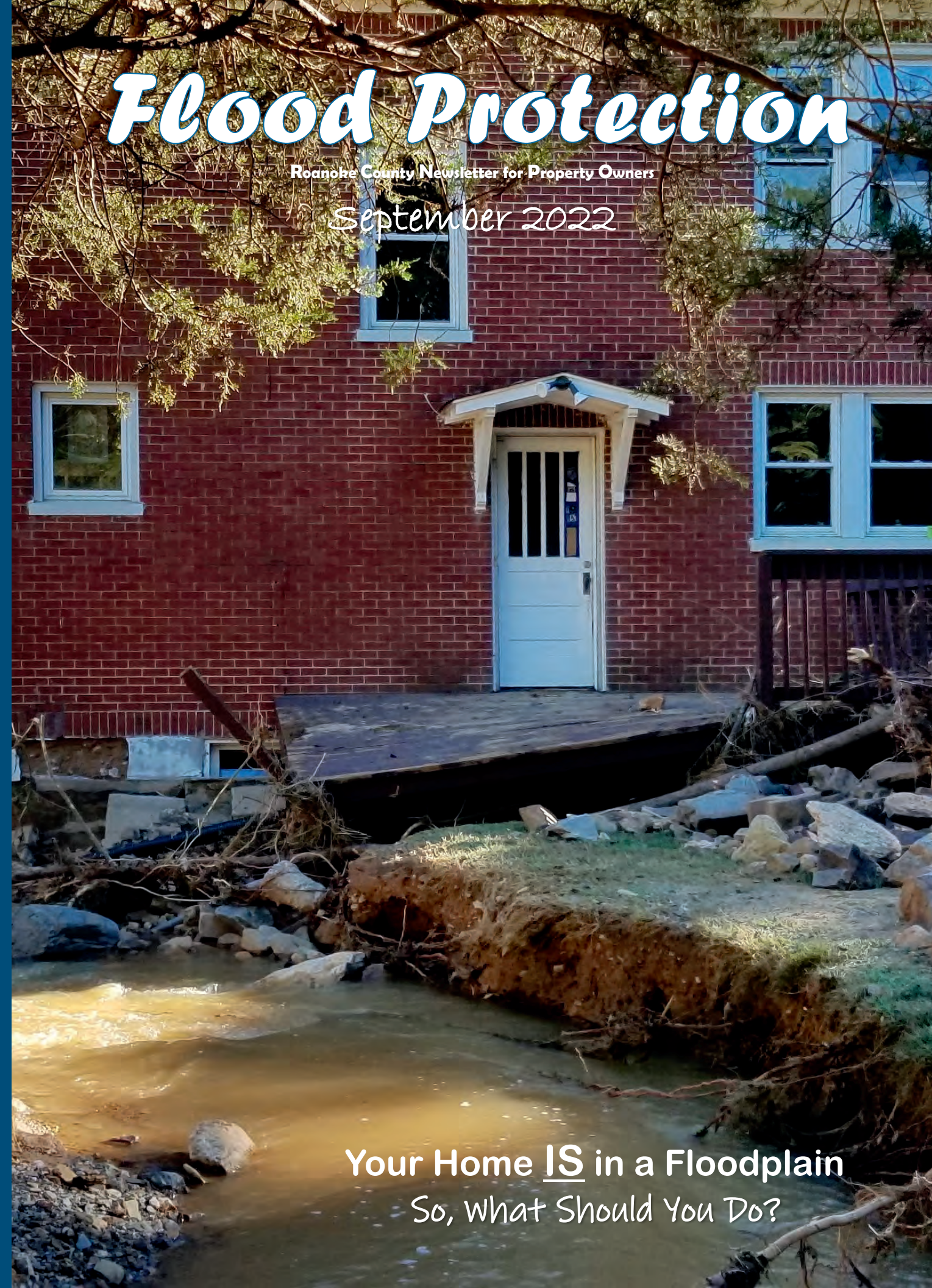
### PLAN FOR AN EMERGENCY

- Develop an exit strategy for your family and pets, to include your: [shelter plan](#), [evacuation route](#), and [family communication plan](#).
- Sign up to receive emergency alerts from Roanoke County at the following website: <https://www.roanokecountyva.gov/rcoalert>
- Acquire flood insurance; review your policy at least annually to ensure you have ample coverage for your needs.
- Make your home safer (see p. 8).
- Develop a detailed inventory of your property's contents to prove the value of what you owned before a disaster.
- **\$**ave money for a "rainy day."

