



Boulder County Floodplain Remapping Project – Phase II Data Review

Updated vs. Effective Discharges of the 100-yr Flood Event	
Fourmile Creek (@ Emerson Gulch)	<ul style="list-style-type: none"> • Updated – 1,969 cfs (56% decrease) • Effective FEMA – 4,470
Fourmile Creek (@ Hwy 119)	<ul style="list-style-type: none"> • Updated – 3,425 cfs (45% decrease) • Effective FEMA – 6,230 cfs
Gold Run (@ mouth)	<ul style="list-style-type: none"> • Updated – 610 cfs (new study) • Effective FEMA – NA
Fourmile Canyon Creek (@ Pinto Dr)	<ul style="list-style-type: none"> • Updated – 2010 cfs (0% change) • Effective FEMA – 2010 cfs
Fourmile Canyon Creek (@ City of Boulder Limits)	<ul style="list-style-type: none"> • Updated – 3,296 cfs (0% change) • Effective FEMA – 3,296 cfs
James Creek (above Jamestown)	<ul style="list-style-type: none"> • Updated – 2,777 cfs (new study) • Effective FEMA – NA
Geer Canyon (@ mouth)	<ul style="list-style-type: none"> • Updated – 608 cfs (new study) • Effective FEMA – NA
Estimated Peak Discharges Experienced in the 2013 Floods	
Fourmile Creek (@ Emerson Gulch)	1,070 cfs (25 - 50 yr event)
Fourmile Creek (@ Hwy 119)	2,300 cfs (~50 yr event)
Gold Run	<i>No estimate available</i>
Fourmile Canyon Creek (@ Pinto Dr)	1080 cfs (~ 50yr event)
Fourmile Canyon Creek (@ Broadway)	1,460 cfs (10-25 yr event)
James Creek (above Little James Creek)	2,900 cfs (~100 yr event)
Geer Canyon	<i>No estimate available</i>

Updated Discharge: Flow rate prediction from hydrologic analyses that is informed by many factors.
Estimated Discharge: The estimated flows that occurred during a given high flow event (in this case the 2013 flood).



Boulder County Floodplain Remapping Project – Phase II Data Review

Updated vs. Effective Discharges of the 100-yr Flood Event	
Lefthand Creek (@ Hover St.)	<ul style="list-style-type: none"> Updated – 5,810 cfs (26% increase) Effective FEMA – 4,610 cfs
Lefthand Creek (@ Hwy 119)	<ul style="list-style-type: none"> Updated – 6,037 cfs (31% increase) Effective FEMA – 4,610 cfs
Lefthand Creek (@ N 73 rd St.)	<ul style="list-style-type: none"> Updated – 6,037 cfs (5% decrease) Effective FEMA – 6,330 cfs
Lefthand Creek (@ N 63 rd St.)	<ul style="list-style-type: none"> Updated – 5,994 cfs (5% decrease) Effective FEMA – 6,330 cfs
Lefthand Creek (@ Hwy 36)	<ul style="list-style-type: none"> Updated – 5,794 cfs (14% decrease) Effective FEMA – 6,700
Lefthand Creek (@ Old Stage Road)	<ul style="list-style-type: none"> Updated – 4,800 cfs (3% decrease) Effective FEMA – 4,940 cfs
Lefthand Creek (@ Licksillet Gulch)	<ul style="list-style-type: none"> Updated – 1,370 cfs (57% decrease) Effective FEMA – 3,180
James Creek (below Jamestown)	<ul style="list-style-type: none"> Updated – 3,300 cfs (16% decrease) Effective FEMA – 3,930 cfs
James Creek (above Jamestown)	<ul style="list-style-type: none"> Updated – 2,777 cfs (new study) Effective FEMA – NA
Geer Canyon (@ mouth)	<ul style="list-style-type: none"> Updated – 608 cfs (new study) Effective FEMA – NA
Estimated Peak Discharges Experienced in the 2013 Floods	
Lefthand Creek (@ Hwy 119)	8,700 cfs (100-500 yr event)
Lefthand Creek (@ N 63 rd St.)	7,000 cfs (100-500 yr event)
Lefthand Creek (@ Old Stage Road)	3,520 cfs (50-100 yr event)
Lefthand Creek (@ Licksillet Gulch)	1,300 cfs (~100 yr event)
James Creek (below Jamestown)	3,300 cfs (~100 yr event)

Updated Discharge:

Flow rate prediction from hydrologic analyses that is informed by many factors.

