City of Boulder
Planning & Development Services

Floodplain Development Permit Application Guidance Document

How to Use this Guidance Document

Each section of this guidance document corresponds with each section of the Floodplain Development Permit Application. This guidance document was prepared as an educational tool to help explain portions of the floodplain regulations as they pertain to development in the floodplains. It is not intended as a complete or detailed explanation of the legal requirements that may apply to a particular property. *Title 9, Chapter 3 of the Boulder Revised Code* is the controlling legal document.

Contents

How to Use this Guidance Document 1
Contents 1
Common Questions 2
Owner's Signature 3
Project Details 4
Flood Zones 5
Elevation Verification Documentation 6
Substantial Improvements 13
Pre-FIRM 14
New Residential Structures in the 100-Year Floodplain 15
Projects in the Conveyance and High Hazard Zones 16
Understanding Flood Zones 17
Summary of Development Regulations for each Flood Zone 19

Common Questions

DO I NEED A FLOODPLAIN DEVELOPMENT PERMIT?

If the structure or proposed work is in the 100-year floodplain (or the structure is a critical facility located in the 500-year floodplain) a floodplain development permit is required. You can determine if your structure is located in the 100-year floodplain using the city's *interactive flood map*.

DOES MY PROJECT REQUIRE AN ENGINEER?

Most projects do not require an engineer. However, if your project is in the Conveyance or High Hazard Zones, or an emergency management plan is required, your project may need a licensed engineer. You can determine if your structure is located in the Conveyance or High Hazard Zone using the city's *interactive flood map*. If your project requires an elevation certificate or a determination of flood elevations, your project may need a licensed engineer or surveyor.

WHAT PROJECTS CAN (OR CANNOT) BE DONE IN EACH FLOOD ZONE?

Please see the *Summary of Development Regulations* section of this document. It is helpful to understand what *flood zone* your structure is currently within and what *project type* your scope of work falls under.

HOW LONG WILL THE CITY'S REVIEW TAKE? HOW MUCH WILL IT COST?

Standard review tracks require three weeks for floodplain development permits. Review times can take longer for projects requiring hydraulic analysis, detailed engineering review or public process.

Application Cost	Project Type
$3,675	New Structure (floodproofed)
$3,600	Development in Conveyance or High Hazard Zone requiring hydraulic modeling
$*700*	New Structure (elevated)
$700	Development in Conveyance or High Hazard Zone not requiring hydraulic modeling (Includes fences. Does not include sidewalk, parking lots, etc. that do not modify existing grade, or decks, balconies, etc. that are above the flood protection elevation)
$350	Addition, Alteration, or Fill in the 100-year floodplain
$85	Mechanical/Electrical/Plumbing Improvement, Remodel, Renovation, new deck, shed or garage, new driveway or new parking, or other minimal site improvements
$35	Fence (in the 100-year floodplain)
Resubmittal fee is 25% of original permit application cost	

HOW DO I SUBMIT MY APPLICATION?

Submit completed application materials in person to a project specialist at Planning & Development Services Center located at 1739 Broadway, 3rd Floor Boulder, CO 80306. Application must include:

- ☐ Download and complete the *Floodplain Development Permit Application*.
- ☐ Upload the signed Floodplain Development Permit and any additional required documentation to CSS Portal following the guidelines outlined in our *Electronic Submittal Requirements Document*.

Owner's Signature

The written consent of the owner(s) of all property subject to the development request ***must*** be provided. The owner(s) of the property must sign the application form or it will not be accepted. Attach additional signature sheets as necessary. A signature from the owner's representative is ***not*** permissable.

If the project is on City property or is a City project, please have the City representative managing the project sign the document as the owner.

Project Details

PROJECT TYPE

Identifying the correct project type is critical to determine which flood regulations apply.

New Structure	new primary or accessory structure such as a new home or detached garage
Addition	addition of floor area including exterior floor area such as a mud room, porch or deck
Alteration	change in the structural, mechanical or electrical layout of the structure such as the construction of a new dwelling unit within an existing structure or adding a bathroom
MEP* Improvement	construction of new electrical, mechanical or plumbing components such as new solar panels, electrical outlets or hot water heaters
Remodel/Renovation	work performed within or to an existing structure that does not fundamentally alter its use such as a kitchen remodel or new floor layout
Fence	any fence, barrier, retaining wall or upright structure such as a security or privacy fence
Other	other projects not listed such as a change in watercourse, grading, or site work

**MEP stands for Mechanical/Electrical/Plumbing*

BUILDING TYPE

Building type helps staff identify permit history and record keeping associated with that structure

Principal	main or primary structure on the lot
Accessory	detached building or structure located upon the same lot as the principal building or structure to which it is related

EXISTING AND PROPOSED USE

If the structure is changing use, the structure must be brought into compliance with all floodplain regulations for the new use.

Residential	any structure that is the temporary or permanent domicile of persons for periods of six months or more
Non-Residential	any structure that is used exclusively for office, commercial, industrial, or governmental occupation, or the temporary lodging of persons for periods of less than six months.
Mixed-Use	any structure with both residential uses and nonresidential uses where no less than 25% of the finished floor area contains nonresidential uses
Vacant Land	areas void of any structures

CRITICAL AND LODGING FACILITIES

New Critical Facilities and Lodging Facilities must be elevated two feet above the base flood elevation. New or Existing Critical or Lodging Facilities are required to submit an Emergency Management Plan before building permits may be issued. You can utilize the city's *interactive flood map* to determine if your structure is a critical or lodging facility.