# Flood Protection

Roanoke County Newsletter for Property Owners

September 2022



Your Home IS in a Floodplain  
So, What Should You Do?

## Your Property IS in or Near a Floodplain or Special Flood Hazard Area (SFHA)

This flood protection newsletter is annually sent to residents who own or lease structures that are in or near areas subject to flooding. There are several options to determine if a property is in a floodplain or a SFHA:

- Visit <https://gisweb.roanokecountyva.gov/floodview/>.
- Call Roanoke County's Department of Development Services at (540) 772-2037.
- Call the Federal Emergency Management Agency (FEMA) at 1-877-FEMA MAP (1-877-336-2627).

The Federal Emergency Management Agency (FEMA) defines SFHAs as land areas that are at high risk for flooding. These areas are indicated on Flood Insurance Rate Maps (FIRMs) and on Digital Flood Insurance Rate Maps (DFIRMs).



*It pays to be prepared, as flooding may occur at any time, with little or no warning.*

## Know Your Flood Hazard

Flooding may occur at any time, with little or no warning. There are four main sources of local flood hazards: (1) floodplains; (2) rivers and streams during heavy storms; (3) inadequate overland relief during heavy storms; and (4) flash flooding caused by hurricanes and tropical storms. **Properties in a floodplain or in a SFHA may flood at any time.** Areas of flood hazards are identified on the 2007 DFIRMs. Visit <https://gisweb.roanokecountyva.gov/floodview/>.

In general, the SFHAs are labeled as Zone A or Zone AE. **Zone A** is the area subject to inundation by the “one percent-annual chance” flood (also known as the base flood) event generally determined by using approximate methodologies.

### DID YOU KNOW?

- Special Flood Hazard Areas (SFHAs) are high risk areas that have a 1% chance of being inundated by a base flood in any given year, as identified on the National Flood Insurance Program (NFIP) maps.

**Zone AE** is the area subject to inundation by the “one-percent-annual-chance” flood event determined by detailed methodologies. Base Flood Elevations (BFEs) are shown on the FIRMs.

- \* For more information about Zones A and AE, visit [www.fema.gov/flood-zones](http://www.fema.gov/flood-zones).
- \* For FEMA's Flood Map Service Center, visit <https://msc.fema.gov>.

### Your Property IS in or near a Floodplain!

- For more information, stop by or call us:  
**Roanoke County - Development Services**  
5204 Bernard Drive  
Roanoke, VA 24018  
540-772-2037

## Protect Yourself from Flood Hazards

Flooding occurs in virtually every community, including Roanoke County. Flash floods are considered the most dangerous and may occur within a few minutes of excessive rainfall, following a dam failure, or from a sudden release of water held by a “debris jam.” Flash floods often have a dangerous flow of water that may carry rocks, mud, tree limbs, and other debris, all of which pose a hazard to humans or property caught in the flow path.

Overland flooding occurs when rivers and streams overflow their banks. Occasionally, the capacity of storm drain pipes designed to carry stormwater away from streets and yards is exceeded, which then results in street and overland flooding.

For more information about flooding, visit Roanoke County's website at: <https://roanokecountyva.gov/329/Flooding-in-Roanoke-County>



## Turn Around, Don't Drown

In 2021, 145 people drowned in flash floods/river floods in the United States: 81 (56%) were male, while 64 (44%) were female. According to the National Weather Service (NWS), of the 145 fatalities, 76 people were driving; 8 people were walking/hiking; 40 people were at home; 1 person was boating; 2 people fell into flood waters; 1 person was working; and 10 people were associated with other activities. Compare this to 2020, where 59 people died in floods: 53 percent were male and 47 percent were female. As of this writing, 23 people have drowned this year from January to July 2022. To learn more about these and other related statistics, visit the NWS website at: <https://www.weather.gov/arx/usflood>.

Flash flooding is **the most dangerous** type of flooding, as it combines the destructive power of water and its incredible speed and unpredictability.

The majority of people who died in floods made one common and fatal mistake: they drove their vehicles (including pickup trucks, vans, and sport utility vehicles), into flood waters.