Estimated Discharge:

The estimated flows that occurred during a given high flow event (in this case the 2013 flood).



FREQUENTLY ASKED QUESTIONS

About Boulder County Floodplain Mapping & Flood Insurance

1. What is CHAMP?

The Colorado Hazard Mapping Program, or CHAMP, is a program established by the Colorado Water Conservation Board under Senate Bill 15-245 in July 2015. CHAMP was established after the 2013 floods to enable the state to take steps toward long-term planning and resiliency efforts for flooding and other natural hazards such as erosion and debris flow events.

2. What are flood hazard maps?

Flood hazard maps, also called Flood Insurance Rate Maps (FIRMs), show levels of flood risk. Created by the Federal Emergency Management Agency (FEMA) for floodplain management insurance rating and community planning, the maps generally show a community's flood zones, Base Flood Elevations (BFEs), and floodplain boundaries. They are used to determine the flood risk to your community and home or business. Moderate- to low-risk areas are represented on the maps by the letter X. High-risk areas are labeled with such designations as A and AE.

3. Who benefits from the new flood hazard maps?

Having more current, accurate maps will benefit numerous groups of people in different ways:

- Home- and business owners will have the ability to make better decisions about reducing their risk and insuring their property from the financial consequences of a flood.
- Community planners and local officials will gain a greater understanding of the flood hazards and risks so they can improve local planning activities.
- Builders and developers will have access to more detailed information for making decisions on where to build and how construction can affect local flood hazard areas.
- Insurance, realty, and lending professionals will have easy online access to updates and upcoming changes in order to serve their customers and community more efficiently.

4. What is a high-risk area, and how do I determine if my property is located in this area?

A high-risk area is the part of the land where water collects, pools, and flows during the course of natural events. High-risk areas are classified as Special Flood Hazard Areas (SFHAs). They are often described as floodplains or areas located in a "100-year flood zone." The term "100-year flood" can be misleading. It is the flood elevation that has a 1 percent chance of being equaled or exceeded each year; it is not the flood that will occur once every 100 years. There's no way to predict when the next flood will occur—or the one after that.

5. What will happen if my building is now shown in a high-risk area, rather than a moderate- to low-risk area?

If the new maps—once adopted—indicate the building on your property is now at a higher risk for flooding, you will be required by law to purchase a flood policy if you carry a mortgage from a federally regulated or insured lender. If you do not have a mortgage, flood insurance is still strongly recommended, in part because most homeowners insurance does not cover flood damage.

(cont.)



FREQUENTLY ASKED QUESTIONS

About Boulder County Floodplain Mapping & Flood Insurance

The National Flood Insurance Program (NFIP) offers rating options for properties newly shown in a high-risk area. For the first 12 months after the map becomes effective, most owners can purchase flood insurance at the lower-cost Preferred Risk Policy rate. Premiums will then increase up to 18 percent each year as part of the premium rate revisions put in place by the Homeowner Flood Insurance Affordability Act of 2014. Purchasing a policy before the new map goes into effect will maximize your savings.

6. What will happen if my building is now shown in a moderate- to low-risk area, rather than a high-risk area?

If your building is in a moderate- to low-risk area, you are no longer required by law to purchase flood insurance if you carry a mortgage from a federally regulated or insured lender. However, the risk has been reduced, *not removed*. Flood insurance is still recommended. In fact, people outside of mapped high-risk flood areas file more than 20 percent of all NFIP flood insurance claims and receive one-third of Federal disaster assistance for flooding (as of January 2015).