Critical Facilities	emergency medical facilities, hazardous materials facility, preschool, primary school or secondary school, daycare, residential care or congregate care facilities
Lodging Facilities	hotels, motel, dormitory, bed and breakfast, hostel, emergency shelter and overnight shelter facilities

Flood Zones

If *any* portion of the structure (including roof overhang, gutters, footings, decks, balconies, etc.) encroach into the 100-year floodplain, the *entire* structure is considered to be in the 100-year floodplain. If *any* portion of the structure (including roof overhang, gutters, footings, decks, balconies, etc.) encroach into the Conveyance or High Hazard Zone, the *entire* structure is considered to be in the Conveyance or High Hazard Zone.

The city's *interactive flood map* can be used to obtain creek names and flood zones.

1. Open the mapping tool and ensure that Effective Mapping is checked on in the left side bar.
2. Enter the project address into the search bar at the top right of the page, hit enter.
3. Zoom in and click on the structure or proposed project location.
4. An area of the surrounding floodplain will be highlighted with a dashed red line, and a pop-up window will open.
    a. In the pop-up window, under the 'Drainage' heading, find the Creek Name.
    b. In the pop-up window, under the 'FEMA Zone' heading, find the corresponding flood zone.
    c. Use the black arrow at the top right of the pop-up window to toggle through which flood hazards the project location is subject to. There may be multiple zones (including Conveyance Zone and/or High Hazard Zone) on one property.

Submittal Requirements:

- ☐ Include a PDF of the property with flood zones (select 'print' at the top right of the screen).
- ☐ On the floodplain development permit, record the creek name and check the correct flood zone(s).

Elevation Verification Documentation

Elevation information *must* be filled in and supporting documentation attached. **This permit will not be accepted with incomplete elevations or source documentation.**

Finished Floor Elevation (FFE)	the uppermost surface of a floor once construction has been completed but before any finishes have been applied
Base Flood Elevation (BFE)	the computed elevation that floodwater is anticipated to rise to during the 100-year flood event
Flood Protection Elevation (FPE)	is two feet above the BFE (AE Zone), two feet above the defined flood depth (AO Zones), or two feet above the highest adjacent grade (A Zone).
Highest Adjacent Grade (HAG)	is the highest elevation of the existing grade surrounding the structure.

ELEVATION CERTIFICATES

Elevation Certificates are a FEMA administrative tool that provide the Base Flood Elevation (BFE), the Finished Floor Elevation (FFE), the and Highest Adjacent grade (HAG). Elevation Certificates:

- Required for New Structures, Additions, and Alterations.
- Recommended for Mechanical/Electrical/Plumbing Improvement or Remodel/Renovation.
- Must be prepared and certified by a Licensed Land Surveyor or Licensed Professional Engineer.
- Typically cost approximately $1,000 and take 1-2 weeks to complete.

Your structure may already have an Elevation Certificate. Check the city's *interactive flood map*:

1. Enter project address into the search bar at the top right of the page, hit enter.
2. Under the Flood Layers legend on the left side of the screen ensure that the Elevation Certificates box is checked ☑ Elevation Certificates
3. If an orange circled "i" is present on the structure, click on it and follow the link to view and download a copy of the elevation certificate.

Submittal Requirements:

- ☐ Include a PDF of the elevation certificate
- ☐ On the floodplain development permit application, record the BFE, FFE, and HAG as determined by the Elevation Certificate. Compute the FPE by adding two feet to the BFE and record on the permit application.

FLOOD INSURANCE STUDY (FIS)

A FIS is a compilation of detailed flood elevation data for specific drainageways within a community that provides Base Flood Elevations (BFE). Elevations from the FIS:

- Required for fences in the Conveyance Zone.
- Required for Mechanical/Electrical/Plumbing Improvement or Remodel/Renovation if:
  - no elevation certificate is provided, FFE is known and improvements are interior to structure

Elevations from the FIS (continued):

- Can be completed by a project engineer, architect, project manager or homeowner.
- Take approximately 1-2 hours to complete.