According to the U.S. Geological Survey, water that is one foot deep typically exerts 500 pounds of lateral force on a vehicle. Once the vehicle is floating, the floodwater becomes the steering wheel. If the water is moving, the vehicle may be swept away, tipped on its side, or flipped over, trapping the occupants inside. Also, it is very important to remember that a bridge or road that cannot be seen under floodwaters may have been undermined or washed out. So, when you see flood waters, turn around, don't drown!" Please watch the following video: <https://www.youtube.com/watch?v=Ik4MUI222pU>.

## Flood Insurance & the Community Rating System

Roanoke County participates in the National Flood Insurance Program (NFIP) Community Rating System (CRS) sponsored by FEMA. This is a voluntary program for recognizing and encouraging community floodplain management activities that exceed the minimum standards set up for the National Flood Insurance Program. The program does this by adjusting flood insurance rates to reflect the reduced flood risks that are a result of community activities that reduce flood losses, facilitate accurate insurance ratings, and promote awareness of flood insurance.

Participation in the CRS is a service for County residents and provides an opportunity for property owners to purchase flood insurance at discounted rates. Residents in Roanoke County may qualify for a Preferred Risk Policy (PRP), which offers multiple coverage combinations for buildings and contents, or contents-only coverage for renters who are located in moderate to low risk areas. PRPs are available for both residential and commercial buildings located in these areas that meet eligibility requirements based on the flood loss history of the building.

Roanoke County has participated in the program since October 1991 and maintains a Class 8 CRS Rating. With this rating, residents may obtain flood insurance on properties in Special Flood Hazard Areas (SFHAs) at a 10% discount on their flood insurance premiums.

Owners whose properties are not in SFHAs receive a 5% discount.

Flooding is the most common natural disaster in Virginia, and it may occur at any time of year. Repairs are quite expensive. One inch of water in a home or office may cause significant damage. Unfortunately, most homeowners' insurance policies do not cover losses from flooding. Because of this, property owners and residents are strongly encouraged to contact their insurance agent to determine the extent of their policy coverage. It is important to note that after applying for flood insurance, there typically is a 30-day waiting period before coverage begins.

Renters may buy flood insurance for their personal belongings or business inventory. Coverage may include cleanup expenses and repair or replacement of such items as furnaces, water heaters, washers, dryers, air conditioners and freezers. To learn more about the value of flood insurance, click here:

<https://www.youtube.com/watch?v=tMaX4GGDFm0>

Flood insurance benefits do not have to be repaid. Flood-related claims may be covered even if a disaster was not declared. Flood insurance may cover homes and businesses and protect the property owner's financial security.

For more information, see FEMA's Community Rating System website <https://www.fema.gov/flood-insurance>.

## The National Flood Insurance Program

Most homeowner insurance policies do not cover damage caused by flooding. The National Flood Insurance Program (NFIP) was created to enable property owners in participating communities, including Roanoke County, to purchase flood insurance protection. **Properties that have been officially identified as being in a Special Flood Hazard Area and that have a federally-backed mortgage are required to participate in the National Flood Insurance Program.** This includes all loans from banking institutions with deposits guaranteed by the Federal Deposit Insurance Corporation. However, the program is available to all property owners, including owners of properties that have been flooded and properties located outside of Special Flood Hazard Areas. Flood insurance policies that have been purchased as a bank or lender requirement, in order to obtain a mortgage or home improvement loan, may cover the structure but may not cover the contents of the property. Property owners should review and discuss their policy with their insurance carrier to ensure that the property is adequately covered. Additional information is available by contacting FEMA, as follows:

- Visit the FEMA National Flood Insurance Program website at [fema.gov/national-flood-insurance-program](https://fema.gov/national-flood-insurance-program).
- Call FEMA at 1-877-FEMA MAP (1-877-336-2627).
- Write to FEMA at Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20472. ■

## FEMA's Risk Rating 2.0

The Federal Emergency Management Agency (FEMA) has updated the National Flood Insurance Program's (NFIP) risk rating methodology through the implementation of a new pricing methodology: **Risk Rating 2.0**. The methodology leverages industry best practices and cutting-edge technology to enable FEMA to deliver rates that are actuarially sound, equitable, easier to understand and better reflect a property's flood risk.<sup>1</sup> Read the related press release: [FEMA Updates Its Flood Insurance Rating Methodology to Deliver More Equitable Pricing](#), or visit [Risk Rating 2.0: Equity in Action | FEMA.gov](#).

## Preparing Children for Emergencies

Emergencies and disasters can happen at any time. Disaster planning, response, and recovery efforts should always consider the unique needs of children, who make up roughly a quarter of the U.S. population. That is why Roanoke County Emergency Management and Development Services are taking steps to promote youth emergency preparedness.