On the effective date of the new maps, you may be eligible for a lower-cost Preferred Risk Policy (PRP). Through your insurance agent, you can easily avoid any gaps in your flood coverage and receive a refund of unused premium by converting your existing policy to a PRP back to its last effective date.

7. What will happen if the new map shows that the Base Flood Elevation has changed?

A higher Base Flood Elevation means that floodwaters are estimated to reach a higher level in a major flood—a flood with a one percent or greater chance of occurring in a given year. Because your property is now at higher risk, your flood insurance premiums are likely to rise. However, if your structure was built in compliance with the A or AE zone previously in effect, the grandfather rating option allows you to retain the earlier zone for insurance rating purposes. This can result in significant savings.

8. What if my home or business is shown in a high-risk area but I believe the designation is in error?

Flood map designations are based on the best data available to engineers and local officials at the time areas within a community are surveyed and assessed. Every effort is made to ensure that the maps reflect the most accurate and reliable information about the flood risk for *all* properties. The recent series of public meetings and draft map website hosted by Boulder County are additional efforts being made to allow for the incorporation of public input early in the map development process – a process that takes several years. Comments provided at these meetings or via the online maps available at www.bocofloodplainremapping.com help us consider all available data before CHAMP submits the draft maps to FEMA for their review.

However, if the news maps still do not match what you determine is an accurate model at your property when they become effective, you may be able to request a map amendment. If you have better technical and scientific information, such as detailed hydraulic or hydrologic data, then you may be able to appeal the flood risk indicated on the new maps. For further details on this process, visit www.fema.gov.

HOW TO COMMENT ON THE WEB MAP

During the draft floodplain remapping phase of the Colorado Hazard Mapping Program (CHAMP) study, Boulder County has created an online, interactive web map where residents and interested community members can place comments and provide information that will be reviewed by Boulder County staff and the CHAMP engineering team.

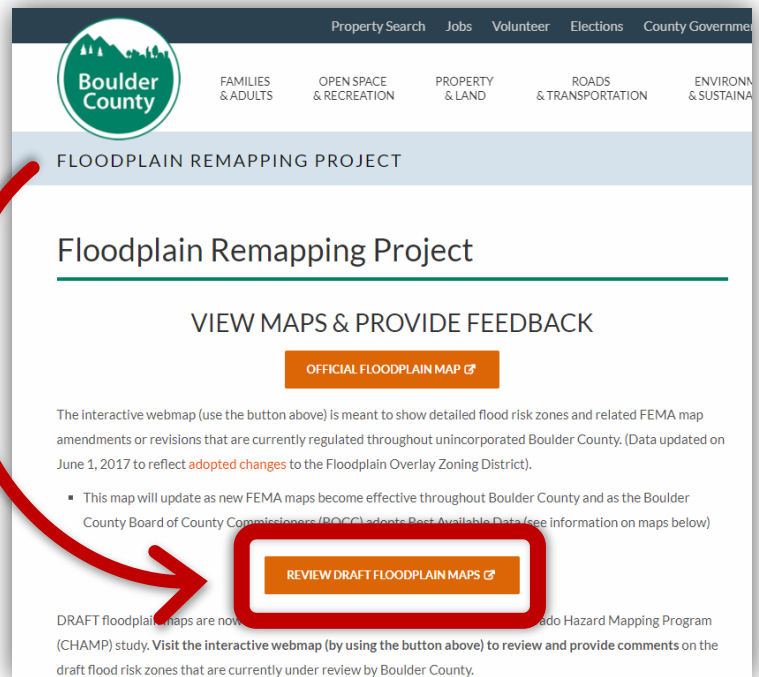
ACCESSING THE WEB MAP

From the bouldercounty.org homepage, find 'Property & Land' in the main heading and then go to 'Floodplain Management' in the drop-down window that appears. You'll see a link for the 'Floodplain Remapping Project.' Click that link to visit the project homepage.

