



DEPARTMENT OF
**PUBLIC
UTILITIES**

Flood Resilience Kit

A Practical Guide for Before, During and After Flooding



About This Toolkit

Flooding can happen quickly and with little warning. Heavy rainfall, blocked storm drains and rising waterways can all contribute to flooding across Richmond.

This toolkit provides practical steps residents can take before, during and after flooding to protect their homes, families and utilities. It also explains floodplain information, insurance requirements and available resources.

For emergencies, call 911.

Understanding Flood Risk



What Is a Floodplain?

A floodplain is a natural low-lying area next to a river or stream. Floodplains help spread out and slow water during rain events and are an important part of Richmond's water system.

Floodplains affect water quality, wildlife habitat and stormwater runoff. Development or alterations in floodplain areas can have impacts both upstream and downstream.

It is important to understand your level of risk and take steps to protect your family and property.

The City recently adopted the final Flood Insurance Rate Maps (FIRMs). These maps were preliminarily introduced by FEMA in 2023 and were created to reflect the changing weather patterns and increased flood risks.

To determine whether a property is located in a floodplain, residents can view FEMA's floodplain map for Richmond online or contact the DPU Water Resources Division at 804-646-7586.

What Causes Flooding?

Flooding can occur at any time of year and may result from:



Heavy rainfall and severe storms



Flash flooding caused by intense rainfall or thunderstorms



New development that increases hard surfaces and runoff



Blocked storm inlets clogged with trash, sediment, leaves or lawn clippings

Building & Development in Floodplains

Building in floodplains is discouraged in the City of Richmond and is subject to strict guidelines. All areas of the City have flood elevation protection requirements. Alterations to existing development may require floodproofing to reduce damage during flooding events. Residential development in floodplain areas is typically required to carry flood insurance.

For more information about building in a floodplain, contact the Water Resources Division at 804-646-7586.



Flood Insurance



Flood insurance helps protect property owners from financial losses caused by flooding. It can help cover damage to buildings and personal belongings when floodwater enters a structure.

Most standard homeowners insurance policies do not cover flood damage. Because of this, flood insurance is a separate policy that property owners may choose or may be required to purchase.

If you build or purchase property located in a floodplain and carry a mortgage, your lender may require flood insurance. The City of Richmond participates in the National Flood Insurance Program (NFIP) and maintains Flood Insurance Rate Maps identifying floodplain areas.

The City of Richmond also participates in FEMA's Community Rating System (CRS), a program that rewards communities for improving floodplain management and educating residents about flood risk. Participation in CRS helps reduce flood risk and can provide residents with discounts on federal flood insurance.

Under federal regulations, lenders must require flood insurance for structures located in Special Flood Hazard Areas when issuing new loans.

Property owners are responsible for determining whether their structure is located within a floodplain.

FEMA flood maps and additional resources are available online.

Before the Storm: Prepare Your Home & Family

Preparation reduces risk and damage.

Protect Your Property

- Clear leaves and debris from nearby storm drains
- Secure outdoor furniture, trash bins and loose items
- Move valuables out of basements or low-lying areas
- Test sump pumps and backup power sources
- Ensure gutters and downspouts direct water away from structures

Protect Your Household



Sign up for emergency alerts through Richmond Ready (see page 6).



Identify evacuation routes.



Prepare an emergency kit with flashlights, batteries, drinking water and medications.



Review how to safely shut off utilities if needed.

During Flooding: Prioritize Safety

Flood conditions can change rapidly.

- Never drive through flooded roads. Turn around, don't drown.
- Do not drive around flood gates or barricades. These closures are part of Richmond's flood protection system and are installed to keep people safe when water levels rise.
- Avoid walking through standing water. Floodwater may be contaminated.
- Stay away from downed power lines.
- Follow guidance from emergency officials.

Richmond's flood protection system includes levees, floodwalls and roadway closures designed to protect parts of the city during high water events.

Report Utility Issues

If you observe a utility issue during a storm or flooding event, please report it using the appropriate contact method below.

When to Call DPU (804-646-4646)

- A strong natural gas odor
- Water unexpectedly flowing from the ground, street or sidewalk (possible water main break)
- A major water main break flooding streets or property
- A sewer backup into a home or building
- Flooding that creates immediate danger to people or structures
- Downed utility infrastructure or other hazardous conditions
- Low water pressure
- Discolored or cloudy water
- Suspected water leaks on the customer side of the meter
- Billing or service questions related to water use



If water service is disrupted, limit water use and follow any boil water advisories issued by the City.