### INVOLVE CHILDREN IN DISASTER PREPAREDNESS:

- Promote interactive activities with your family. One way to do this is to involve children in the development of a family emergency plan.
- Use real world events to teach about emergency situations and disasters. Using current media coverage of floods, tornadoes, hurricanes, or power outages, talk to your children about how your family would respond if one of these events were to happen to you. Using your family emergency plan, discuss where you would go, what would you do, and how you would ensure their safety during an emergency.
- Children who are prepared experience less anxiety and feel more confident during actual emergencies and disasters.
- For younger children, the Federal Emergency Management Agency (FEMA) has collaborated with the American Red Cross to produce a disaster preparedness activity book, "Prepare with Pedro." Please visit <https://www.redcross.org/get-help/how-to-prepare-for-emergencies/teaching-kids-about-emergency-preparedness/prepare-with-pedro.html>
- For more information about emergency preparedness, please visit <https://www.ready.gov/>

## What is Your Property's Flood Risk Factor?

On August 26, 2020, realtor.com® announced a new property listing feature called Flood Factor™ an online flood risk visualization tool developed by the First Street Foundation.<sup>2</sup>

Flood Factor™ provides comprehensive flood risk information for each individual property, including a score ranging from 1 (minimal risk) to 10 (extreme risk) as determined by the cumulative likelihood and potential depth of flooding over the next 15-30 years. Learn more about how a property's risk score is calculated by clicking on this link: [How is my Flood Factor calculated? – Risk Factor™](#)

The new feature, accessible during a search of realtor.com® (along with other filters such as school, noise, and crime), also includes steps that homeowners can take to mitigate risk, along with an estimate of the FEMA flood zone designation for the property and whether flood insurance is required. Flood insurance options are offered to realtor.com® users.

To find your property's flood risk factor, click here: <https://riskfactor.com/>.

<sup>1</sup> FEMA. [Risk Rating 2.0: Equity in Action | FEMA.gov](#)

<sup>2</sup>National Association of REALTORS, October 29, 2020. [https://riskfactor.com/?utm\\_source=floodfactor](https://riskfactor.com/?utm_source=floodfactor),

- Floods are the #1 natural disaster in the United States
- Real-time flooding updates: [www.usgs.gov](https://www.usgs.gov)
- Other useful websites: [Rate Explanation Guide \(fema.gov\)](#)  
[www.weather.gov](https://www.weather.gov)  
[www.ready.gov](https://www.ready.gov)

# Turn Around

*Don't Drown*



## Do Your Part. . . Be FLOOD SMART:

- Stay out of flood waters. Just six inches of swiftly moving water can sweep you off of your feet.
- Keep children away from flood waters.
- Do not drive into flooded roadways or around barricades.

Preparing for a Flood

As a property owner, getting ready for a flood is the best thing that you can do to minimize flood damage and losses to your buildings and personal property. FEMA<sup>1</sup> suggests that you follow these steps to keep yourself and your belongings protected:

PERSONAL PROTECTION

EVACUATE

To avoid being trapped when flood waters 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. Visit <https://www.ready.gov/floods>.

PROPERTY PROTECTION

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 re-grading your lot to direct water away from structures, 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 above flood levels. 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 trash and debris from gutters, downspouts, and storm drains. Anchor any fuel tanks. Move furniture, valuables, and important documents to a safe place. For more information about protecting buildings, review FEMA's publication entitled *Homeowner's Guide to Retrofitting: Six Ways to Protect Your Home From Flooding*.

RISK MANAGEMENT

OBTAIN 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 (NFIP).

Visit <https://www.floodsmart.gov/flood-insurance> for an estimate of what flood insurance may cost for your property address. **A policy purchased today will take effect in 30 days, so act now.**

REDUCING FLOOD INSURANCE COSTS

**BE PROACTIVE TO REDUCE YOUR PREMIUM.** FEMA identifies 5 major ways to lower the cost of flood insurance, which includes (1) relocating your home out of the base flood elevation; (2) relocating your utility services and equipment above the base flood elevation; (3) installing proper flood openings in your building; (4) filling in existing basements that are in the floodplain; and (5) elevating your house and accessory buildings above the base flood elevation. In addition, FEMA began offering more equitable and risk informed rates in October 2021. The new methodology considers the cost to rebuild along with several other flood variables to determine a property's true flood risk. For more information, click here: <https://www.fema.gov/press-release/20210924/fema-offers-more-equitable-flood-insurance-rates-beginning-oct-1>