OR visit www.bocofloodplainremapping.com to access the draft floodplain web map and learn more about the Floodplain Remapping Project.

The draft floodplain map is linked to on the second orange button on the project homepage.

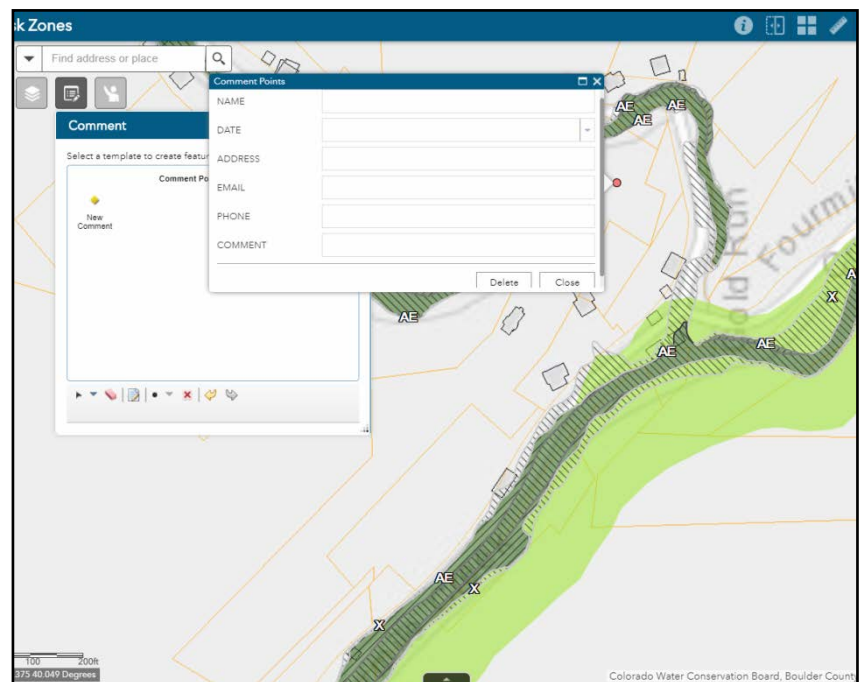
Now you're ready to view the map & comment!



STEPS TO PLACE A COMMENT

FOLLOW THESE STEPS:

- ◆ Zoom in on map to the area of concern
- ◆ Click on the 'Comment' button, then 'New Comment' symbol (yellow diamond)
- ◆ Move cursor out of Comment Window and place point by clicking where you would like to place the comment
- ◆ The point will be placed (temporary indicator dot) and an Information Window will pop up
- ◆ Fill in the rows with your information (Name, Date, Address, Email, Phone, and Comment)
- ◆ Click 'Close' to save your Comment Point
 - If you accidentally created a point or placed it in the wrong location, you can delete it by clicking on it in the map, scrolling down to the bottom of the information window, and clicking 'Delete.'
 - You can also select the point and move it.



Still having trouble? Please reach out to Boulder County staff if you have any questions, would like some assistance using this tool, or would like to speak with staff directly about your map comment. Erin Cooper is the Floodplain Remapping Project lead and can be reached at 720-564-2866 or escooper@bouldercounty.org.

Fact Sheet

Colorado Hazard Mapping Program (CHAMP)

COMMON QUESTIONS REGARDING CHAMP FLOODPLAIN MAPPING

What is CHAMP Floodplain Mapping?

CHAMP is a State of Colorado funded study to provide a mitigation and land use framework in areas likely to be affected by future flooding, erosion, and debris flow events. Following the 2013 flood, Colorado's Legislature passed a funding bill to reanalyze potential hazards including flooding for streams affected by the flooding. Once the study is complete, the Federal Emergency Management Agency (FEMA) will use the data in their Risk Mapping, Analysis, and Planning Program (Risk MAP) to update Flood Insurance Rate Maps (FIRMs).