STEP 1: LOCATE AND MEASURE STRUCTURE ON THE FEMA MAPPING TOOL

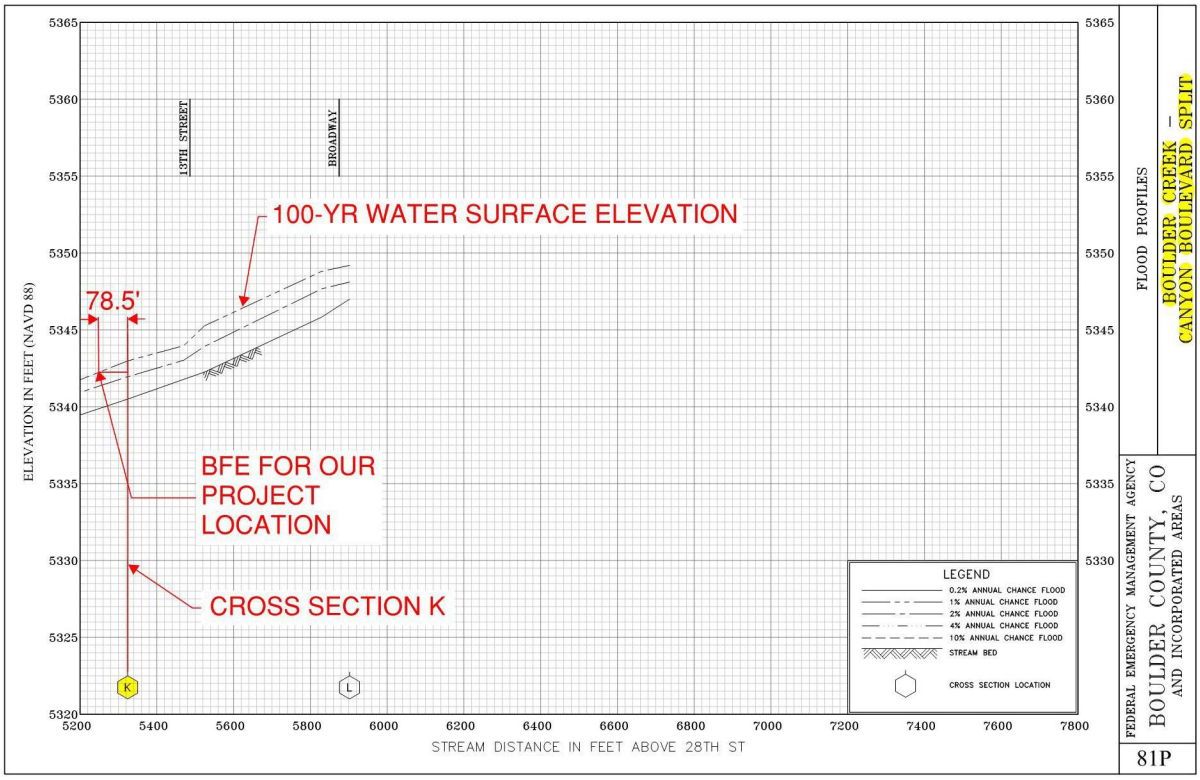
1. Open *FEMA's online mapping tool* and enter the project address in the search bar at the top left of the page.
2. Use the measuring tool to measure the distance from the upstream edge of the project structure to the nearest cross section. Round the measurement to the nearest ½ foot.
    a. The Base Flood Elevation (BFE) shall be calculated at *the most upstream point* where the structure intersects the 100-year floodplain. This means that the most upstream point of the structure shall be used to calculate the BFE and that BFE shall apply to the *entire structure*.
3. Cross sections are typically lettered. Note the letter of the cross section that you measured to for use in the FIS report.
4. In the example below, the distance measured to cross section K is 78.4-feet.
5. Create a screen shot of the showing the lettered cross section used, the location of the structure and the measured distance between the two. Please include a copy of this PDF with your application.

STEP 2: USE THE STREAM PROFILE TO DETERMINE THE BFE

As the name indicates, a stream profile provides a graph showing the flood elevations in profile view along a riverine flooding source. The profiles contain information for at least the base flood (1-percent-annual-chance or 100-year flood). Many reports also show stream profiles for the 10-percent (10-year), 2-percent (50-year), and 0.2-percent (500-year) flood elevations. It is critical that to use the 100-year flood elevations when determining the BFE. Note that the FIS profile cannot be used to determine the HAG around a structure.

1. Open *FEMA's Flood Map Service Center* and find a copy of the Stream Profile from the Flood Insurance Study (FIS):
    a. Enter the address of the structure and click 'Search'
    b. When taken to the next page confirm that you are in the right location
    c. Click 'Show ALL Products'
    d. Click the folder labeled, 'Effective Products'
    e. Click on 'FIS Reports'
    f. There are seven volumes of the FIS. Click Download for any of the products and the Table of Contents will direct you to the location of your Stream Profile (found on FEMA's online mapping tool) in the correct volume of the FIS reports.

2. Determine the 100-year Base Flood Elevation
    a. The elevations listed at each cross section are only applicable if a subject of determination is located directly on a mapped cross section. If a property is upstream or downstream of a cross section, the stream profile must be used to obtain the specific BFE applicable to the property
    b. Each profile has a horizontal and vertical scale. It is critical to determine these scales as the vertical and horizontal scales differ, and without correctly determining them it will not be possible to correctly determine the BFE.
    c. In the example below the elevation increases by 5 feet per 10 squares. Therefore, the vertical scale is ½ foot to 1 square (5 feet / 10 squares = 0.5 feet/square). So, in order to increase the elevation by a foot you would need to go up two squares. Continuing with our example below, the horizontal distance changes by 200 feet over 10 squares. Thus, the horizontal distances changes by 20 feet to 1 square. In order to move up stream by 100 feet you would need to move over 5 squares to the right.
    d. Bear in mind that the Stream Profiles are orientated with upstream on the right side of the profile and downstream on the left.
    e. In our example, 78.5 feet downstream (left) of Cross Section K is some 3.9 squares (78.5 feet / 20 feet/square = 3.9 squares). Measure downstream (left) of Cross Section K, approximately 3.9 squares to where a perpendicular line from Cross Section K intersects the 100-year water surface elevation. This point is 4.5 squares or 2.25 feet (4.5 squares * 0.5 feet/square = 2.25 feet) above the elevation of 5340 feet. Therefore, our BFE is 5342.3 feet. So, in our example, 78.5 feet downstream of cross section K, is a BFE of 5342.3 feet.