Stay Informed with Richmond Ready!

Richmond Ready Alerts notify people who live, work and visit in Richmond about hazards or threats that may affect their safety.

Alerts are based on your location and can be sent to your phone, landline or email.

If you smell natural gas:

- Leave the area immediately
- Do not use electrical switches or open flames
- Call 911 and notify DPU

When to Submit Requests at RVA311.com or call 3-1-1

- Blocked storm drains or inlets
- Standing water that does not pose an immediate hazard
- Sewer odor concerns

After Flooding: Recovery & Cleanup

Property Cleanup

- Wear gloves and waterproof boots
- Disinfect surfaces exposed to floodwater
- Remove damaged materials promptly
- Document damage for insurance purposes

Water Safety

If service was interrupted:

- Run cold water for several minutes before use
- Follow boil water advisories if issued
- If water appears discolored, allow cold water to run until clear and report persistent issues.

Natural Gas Safety

Do not relight gas appliances yourself. Contact DPU at 804-646-4646 if you have concerns about gas service.

Richmond's Flood Protection System

Richmond's local flood protection system spans approximately 3.28 miles and protects about 750 acres valued at roughly \$153 million.

The system includes:

- Earthen levees
- Concrete floodwalls
- Pump stations
- Roadway and railroad closures
- Designated ponding areas



Richmond's Floodwall is pictured to the left.

Richmond's flood protection system is a critical part of the city's resilience strategy and helps safeguard residents, businesses and infrastructure during major storm events.

The flood protection system includes both a southside alignment and a northern alignment.

The southside alignment includes:

- An earthen levee approximately 9,000 feet long
- A bin wall and levee combination approximately 2,000 feet long
- A concrete floodwall approximately 2,000 feet long

This protection line extends from west of the Manchester Bridge along the river's edge to the west side of Interstate 95, then south and west, crossing the CSX railway mainline and tying into higher ground near Goodes Street.

The northern alignment includes:

- A concrete floodwall approximately 4,500 feet long across the mouth of Shockoe Valley extending to 12th Street.
- The wall varies in height from about five feet to 29 feet
- The wall was designed to protect areas behind it from a flood event with an average recurrence interval of approximately 280 years.

During high river stages, interior runoff that exceeds pump station capacity may temporarily collect in designated ponding areas. After river levels recede, these areas drain by gravity through their outlets.

System Monitoring and Maintenance

The City regularly inspects and maintains the flood protection system to ensure it functions properly during high water events.

Maintenance activities include:

- Routine inspections of levees and floodwalls
- Testing and exercising flood gates and roadway closures
- Pump station testing and operational checks
- Debris removal and maintenance of drainage areas

The entire system also undergoes annual operational testing to ensure that flood protection features can be deployed and function as intended during severe weather events.

These inspections and testing procedures help ensure the system remains ready to protect Richmond residents and infrastructure.

Stormwater & Drainage

Storm drains carry rain water away from streets and homes and are not connected to the sanitary sewer system.

The Department of Public Utilities works year-round to maintain and improve the stormwater system to help reduce flooding and protect water quality.

DPU crews:

- Inspect and maintain storm drains and inlets throughout the city
- Remove debris and sediment that can block drainage
- Maintain pipes, channels and other stormwater infrastructure
- Respond to reports of blocked drains and localized flooding
- Plan and implement projects that improve stormwater capacity and flood resilience

These efforts also support Richmond's Municipal Separate Storm Sewer System (MS4) program, which helps reduce pollution and protect local waterways.

Residents can help reduce flooding by:

-  Keeping storm drains clear.
-  Avoiding dumping yard waste into streets or drains.
-  Reporting blocked or damaged inlets.
-  Community partnership helps protect neighborhoods during heavy rainfall.



Resource Links

[Floodplain Map](#)

[FEMA Elevation Certificate Guidance](#)

[Association of State Floodplain Managers](#)

[City of Richmond Water Resources Guidance Manual](#)

[FEMA Flood Map Service Center](#)

[National Flood Insurance Program](#)

[Virginia Department of Conservation & Recreation](#)



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