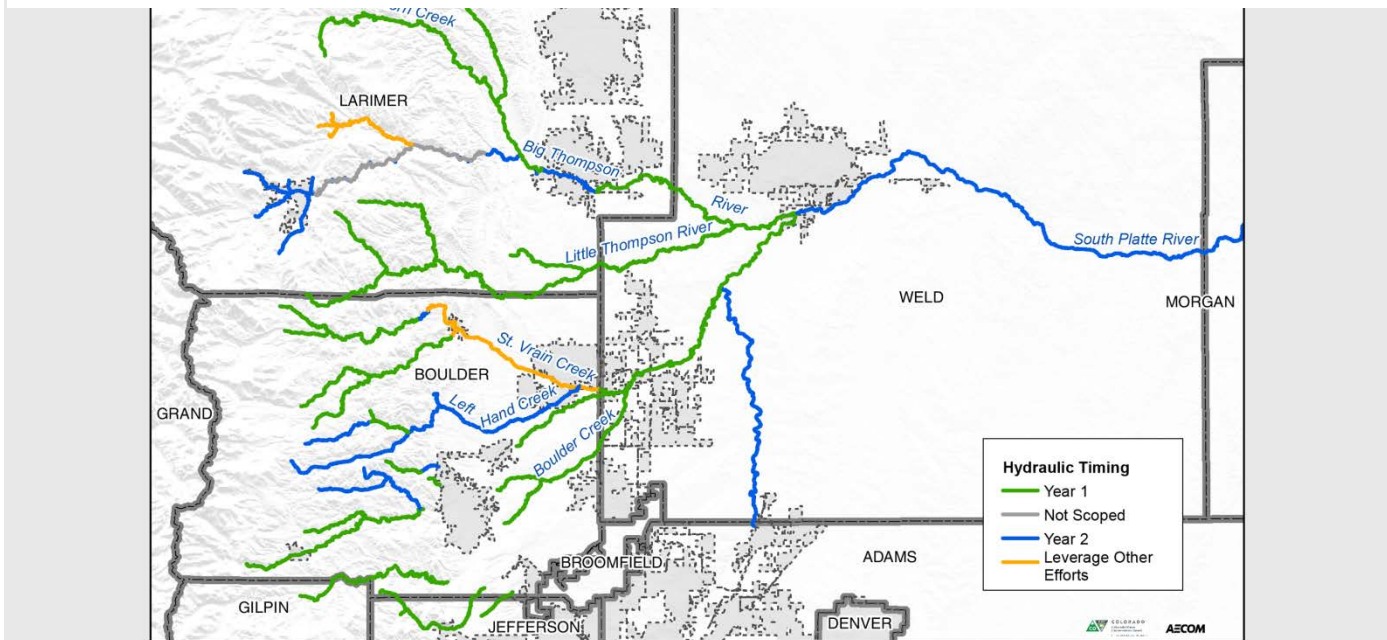
Why was CHAMP initiated?

2013 caused significant changes to floodplains, and therefore flood risk. Typically, communities participating in the National Flood Insurance Program are required to identify when these risk change and perform studies to update risk information that is maintained by FEMA. In this case, the State determined that updated risk information was needed quickly to properly communicate rebuilding efforts so that homes, businesses and infrastructure could be rebuilt safely. It was also clear that communities would likely have to prioritize funding towards rebuilding. The State therefore passed a bill that would help identify updated flood risk across the flood affected areas, allowing communities to be able to focus on recovery and rebuilding efforts.

What are the Roles of Specific Stakeholders?