Submittal Requirements:

- ☐ Include a PDF of the screen shot from Step 1 showing the lettered cross section used, the location of the structure and the measured distance between the two.
- ☐ Include a PDF of the FIS stream profile from Step 2 showing the lettered cross section used, the location of the structure and the measured distance between the two.
- ☐ On the floodplain development permit application, record the BFE determined from the FIS and the FFE provided in your construction drawings.

Note: Twomile Canyon Creek and Boulder Creek have many split flows that can make determining a BFE difficult. If you are having difficulty, please contact the Floodplain Administrator for assistance.

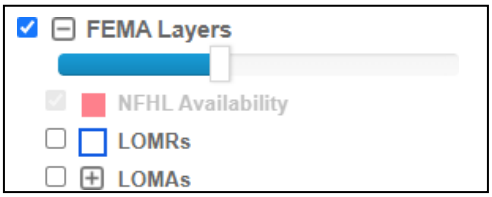
CITY FLOOD MAP

The City flood map provides general Base Flood Elevations (BFE) and approximate Highest Adjacent Grades (HAG). City flood map elevations:

- Required for exterior improvements such as rooftop solar, new electrical panels, or other mounted equipment. May also be used for modest site improvements such as a new driveway or parking area.
- Can be completed by the project engineer, architect, project manager or homeowner
- Take approximately 15-30 minutes to complete.

Open the city's *interactive flood map*:

1. Ensure that "FEMA Layers" is checked on in the left side bar.
    a. Ensure that the Base Flood Elevations layer and the Flood Hazard Zones layer are also checked on (these are nestled under the FEMA Layers group)
2. It may be helpful to uncheck the "Effective Mapping" layer
3. Enter the project address into the search bar at the top right of the page, hit enter.
4. Zoom into the property
5. You can adjust the transparency of the flood layers using the slide bar at the top of the left side bar
6. Click on the Base Flood Elevation lines that intersect (or would intersect) the structure, and a pop-up window will open.



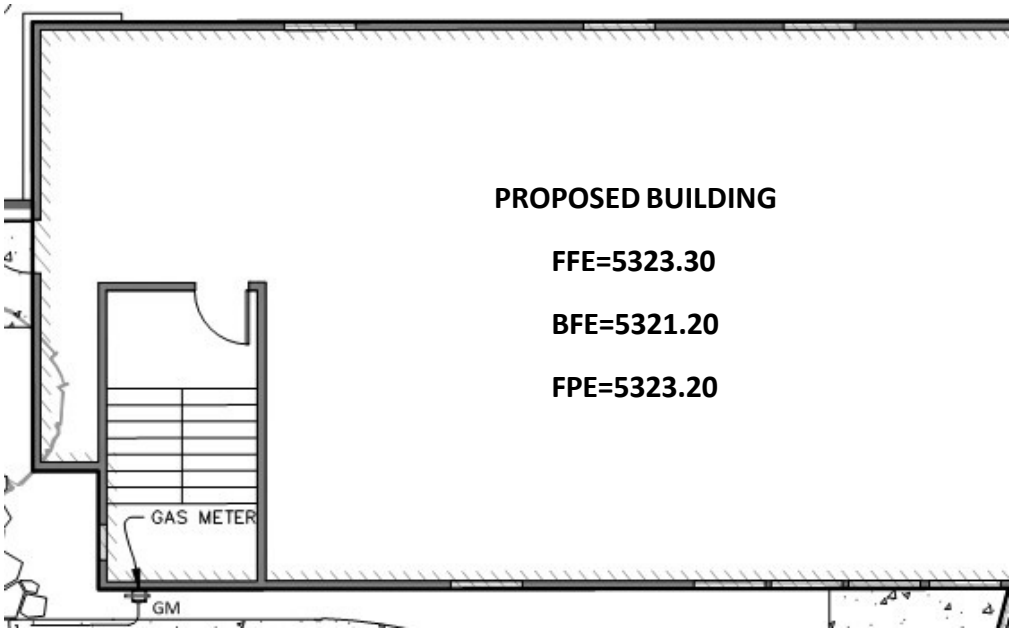
7. Identify the flood elevations that intersect the building in this pop up under Elevation (ft)
8. Use the most restrictive (highest) elevation that intersects the building as your BFE
9. In the same map, and while remaining zoomed into the property, click on the Contours layer in the left side bar. You may need to zoom in further for the contours to appear. You can click on the contour lines and a pop up will appear with that contour's elevation. Identify the contour elevation at the location of the work.

Submittal Requirements:

- ☐ Include a PDF of the screen shot with the intersecting Base Flood Elevation highlighted (see example above).
- ☐ Include a PDF of the screen shot with the intersecting contour highlighted (see example above).
- ☐ On the floodplain development permit application, record the BFE and HAG determined from the map.

CONSTRUCTION DRAWINGS DEMONSTRATING ELEVATIONS

The Finished Floor Elevation (FFE), Base Flood Elevation (BFE) and Flood Protection Elevation (FPE) should be clearly called out on on site layout and elevation sheets:



NEW MECHANICAL, ELECTRICAL, HVAC, AND OTHER SERVICE EQUIPMENT INSTALLED ABOVE BFE

Provide mounting heights on the plans that show the proposed mechanical, electrical, HVAC, AC or service equipment will be installed above the Base Flood Elevation (examples shown in grey italics).