<sup>1</sup> FEMA | National Flood Insurance Program. <https://www.floodsmart.gov/community>

Flood Safety

FLOOD SAFETY TIPS

- Be aware of flood warnings.** When there is a threat of flooding, listen to local radio/TV stations for advice.
- Stay away from flood waters.** If you come upon a flowing stream where water is above your ankles, stop, turn around, and go another way. Six inches of swiftly moving water can sweep you off of your feet.
- Keep children away from flood waters.** Flood waters are not only dangerous but also may be contaminated with hazardous materials and poisonous snakes.
- Do not drive into flooded roadways or around barricades.** If you are caught on a flooded road and waters are rising rapidly around you, quickly get out of the car and move to higher ground. Most cars can be swept away by less than one foot of moving water.
- Stay away from power lines.** If power lines are down, do not step in puddles or standing water. Report downed wires to Appalachian Power at 1-800-956-4237.
- Turn off all utilities.** Turn off gas and electricity service, unplug electric appliances, and be alert for gas leaks.
- Be cautious upon returning to your home.** Be alert for possible gas leaks, debris that may have been washed into your house, and wild animals that may have sought shelter during the flood.
- Clean everything that got wet.** During cleanup, wear protective clothing, including rubber gloves and boots, to protect yourself from sewage and chemical contaminations. If an item cannot be cleaned, throw it away.

Floodplain Management Regulations & Permit Requirements

Activities in the floodplain are regulated through the County's Zoning Ordinance 30-74 Floodplain Overlay. The County's Floodplain Administrator oversees the administration and enforcement of these regulations.

Construction in a floodplain must comply with the requirements and have a permit. **Before building, filling, or excavating in a floodplain or near any natural or man-made watercourse, call the County at 540.772.2037 to find out if the proposed activity is allowed and what types of permits are required.** Please be aware of the following:

- Any construction or land disturbance within or adjacent to a natural or man-made watercourse may require a wetlands permit from the U.S. Army Corps of Engineers (USACOE) and/or the Virginia Department of Environmental Quality (DEQ).
- An addition to an existing building that is located in a floodplain may be allowed if the building is located outside of the floodway. The new addition must be elevated two feet above the Base Flood Elevation (BFE).
- New dwellings constructed in a floodplain must be elevated 24 inches above the BFE (100-year flood).
- Existing buildings in floodplains that have been damaged by flood, fire, or other casualty loss may be reconstructed. However, a dwelling damaged to the extent that the cost of repairs equals or exceeds 50% of the building's market value before it was damaged must meet the same requirements as a new building.
- For more information call Development Services at 540.772.2037 or email Butch Workman at [bworkman@roanokecountyva.gov](mailto:bworkman@roanokecountyva.gov). ■

**Floods are the #1 natural disaster in the U.S.**

- Real-time flooding updates: <https://www.usgs.gov/>
- Other useful websites: <https://www.fema.gov/>  
<https://www.weather.gov/>  
<http://www.floods.gov/>

**After disaster strikes, register with the Red Cross** <http://safeandwell.org/>

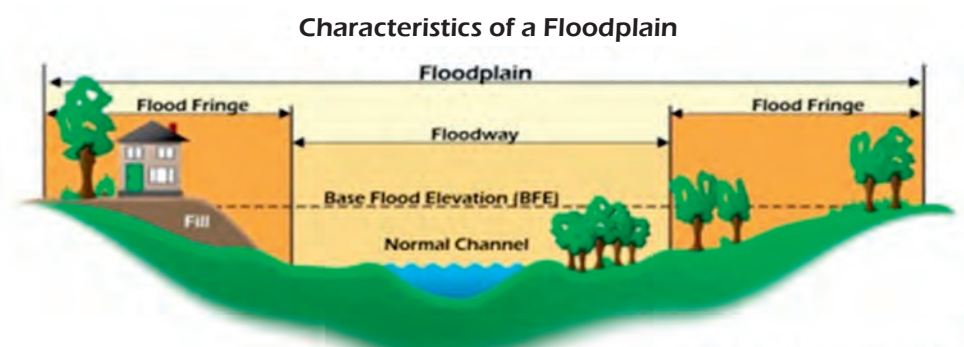
**DID YOU KNOW?**

- The County is required to administer and enforce Floodplain Regulations.
- New dwellings constructed in a floodplain must be elevated 24 inches above the Base Flood Elevation (BFE), i.e. the 100-year flood.