- The State of Colorado, Colorado Water Conservation Board (CWCB) – CWCB is in charge of managing the CHAMP program and overseeing work being conducted. CWCB partnered with AECOM, a nationally recognized firm, to complete flood risk studies under CHAMP. They are also partnering with community officials to provide outreach support.
- FEMA – FEMA will take final study information to update FIRMs. FEMA is also reviewing results and providing feedback. Ultimately, FEMA administers the NFIP and oversees any regulatory floodplain updates.
- Local Counties and Communities – Local officials are being updated regularly on the progress of the study,

Figure 1: CHAMP Study Limits - South Platte River study extends to Nebraska Border



**Floodplain Mapping
Coordinator, CWCB**
Thuy Patton, MPA, CFM
thuy.patton@state.co.us
O: 303-866-3441 x3230

**Community Assistance
Program Coordinator, CWCB**
Stephanie DiBetto, CFM
stephanie.dibetto@state.co.us
O: 303-866-3441 x3221

**Program Manager,
AECOM**
Remmet deGroot, CFM
remmet.degroot@aecom.com
O: 303-796-4809

**Project Manager/Engineer,
AECOM**
Rigel Rucker, PE, CFM
Rigel.rucker@aecom.com
O: 575-545-1107

Fact Sheet

Colorado Hazard Mapping Program (CHAMP)

and being given the opportunity to review draft results. This will allow concerns to be communicated to CWCB before preliminary information is released for public review. Local officials are also being asked to identify public outreach opportunities so that homeowners and businesses can also see project results. The data will ultimately be owned by community leaders as local administrators of the NFIP and they will communicate and adopt flood risk, manage development and construction, and enforce regulations.

- Property Owners – Property owners will have an opportunity to review results of the analysis prior to FIRMs being finalized. The forum to view this information will vary depending on each community, so contact your local floodplain administrator for more information.

What is the Study Process?

The study includes a science and engineering based approach to identify potential flood risk zones:

- Topographic data is obtained to determine ground elevation. This elevation information, obtained via aircraft, was acquired in 2013 and 2014 after the flood, and provides a snapshot in time to conduct the study.
- Survey data was obtained to supplement the topographic information and to gain the necessary detail on bridges, culverts and the ground below the water line. Streams that will not show base flood elevations on FIRMs will not include survey.
- Hydrology uses historical rainfall data, including but not limited to 2013 flood information, to determine amounts of water anticipated during select flood events. Parameters such as ground cover and infiltration are used with statistics to determine flow rates.
- Hydraulic models are then built to simulate flow through rivers using topographic, survey and hydrologic information. These models simulate river conditions and produce potential water surface elevations anticipated during floods. These results are compared to known flood elevations of similar events to verify findings, if available.
- Results are mapped on work maps for review and use. These include calculated floodplain limits and other helpful information.



Figure 2: Field Survey Effort



Figure 3: Sample Results

Since topographic data is a snapshot in time, local communities and counties have also been providing updated information for areas where there are multiple concurrent construction and/or recovery efforts happening. If it is possible within the project timeline, updated information is incorporated into the CHAMP modeling; if they are not captured, additional changes still can be made to these studies after CHAMP is finalized through FEMA's Letter of Map Change (LOMC) process.

**Floodplain Mapping
Coordinator, CWCB**
Thuy Patton, MPA, CFM
thuy.patton@state.co.us
O: 303-866-3441 x3230

**Community Assistance
Program Coordinator, CWCB**
Stephanie DiBetto, CFM
stephanie.dibetto@state.co.us
O: 303-866-3441 x3221

**Program Manager,
AECOM**
Remmet deGroot, CFM
remmet.degroot@aecom.com
O: 303-796-4809

**Project Manager/Engineer,
AECOM**
Rigel Rucker, PE, CFM
Rigel.rucker@aecom.com
O: 575-545-1107

Fact Sheet

Colorado Hazard Mapping Program (CHAMP)



Who Approves these Changes?

CWCB is working with FEMA to review results of the study throughout the process. That will expedite the process of data being used to update FIRMs. Community officials are also being asked to review the results to avoid concerns when the results are released. Finally, everyone is given an opportunity to review the maps when FEMA publishes them on preliminary FIRMs. After the preliminary FIRMs are released, FEMA will also initiate a statutory appeal period, where the new floodplains can be appealed using technical data.