	Mounting Height	Plan Drawing or Sheet Number (n/a if not applicable)
Water Heater	*0.5 ft Above Finished Floor*	*A3*
HVAC	*0.75 ft A.F.F.*	*A5*
AC Unit	*1.25 ft A.F.F.*	*A4*
Electrical Panels/Junction Boxes	*2.0 ft A.F.F.*	*A4*
Gas Meter	*1.0 ft A.F.F.*	*A3*
Other		

Submittal Requirements:

- ☐ Complete and include the table above directly on the construction drawings, or
- ☐ Complete and include a PDF copy of the table above with your application.

NEW SANITARY SEWER CONNECTIONS INSTALLED ABOVE BFE

Provide mounting heights on the plans that show proposed plumbing will be either be elevated above the Base Flood Elevation or backflow prevention will be installed on the sanitary sewer connection line (examples shown in grey italics).

	Mounting Height	Plan Drawing or Sheet Number (n/a if not applicable)
Shower	*On second floor*	*A3*
Sink	*Lip of sink at 5423.2* *(11 inches above BFE)*	*A5*
Floor Drain	*n/a (backflow prevention to be installed)*	*n/a*
Toilet	*Toilet lid at 5426.3* *(5 inches above BFE)*	*A4*
Backflow Prevention	*To be installed*	*A3*
Other		

Submittal Requirements:

- ☐ Complete and include the table above directly on the construction drawings, or
- ☐ Complete and include a PDF copy of the table above with your application.

FLOOD DAMAGE RESISTANT CONSTRUCTION MATERIALS INSTALLED TO TWO-FEET ABOVE BFE

Provide confirmation that construction materials shall be flood damage resistant to 2-feet above the Base Flood Elevation (examples shown in grey italics).

	Description of Material	Plan Drawing or Sheet Number (n/a if not applicable)
Insulation	*Sprayed polyurethane foam*	*A4*
Drywall	*Fiber reinforced gypsum exterior sheathing*	*A4*
Paint	*Latex*	*A4*
Flooring Finishes	*Vinyl Tile, Tile, Laminate, Concrete*	*A6*
Subfloor	*Existing Plywood, Marine Grade Plywood*	*A6*
*All Other Finishes	*Flood Damage Resistant Per FEMA Technical bulletin 2-08*	

**Note: all other finishes that do not adhere to FEMA Technical Bulletin 2-08 are installed at the owner's own risk. All other finishes are not required to be flood damage resistant by the city, however, in the event of a flood their replacement may not be covered by flood insurance.*

Submittal Requirements:

- ☐ Complete and include the table above directly on the construction drawings, or
- ☐ Complete and include a PDF copy of the table above with your application.

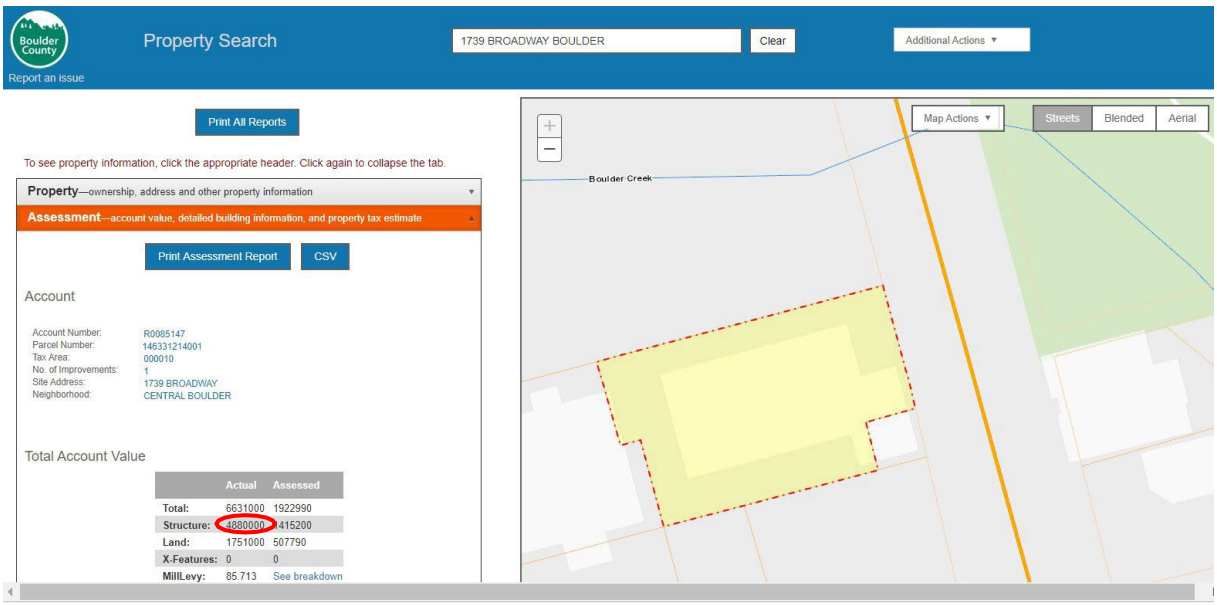
Substantial Improvements

If the project cost exceeds 50% of the assessed structure value, the structure must be brought into compliance with current flood regulations. **This means non-residential strutures must be floodproofed and residential structures must be elevated two feet above the Base Flood Elevation.**

Total Cost of Project	includes all materials, labor and time of professionals and contractors, and the cost of any and all permits
Assessed Value of Structure	actual value of the structure, not including land

To find the assessed value of the structure:

1. Open *Boulder County Accessor's Property Search.*
2. Enter the project address in the search bar at the top right of the page.
3. In the table on the left, click 'Assessment'. In the Total Account Value table, under the heading Actual, find the structure value. This is the assessed value of the structure.



