



FLOOD FACT SHEET

Floodplain Regulations

Floodplain regulations are land use regulations intended to reduce risks to people and property in areas along rivers and streams that are prone to flooding. The city of Boulder adopted its first floodplain regulations in 1969 in response to flooding along the front range of Colorado.

Boulder is located at the base of the foothills of the Rocky Mountains where there is the potential for flash flooding with little time for warning and preparation. A catastrophic flooding event would likely cause major hardship and impact the resources of the community and its citizens. As a result, the threat of loss of life, injury and property damage is significant, and the need to monitor and regulate these floodplains is critical. The city's "Floodplain Regulations" are contained in Chapter 9-3, Boulder Revised Code (B.R.C.) 1981. Regulated flood areas are the: 1) 100-year floodplain 2) conveyance zone and 3) high hazard zone.

100-year floodplain: defined as all land areas subject to inundation by flood waters in a storm event having a 1 percent chance of being equaled or exceeded in any given year. The 100-year or 1 percent flood is also called the base flood.

Development in the 100-year floodplain is permitted subject to the provision of flood protection measures to mitigate the risk of property loss or damage. In residential applications this requires that the lowest floor of any new structure or addition be elevated above the flood protection elevation (which is two feet above the flood elevation). Basements are not permitted for residential structures.

In non-residential applications the lowest floor of any new structure or addition must be elevated above the flood protection elevation or be floodproofed such that the structure is watertight with walls substantially impermeable to the passage of flood waters below the protection elevation. Floodproofing in new structures must be provided in a manner that requires no human intervention to be effective (floodproofing measures are always in place to protect against flooding).

New parking lots are not permitted in the 100-year floodplain where flood depths would exceed 18 inches, since automobiles are buoyant and become flood debris at these depths. Hazardous materials may not be stored below the flood protection elevation (except for existing gasoline storage tanks which were in place prior to 1989). Mobile homes placed after July 1, 1989, must be elevated on a permanent foundation, and new structures are to be oriented to minimize flood flow obstruction. A *floodplain development permit* is required for all development activities in the 100-year floodplain.

Conveyance zone: represents a preservation zone for passing flood flows along the creek corridor without increasing flood depths, redirecting flood waters or adversely impacting land areas. The establishment of a conveyance zone recognizes that development activities are expected to occur in the 100-year floodplain, but places a limit on these activities to prevent adverse impacts to the floodplain.

Development in the conveyance zone typically requires an analysis to ensure that flooding conditions are not worsened. Flood mitigation measures are sometimes required to offset the development and keep the floodplain from expanding or floodwaters from getting deeper. Regulations for the 100-year floodplain also apply to the conveyance zone. If the area is also located in the high hazard zone, then high hazard zone regulations apply.

OVER

High hazard zone: This area of the floodplain is where there is the greatest risk of loss of life. The area should not be occupied by people during a flooding event. The high hazard zone represents those areas in the 100-year floodplain where an unacceptably high hazard to human safety exists and where there is the potential for flood waters to sweep people off of their feet and wash them downstream.

Research was conducted to determine the flood depths and velocities that were most likely to sweep people off of their feet. As a result of the research, the high hazard zone is defined as all areas in the floodplain where the flood water velocity (feet per second) multiplied by the flood water depth (measured in feet) would equal or exceed four or where flood water depth alone would equal or exceed four feet. An example would be a flood depth of three feet with the water only moving 1½ feet per second, which would result in a product number of 4½, thus placing the area within the high hazard zone.

Development in the high hazard zone is most restricted due to life safety concerns. No new structures or additions to existing structures intended for human occupancy are permitted in the high hazard zone. It is anticipated that most of the structures within the high hazard zone will require evacuation during a major flooding event due to structural failure or potential issues with fire, sanitation, electric hazards, broken utilities, or debris. Additionally, no new parking lots and no change of use of an existing non-residential structure to a residential use is permitted. Regulations for the 100-year floodplain also apply to the high hazard zone and conveyance zone.

What other government agencies are involved in floodplain regulation and management?

Agencies other than the City of Boulder involved in floodplain regulation and management include the Federal Emergency Management Agency (FEMA), the Colorado Water Conservation Board (CWCB), the Urban Drainage and Flood Control District (UDFCD) and Boulder County. FEMA is the federal agency responsible for floodplain regulation, management and disaster assistance. The CWCB is the state agency that reviews and designates floodplain mapping in local jurisdictions and is the state-wide coordinating agency for FEMA. The UDFCD was established by the Colorado legislature in 1969 for the purpose of assisting local governments in the Denver metropolitan area of which Boulder is a part.

Flood Insurance

The City of Boulder participates in the National Flood Insurance Program (NFIP) by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes Federal government-backed flood insurance available to homeowners, renters and business owners, whether or not their properties are in a floodplain. Flood insurance covers direct losses caused by surface flooding, including a river overflowing its banks, a lake or ocean storm, and local drainage problems. The NFIP insures buildings with two types of coverage: structural and contents. Structural coverage is for the walls, floors, insulation, furnace, and other items permanently attached to the structure.

Mandatory Purchase Requirement: There is a mandatory flood insurance purchase requirement that applies to all forms of federal or federally-related financial assistance (such as mortgages) for buildings located in the 100-year floodplain. This requirement affects loans and grants for the purchase, construction, repair, or improvement of any publicly or privately owned building. Before a person can receive a loan or other financial assistance from a federally-backed agency or lender, there must be a check to see if the building is in a Special Flood Hazard Area (SFHA). The SFHA is the base (100-year) floodplain mapped on a Flood Insurance Rate Map (FIRM).

If the building is in a SFHA, the agency or lender is required by law to require the recipient to purchase a flood insurance policy on the building. The requirement is for structural coverage equal to the amount of the loan (or other financial assistance) or the maximum amount available, whichever is less. The maximum amount available for a single-family house is \$250,000. While not mandated by law, a lender may also require a flood insurance policy as a condition of a loan for a property in any zone on a FIRM.