

## FLOOD HAZARD INFORMATION

Dallas is drained by the Trinity River and its tributaries. Two of the larger tributaries are White Rock Creek, with a drainage area of 139 square miles, and Five Mile Creek, with a drainage area of 55 square miles.

The most recent widespread flooding was due to the June 9, 2019 storm event. Significant flooding also occurred on June 11, 2009, May 29, 2015, and throughout 2015 due to unusually heavy rainfall. Additional flooding, predominately in the interior drainage areas behind the levees, occurred on March 19, 2006.

## FLOOD WARNING SYSTEM

The City of Dallas has flood warning systems in place. ALERT is an acronym for *Automated Local Evaluation in Real Time*, which is a method of using remote sensors in the field to transmit environmental data to a central computer in real time. The National Weather Service developed this standard in the 1970s and it has been used by the National Weather Service, U.S. Geological Survey, Army Corps of Engineers, Bureau of Reclamation, numerous state and local agencies, and international organizations.

The City of Dallas installed 63 ALERT sensor locations and two base station computers in 1990 with the stormwater automation project. Currently the City has 88 sensor locations. We monitor rainfall, stream level, temperature, humidity, wind speed and direction, and lift station status at various locations around the city. The information gathered through this system allows the City of Dallas Office of Emergency Management to plan for and implement emergency evacuations.

The City of Dallas Flooded Roadway Warning System (FRWS) has 40 sensor locations. The sensors monitor when flood water reaches the edge of the roadway and then activate the warning sign for residents and roadway traffickers. The sensors also alert the central computer system.



## HOW TO PROTECT YOURSELF IN CASE OF FLOOD:

### FLOOD SAFETY

- **Do not walk through flowing water.** Drowning is the No. 1 cause of flood related deaths, mostly during times of rapidly rising water. Currents are deceptive; six inches of moving water can sweep you off your feet.
- **Do not drive through a flooded area.** More people drown in their cars than anywhere else. Vehicles also push water into homes and cause additional property damage. Do not drive around road barriers. **“Turn around, don’t drown!”**
- **Stay away from power lines and electrical wires.** The No. 2 cause of flood deaths after drowning is electrocution.

Electrical current can travel through water. Report downed power lines to the power company. Have your electricity turned off by the power company.

- **Evacuate if needed.** If emergency officials tell you to evacuate or leave your home, go immediately to a safe shelter, hotel or relative’s house. Know your evacuation route.
- **Look before you step.** After a flood, the ground and floors are covered with debris including broken bottles and nails. Floors and stairs that have been covered with mud can be quite slippery. Fence planks with nails can wash into your yard, driveway, or city street.

### IMPORTANT USEFUL WEBSITES

<a href="http://www.fema.gov">www.fema.gov</a>	<a href="http://www.floodsmart.gov">www.floodsmart.gov</a>
<a href="http://www.usgs.gov">www.usgs.gov</a>	<a href="http://www.weather.gov">www.weather.gov</a>
<a href="http://www.floods.org">www.floods.org</a>	<a href="http://www.tfma.org">www.tfma.org</a>
<a href="http://www.nws.noaa.gov">www.nws.noaa.gov</a>	

## HOW TO PROTECT YOUR PROPERTY IN CASE OF FLOOD:

### FLOOD INSURANCE

If you do not have flood insurance, talk to your insurance agent. Homeowners’ insurance policies do not cover damage from floods. However, because the City of Dallas participates in the National Flood Insurance Program (NFIP), you can purchase a separate flood insurance policy and receive a discount. This insurance is backed by the federal government and is available to everyone, even for properties that have been flooded, following a 30-day waiting period. Some residents have purchased flood insurance because it is required by their lending institution. Usually

these policies cover only the structure and not the contents.

In the City of Dallas, there are approximately 5,100 active flood insurance policies. If you already have coverage, please check to ensure that the coverage is adequate for your property and that the contents are covered as well. Even if you haven’t been flooded in the past, the next flood could be worse. Keep in mind that the policy must be renewed each year.

### PROPERTY PROTECTION

You can act now to protect your property from flood damage rather than wait for a flood to occur. Many alternatives are available to help minimize flooding. If the floor level of your property or structure is lower than the Base Flood Elevation (BFE) located on the FEMA Flood Insurance Rate Maps (FIRMs), consider ways to prevent flooding from occurring such as retrofitting your building. “Retrofitting” means altering your building to eliminate or reduce flood damage.

Retrofitting measures include:

1. Elevating the building so that flood waters do not enter or reach any damageable portion of it.
2. Flood proofing by sealing the exterior of the structure to prevent water penetration, and elevating outdoor equipment such as HVAC equipment to prevent damage.
3. Constructing an automatic flood gate or barrier, to protect a low parking garage entrance.

Other useful steps could be:

1. Moving personal property that would be damaged from the floor to table

tops or shelves.

2. Have plastic sheeting, sandbags, and towels ready so they can be used quickly to reduce seepage through exterior doorways.
3. FEMA recommends that anyone living behind a levee should have flood insurance. Make sure to carry flood insurance – homeowners’ insurance does not cover losses due to rising water.

## SUBSTANTIAL IMPROVEMENTS, BUILDINGS IN THE FLOODPLAIN

To further protect property from the risk of flooding, regulations are in place that limit building within the floodplain.