Submittal Requirements:

- ☐ Include a PDF of the Total Account Value table from the Boulder County Assessor's Page.
- ☐ On the floodplain development permit application, record total cost of the project and assessed value of the structure.

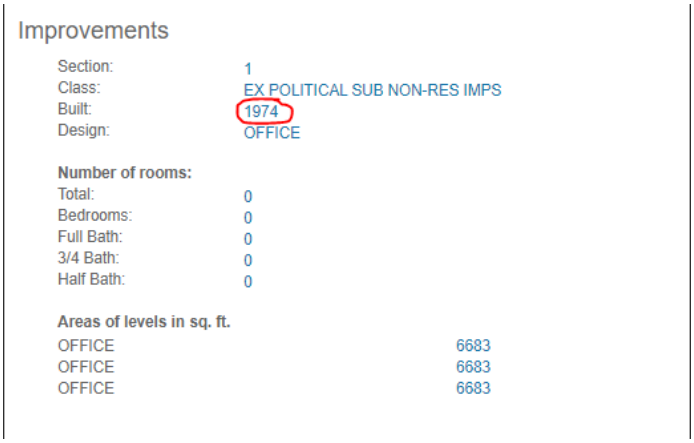
Pre-FIRM

The first FEMA Flood Insurance Rate Map (FIRM) to feature any Special Flood Hazard Areas within the City of Boulder became effective in July 1978. If the structure was constructed prior to this date, it may qualify as a pre-FIRM structure. **This means the structure may be exempt from current floodplain development standards.**

Substantial Improvement Threshold	Regulations apply
Substantial Modification Threshold	Regulations apply
Lateral Additions	Regulations may apply
Vertical Additions	Regulations may apply

To find the year of construction of the structure:

1. Open *Boulder County Accessor's Property Search.*
2. Enter the project address in the search bar at the top right of the page.
3. In the table on the left, click 'Assessment'. Scroll down to 'Improvements' and find the date of construction under 'Built'.



Improvements

Section:	1
Class:	EX POLITICAL SUB NON-RES IMPS
Built:	1974
Design:	OFFICE

Number of rooms:

Total:	0
Bedrooms:	0
Full Bath:	0
3/4 Bath:	0
Half Bath:	0

Areas of levels in sq. ft.

OFFICE	6683
OFFICE	6683
OFFICE	6683

If the year of construction is missing from the County Accessor's website please refer to the original deed for the property.

Submittal Requirements:

- ☐ A floodplain development permit is still required for pre-FIRM structures.
- ☐ If a structure is pre-FIRM please note the year the structure was built and call it out as a pre-FIRM structure in the floodplain development permit application's project description box.

New Residential Structures in the 100-Year Floodplain

For new residential structures in the 100-year floodplain, please adhere to these additional design criteria:

CRAWL SPACES

- ☐ Bottom of the crawlspace must be two feet from Lowest Adjacent Grade (LAG)
- ☐ Bottom of the crawlspace to the bottom of the next highest floor must be less than five feet
- ☐ Insulation must be spray foam or closed cell

Submittal Requirements:

- ☐ Call out Finished Floor Elevation, Lowest Adjacent Grade, Elevation at Bottom of Crawl Space and any other pertinent elevations on all elevation sheets.
- ☐ Call out the type of insulation used on plan sheet.

FLOOD VENTS

- ☐ Must be installed below Base Flood Elevation
- ☐ Must not be higher than one foot above adjacent grade
- ☐ Must provide adequate coverage for crawlspace
- ☐ Vents not meeting criteria must be certified by a Licensed Architect or Professional Engineer

Submittal Requirements:

- ☐ Show flood vent calculations on plan sheet
- ☐ Show flood vent installation (including adjacent grade and base flood elevation) on architectural and structural sheets
- ☐ Provide flood vent ICC-ES Certification or Licensed Architect/Professional Engineer certification

BASEMENTS

- ☐ New basements are not permitted in the 100-year floodplain (or in area of LOMR-F)

Projects in the Conveyance and High Hazard Zones

For projects in the conveyance and high hazard zones additional information is required for permit applications.

- ☐ Provide written response to the 15 criteria listed on the last page of the Floodplain Development Permit Application. If the response to the question is not applicable, please respond “n/a”.
- ☐ Projects must complete a public process that includes public notification and review by the City of Boulder’s Planning Board. This step is completed by the Floodplain Administrator but adds a minimum of three weeks to final approval of permits.
- ☐ Engineering Analysis may be required to determine if there are increases or decreases in the 100-year water surface elevations. If the project’s hydraulic analysis reveals *any* increase in water surface elevations or a decrease in water surface elevations of less than -0.3feet, a Conditional Letter of Map Revision will be required for the project. Increases in water surface elevations on insurable structures are not permitted under any circumstances.
- ☐ A completed *Sign Posting Acknowledgment Form* is also required for public process floodplain development permits. Signs informing the public of the planned work must be posted on the project property.