What are the Anticipated Results of these Changes?

This study will result in more reliable flood risk information. This information may be different from currently available flood risk information, as streams may have shifted; and better, updated, information is now available to analyze flood risk.

How are These Changes Communicated?

In most cases, local officials will be setting up meetings to review results of the study with interested property owners. The timing of these meetings will vary depending on each community. Contact your local floodplain administrator for more information.

How does this Study Impact Me?

Ultimately the results of this study will be used by insurance companies to rate flood insurance, and by local officials for issuing building permits near special flood hazard areas (SFHA). Locals will also have access to current risk information to help make more informed decisions resulting in safer, more resilient communities.

What is the Timeline for Changes?

The timeline below shows an anticipated schedule for most of the study. However portions of Boulder County, Jefferson County, and Gilpin County are on expedited schedules.



Where can I get more information on CHAMP Floodplain Mapping?

- The project website can be viewed for updates and additional information at www.coloradohazardmappingprogram.com.
- Your local floodplain manager can be contacted for most questions related to flood insurance rate maps.
- For fact sheets related to flood insurance studies, see www.fema.gov/fact-sheets.

**Floodplain Mapping
Coordinator, CWCB**
Thuy Patton, MPA, CFM
thuy.patton@state.co.us
O: 303-866-3441 x3230

**Community Assistance
Program Coordinator, CWCB**
Stephanie DiBetto, CFM
stephanie.dibetto@state.co.us
O: 303-866-3441 x3221

**Program Manager,
AECOM**
Remmet deGroot, CFM
remmet.degroot@aecom.com
O: 303-796-4809

**Project Manager/Engineer,
AECOM**
Rigel Rucker, PE, CFM
Rigel.rucker@aecom.com
O: 575-545-1107

Flood Risk Fact Sheet

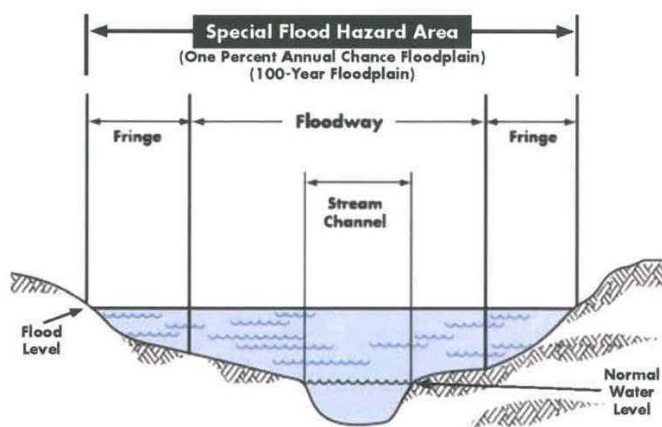
Colorado Risk MAP Projects



COMMON QUESTIONS REGARDING FLOOD STUDIES AND FLOOD RISK

What is the NFIP?

The National Flood Insurance Program (NFIP) is a federal program that was established in 1968 to enable property owners in participating communities to purchase flood insurance as protection against flood losses. Policy holders receive disaster assistance and participating communities enforce floodplain management ordinances that reduce future flood damages.



What is a high-risk flood area and the 1% annual chance flood, and why evaluate them?

A 1% annual chance flood (or base flood) has a 1% annual chance of being equaled or exceeded in any given year. The 1% annual chance flood risk boundary identifies areas that are expected to be inundated by the 1% annual chance flood. The 1% annual chance flood risk boundary shown on a FIRM is also called a Special Flood Hazard Area, where the NFIP's floodplain management regulations must be enforced by the community as a condition of participation in the Program.

What are flood maps?