## Floodplains and Flooding

Excessive rainfall often results in flooding. Such flooding can be categorized into three major types: (1) stream flooding, (2) storm drain system flooding, and (3) flooding related to site issues. Each of these are discussed in more detail below:

- **Stream Flooding** - Flooding within mapped floodplains or along small streams where floodplains are not mapped. Flooding happens when the rain occurs in large enough amounts (and short duration) to cause the waterbody (stream, creek, or river) to swell such that the water overflows its banks. The majority of flood damage occurs along streams. Areas with high risk of flooding are identified on the Federal Emergency Management Agency's (FEMA) Flood Maps, which are online at <https://www.fema.gov/flood-maps>.
- **Storm Drain System Flooding** - Flooding due to stormwater runoff volume being greater than the storm drainage system's capacity, which is exacerbated when the storm drainage system is clogged with trash and/or debris.
- **Flooding Related to Site Issues** - Flooding due to inadequate building gutters, downspouts, and area drains; poor site drainage; high groundwater; or sanitary sewer back-ups.



Source: NFIP Guidebook, FEMA

Damages can also occur due to rain-saturated soils triggering both mudslides and retaining wall failures and due to stormwater eroding stream banks or depositing sediments.

Properties that are located within the mapped floodplain are especially susceptible to impacts from stream flooding. This is of concern, because there are 4,311 properties in Roanoke County that are wholly or partially located within the floodplain. Of those, 2,417 are in the floodway, 3,654 are in the 100-year floodplain, and 3,521 are in the 500-year floodplain. (Note that some properties are in one or more of these zones.) If YOUR property is located within a floodplain, it is wise to learn about and understand the inherent risks associated with flooding and what you can do to minimize such risks.

### WHAT IS A FLOODPLAIN?

A floodplain is that area of land along a stream or creek that spans from the top of the creek's bank on one side of the creek to the top of the bank on the opposite side. It includes both the **floodway** and the **flood fringe**, which are both described in more detail below:

The FEMA floodplain comprises two parts:

**Floodway** - The stream channel and portion of the adjacent floodplain that must remain open to permit passage of flood waters up to the base flood (100-year storm). The floodway boundary is set by performing an analysis that simulates (or models) the filling of the floodplain. This "squeezes" the flood waters towards the channel and causes the flood level to rise. At the point where the flood level rises by 1 foot, the floodway boundary is set.

**Floodplain Fringe** - Consists of the remainder of the floodplain adjacent to the floodway. The boundary is set at the base flood elevation (100-year flood). The concept of the 100-year flood is based on probabilities. At the boundary of the 100-year floodplain, there is a 1% chance of annual flooding.

### WHAT SHOULD YOU DO TO PROTECT YOUR PROPERTY IN THE FLOODPLAIN?

- **Buy flood insurance.** According to FEMA, "even if your property is not in a high-risk zone, you may need flood insurance because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many homeowners, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built."
- **Keep drainage inlets on or near your property clear of grass, leaves, and trash.** This will ensure that they can accept stormwater runoff during rain events and will help to minimize street and yard flooding.
- **Make sure all sheds and accessory structures are built outside of the floodway.** And, be sure to get a building permit before you install one!
- **Clean out roof gutters and downspouts.**



### WHAT DOES THE COUNTY DO TO PROTECT PROPERTIES IN THE FLOODPLAIN?

Roanoke County is NOT responsible for maintaining private property in or outside of the floodplain; it is the property owner who is responsible for maintaining their own property. However, the County does have a storm drainage team with 9 full-time employees. This group performs many services associated with County-owned infrastructure, as follows:

- Maintains and improves County-owned drainage system.
- Plans and constructs capital projects (including the pursuit of grant funding for projects).
- Encourages owners of flood prone property to retrofit their homes with measures to mitigate against flooding.
- Performs routine maintenance on culverts and inlets in public drainage easements outside of the Virginia Department of Transportation's (VDOT's) right-of-way.
- Enforces the floodplain ordinance including the issuance of Notice of Violations.
- Issues floodplain development permits.
- Partners with VDOT in planning and/or constructing capital improvement projects.
- Responds to citizen drainage concerns.