Understanding Flood Zones

The City of Boulder is home to Boulder Creek, its 14 tributaries and Boulder Slough (diverted water from Boulder Creek to fulfill irrigation company water rights). Due to our geographical location, the City of Boulder has the highest risk of flash flooding in the state of Colorado. Many neighborhoods throughout the city experience flooding during storm events, and some are at a higher risk to more extreme flooding due to their proximity to a major drainageway.

To mitigate flood risk, the City regulates to three different flood zones: the 100-year floodplain, Conveyance Zone (also referred to as the FEMA Floodway) and the High Hazard Zone.

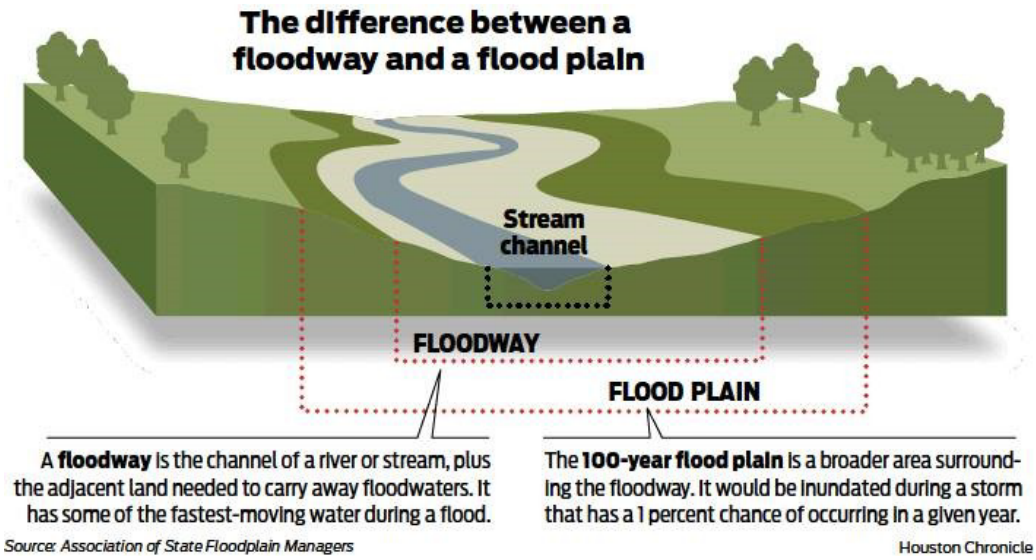
WHAT IS THE 100-YEAR FLOODPLAIN?

The 100-year flood event has a 1 in 100 (or 1%) chance of occurring in any given year. Don't let that fool you, though, over a 30 year mortgage there is a 26% chance that a property in the 100-year floodplain will be flooded. For comparison:

Event	Odds
Structure in 100-year floodplain being flooded over a 30-year mortgage	1 in 4
Chance of Cubs winning the world series in 2016	1 in 6
Structure in 100-year floodplain being flooded in any given year	1 in 100
Annual chance of being killed in a car accident in Colorado	1 in 11,000
Annual chance of being struck by lightening	1 in 700,000
Winning the Powerball Lottery jackpot	1 in 292,000,000

WHAT IS THE CONVEYANCE ZONE (OR FEMA FLOODWAY)?

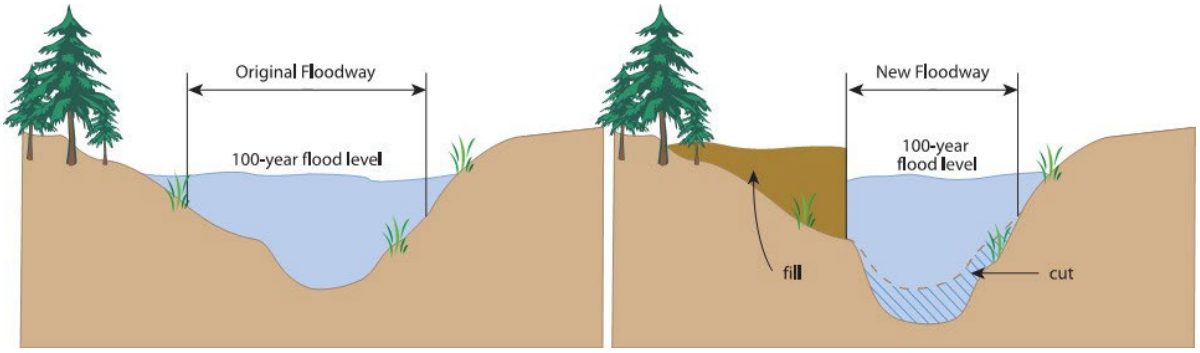
The Conveyance Zone (also known as the Floodway) is the area of the 100-year floodplain that is reserved for the passage of flood waters and acts as a preservation zone for flood flows along the creek corridor.



What is the Conveyance Zone (continued):

Floodways can be modified, but the applicant must be able to show that the project causes no-rise in the 100-year flood level. This typically requires an engineer to perform a hydraulic analysis.

Example of Floodway Modification



WHAT IS THE HIGH HAZARD ZONE?

The High Hazard Zone represents areas in the 100-year floodplain where a high risk to human safety exists. Within the High Hazard Zone floodwater depth equals or exceeds four feet, or where floodwater velocities and depths are such that there is potential for floodwaters to sweep people off their feet.

The pictures below demonstrate that shallow flooding, when moving at high velocities, can sweep people off their feet and wash cars downstream. See the full story at: *https://apps.npr.org/ellicott-city/*

Summary of Development Regulations for each Flood Zone

Each flood zone is subject to development regulations and dependent on the *project type* or type of development.