Flood maps, known officially as Flood Insurance Rate Maps (FIRMs), show areas of high and moderate to low flood risk using flood risk boundaries. FIRMs are maintained by FEMA and partnering local governments. Communities and counties use the maps to set minimum building requirements for floodplains. Lenders and insurance agents use them to determine flood insurance requirements and rates.

Why are maps updated and flood studies needed?

Understanding flood risk informs future development in a resilient manner, communicates risks to public safety, and influences flood insurance rates. The NFIP is a national program that communities opt to participate in, which is required if they are to receive flood disaster assistance when needed. Participating communities need to uphold various requirements, including maintaining representative flood risk boundary data. NFIP regulations are detailed in Parts 59 through 77 of Title 44 in the Code of Federal Regulations (CFR).

Am I required to pay flood insurance?

If Flood Risk boundaries change, flood insurance rates could change for some. Residents and business owners who own property in high-risk flood risk boundaries are required to purchase flood insurance if they have a mortgage from a federally regulated or insured lender (44§CFR 64.3(b)). Insurance must be carried for the life of the mortgage. While flood insurance is not mandatory for homeowners outside of a high-risk flood risk boundary, anyone can be financially vulnerable to floods. People often mistakenly believe a building located outside of a mapped high hazard area has no risk of flooding; however, properties outside of high-risk flood areas account for more than 20% of NFIP claims and receive one-third of disaster assistance for flooding.



Floodplain Mapping Coordinator, CWCB

Thuy Patton, MPA, CFM
thuy.patton@state.co.us
O: 303-866-3441 x3230

Community Assistance Program Coordinator, CWCB

Stephanie DiBetitto, CFM
stephanie.dibetitto@state.co.us
O: 303-866-3441 x3221

Senior Hydrologic/Hydraulic Engineer, FEMA Region VIII

David Sutley, PE
david.sutley@fema.dhs.gov
O: 303-235-4809

Flood Risk Fact Sheet

Colorado Risk MAP Projects



How do I check the current mapped flood risk areas?

For counties with digitally mapped flood risk areas, you can view them at: <https://www.fema.gov/national-flood-hazard-layer-nfhl>. For counties using paper copies, you can review maps at: <https://msc.fema.gov/portal>. Your local floodplain manager can also help answer questions you may have.

What is the impact of a flood study on me?

There are building and land development restrictions within the floodplain in place that may require additional permitting and/or a letter of map revision. There are also insurance requirements within special flood risk areas. Where these are in place already, the boundaries where these requirements are enforced may change with a study. Please talk to your local floodplain administrator for specific requirements.

Can I provide data to challenge a study?

Everyone will have the opportunity to review preliminary FIRMs and appeal them using scientific and technical data during a 90-Day Appeal Period.

How can I determine my current home elevation?

The elevation of your home can help determine flood insurance rates. If you don't have an elevation certificate, FEMA encourages you to consult your local building officials who may have existing elevations from the original building permit for your house. You also can hire a surveyor to determine your current home elevation level. For more information, please visit <http://www.fema.gov/media-library/assets/documents/32330>.



Where can I get more information on flood insurance or flood studies?

- Your local floodplain manager can be contacted for most questions related to flood insurance rate maps.
- You can research the purchase of flood insurance through the NFIP's FloodSmart.gov website, which has tools to help you determine policy coverage, estimate rates, and find an agent based on your address.
- You can call FloodSmart toll free at 1.888.379.9531 for general questions about flooding and the NFIP.
- Within FEMA Region VIII, please Contact Erin May, NFIP Regional Manager, for insurance questions at 303.550.3658 or by email at emay@nfip-iservice.com.
- For Colorado, the CWCB Flood page also provides information on grants, local flood issues, and links to information on flood insurance at cwcb.state.co.us/water-management/flood/Pages/main.aspx.
- For fact sheets related to flood insurance studies, see www.fema.gov/fact-sheets.

TYPICAL SCHEDULE & PROGRESSION OF A FLOOD STUDY