### What is substantial improvement?

The NFIP defines it as any reconstruction, rehabilitation, addition, or other improvement to a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either before the start of construction of improvements or repairs, or if the structure has been damaged and is being repaired, before the damage occurred.

Substantial improvements are not permitted unless the Board of Adjustment grants a special exception based on hardship. Improvements necessary for the sole purpose of complying with federal, state, or local health, sanitary, or building codes, as identified by the local code enforcement official, are not considered substantial improvements. The term also does not include alterations to historical structures.

Floodplain Management staff can provide more information about permitting for improvements of structures within the floodplain. In certain cases, an elevation

certificate will be required, in order for the City to determine whether the structure is subject to flooding. The property owner is responsible for hiring a surveyor or engineer to prepare the elevation certificate.

### **FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS**

The Floodplain Regulations, Section 51A-5.100 of Part II of the Dallas Development Code, outline the processes for floodplain alteration and floodplain fill permit requests. A floodplain alteration permit is required for construction of retaining walls, pools, fences, and landscaping that change the topography within the Special Flood Hazard Area (SFHA). A floodplain fill permit is required for the reclamation of floodplain for development. The floodplain regulations may be found at [https://dallascityhall.com/departments/waterutilities/stormwater-operations/PublishingImages/COD\\_FloodPlainRegulations.pdf](https://dallascityhall.com/departments/waterutilities/stormwater-operations/PublishingImages/COD_FloodPlainRegulations.pdf). Article V, Floodplain Regulations, outlines the processes and technical requirements for these permits. The criteria in the Floodplain Regulations ensure that projects can be completed with no adverse impact on other properties or on the environment. If you see filling or construction activities without a City Permit, call 214-948-4690 or use the City's 3-1-1 system to alert the City.

### **HOW TO PROTECT THE FLOODPLAIN SYSTEM AND BENEFITS OF THE SYSTEM:**

#### **DRAINAGE SYSTEM MAINTENANCE**

It is illegal in the City of Dallas to dump any type of debris into creeks or floodplains.

- Do not dump or throw anything into ditches, storm drains, or streams. Even

grass clippings and branches can clog stormwater conveyance causing a back-up of water.

- If your property is next to a ditch or stream, please do your part and keep the banks clear of debris. The City does not maintain creeks that are on private property – it is the owner's responsibility.
- If you see dumping or debris in ditches, storm drains, or streams, use the city's 3-1-1 system to alert the City.

If you suspect a storm drainage inlet or culvert is blocked, use the 3-1-1 system to report it, whether or not it is raining. Maintenance of bridges, culverts, and storm drainage systems is more effective if done regularly during dry weather.

#### **NATURAL AND BENEFICIAL FUNCTIONS**

Floodplains are dry areas that are periodically inundated. Periodic inundation is a natural process resulting from the timing and intensity of rainfall events. Stream channels form over long periods of time and their size is governed by the more frequent rainfall events, typically those occurring every few months. A long-term analysis of rainfall events shows that occasionally the City can expect to receive much greater rainfall than normal, either in terms of a greater depth of rainfall or a large amount in a very short period of time. Both of these occurrences can and do result in the stream channel being overwhelmed with the effect of flooding of normally dry areas nearby.

Dallas uses the 1% annual chance flood (100-year flood) as its design standard, and this is consistent with FEMA criteria. This event has a 1% chance of being equaled or exceeded each year and is roughly the "worst" flood in a given 100-year period.

The 1% annual chance flood will inundate an area consistent with mapping on FIRMs. Looking at the floodplain maps, it can be hard to discern benefits, but let's look at a few:

- The width or spread of floodplain allows utilization of flood storage, or valley storage, and this decreases the flooding that occurs downstream.
- In natural floodplains, the area flooded is called a riparian zone, and timely inundation is necessary to support a unique variety of plant and animal life.
- As the floodwaters spread out, the speed is reduced so that less erosion occurs. By allowing floodwater to slow down, sediments settle out, thus maintaining water quality.
- A natural floodplain left undeveloped provides a greenbelt that adds appeal to nearby developed areas.

### **HOW TO OBTAIN ADDITIONAL INFORMATION:**

#### **FLOOD PROTECTION ASSISTANCE**

Concerned citizens and the general public can obtain information on flood protection assistance from the City of Dallas Dallas Water Utilities Department Floodplain Management Section by calling 214-948-4690 or by visiting <https://dallascityhall.com/departments/waterutilities/stormwater-operations/>. Flood protection assistance provided by the City of Dallas is site-specific flood and flood-related data, data on historical flooding in the neighborhood, and similar information.

#### Services Provided:

- Make site visits to inspect flooding, drainage and erosion problems and provide one-on-one advice to the property owner.
- Maintain a database of flood and erosion needs, to be used during bond program development.
- Speak to individuals and groups about specific problems and processes, and about maintenance.
- Provide a list of engineers with expertise in floodplain and drainage problems and solutions.
- Consult with property owners, developers, and engineers about the floodplain permitting process.



### **Floodplain Management Section Dallas Water Utilities Department**

214-948-4690

<https://dallascityhall.com/departments/waterutilities/stormwater-operations/>

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# **Floodplain Management Information**

## **INTRODUCTION**

Flooding occurs throughout the country. The City of Dallas is dedicated to reducing the loss of life and property that is associated with flooding events. Education and prevention are valuable and proven tools that help communities become resistant to these natural disasters.

The following information has been provided to help inform property owners living in the floodplain or adjacent to the floodplain.