DEVELOPMENT REGULATIONS FOR THE 100-YEAR FLOODPLAIN

Residential	Non-Residential	Mixed-Use
• New residential development is allowed. Lowest floor must be elevated 2-feet above BFE.	• New non-residential development is allowed. Lowest floor must be elevated 2-feet above BFE or floodproofed to 2-feet above BFE.	• New mixed-use development is allowed. Lowest floor of residential areas must be elevated 2-feet above BFE or floodproofed to 2-feet above BFE.
• Additions or expansions are allowed. The lowest floor of the addition must be elevated 2-feet above BFE. New floor area must not exceed 50% of existing structure floor area.	• Additions or expansions are allowed. The lowest floor of the addition must be elevated 2-feet above BFE or floodproofed to 2-feet above BFE. New floor area must not exceed 50% of existing structure floor area.	• Additions or expansions are allowed. Lowest floor of residential areas must be elevated 2-feet above BFE or floodproofed to 2-feet above BFE. New floor area must not exceed 50% of existing structure floor area.
• Alterations are allowed. The lowest floor of the alteration must be elevated 2-feet above BFE and is subject to substantial improvement requirements.	• Alterations are allowed. The lowest floor of the alteration must be elevated 2-feet above BFE or floodproofed to 2-feet above BFE and is subject to substantial improvement requirements.	• Alterations are allowed. The lowest floor of the residential area alteration must be elevated 2-feet above BFE and is subject to substantial improvement requirements.
• Remodels are allowed subject to substantial improvement requirements.	• Remodels are allowed subject to substantial improvement requirements.	• Remodels are allowed subject to substantial improvement requirements.
• New basements (including underground parking) are not allowed	• New basements (including underground parking) are allowed. Lowest floor must be elevated 2-feet above BFE or be floodproofed to 2-feet above BFE.	• New basements (including underground parking) are allowed. Lowest floor must be elevated 2-feet above BFE or be floodproofed to 2-feet above BFE.
• Crawlspaces and at grade garages are allowed with flood venting.	• Crawlspaces and at grade garages are allowed with flood venting.	• Crawlspaces and at grade garages are allowed with flood venting.
• Fill is allowed.	• Fill is allowed.	• Fill is allowed.
• New parking is allowed if flood depths are less than 18-inches.	• New parking is allowed if flood depths are less than 18-inches.	• New parking is allowed if flood depths are less than 18-inches.
• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event.	• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event.	• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event.

DEVELOPMENT REGULATIONS FOR THE CONVEYANCE ZONE (FEMA FLOODWAY)

The Conveyance Zone is subject to all development regulations of the 100-year floodplain. In addition, the following restrictions apply:

Residential	Non-Residential	Mixed-Use
• New residential development is allowed if the applicant can demonstrate a 'no-rise'.	• New non-residential development is allowed unless if the applicant can demonstrate a 'no-rise'.	• New mixed-use development is allowed if the applicant can demonstrate a 'no-rise'.
• Additions or expansions are allowed if the applicant can demonstrate a 'no-rise'.	• Additions or expansions are allowed if the applicant can demonstrate a 'no-rise'.	• Additions or expansions are allowed if the applicant can demonstrate a 'no-rise'.
• Fill is allowed if the applicant can demonstrate a 'no-rise'.	• Fill is allowed if the applicant can demonstrate a 'no-rise'.	• Fill is allowed if the applicant can demonstrate a 'no-rise'.
• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event. The lowest part of the fence must allow floodwaters to pass either by a hinge mechanism or elevation above the BFE.	• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event. The lowest part of the fence must allow floodwaters to pass either by a hinge mechanism or elevation above the BFE.	• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event. The lowest part of the fence must allow floodwaters to pass either by a hinge mechanism or elevation above the BFE.

*Additional restrictions apply for development in the Conveyance Zone of South Boulder Creek. **Please contact the Floodplain Administrator for assistance.***

DEVELOPMENT REGULATIONS FOR THE HIGH HAZARD ZONE

The High Hazard Zone is subject to all development regulations of the 100-year floodplain and Conveyance Zone. In addition, the following restrictions apply:

Residential	Non-Residential	Mixed-Use
• New residential development is not allowed.	• New non-residential development is allowed.	• New mixed-use development is not allowed.
• Additions or expansions are not allowed.	• Additions or expansions are allowed.	• Additions or expansions are not allowed.
• New parking is not allowed.	• New parking is not allowed.	• New parking is not allowed.
	• Non-residential use cannot be changed or converted to residential use.	• Non-residential use cannot be changed or converted to residential use.
• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event. The lowest part of the fence must allow floodwaters to pass either by a hinge mechanism or elevation above the BFE. Fence must withstand hydrodynamic and hydrostatic forces (this typically requires an engineer to certify).	• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event. The lowest part of the fence must allow floodwaters to pass either by a hinge mechanism or elevation above the BFE. Fence must withstand hydrodynamic and hydrostatic forces (this typically requires an engineer to certify).	• New fences are allowed provided the applicant demonstrate proper anchoring such that the fence will not wash away in a flood event. The lowest part of the fence must allow floodwaters to pass either by a hinge mechanism or elevation above the BFE. Fence must withstand hydrodynamic and hydrostatic forces (this typically requires an engineer to certify).