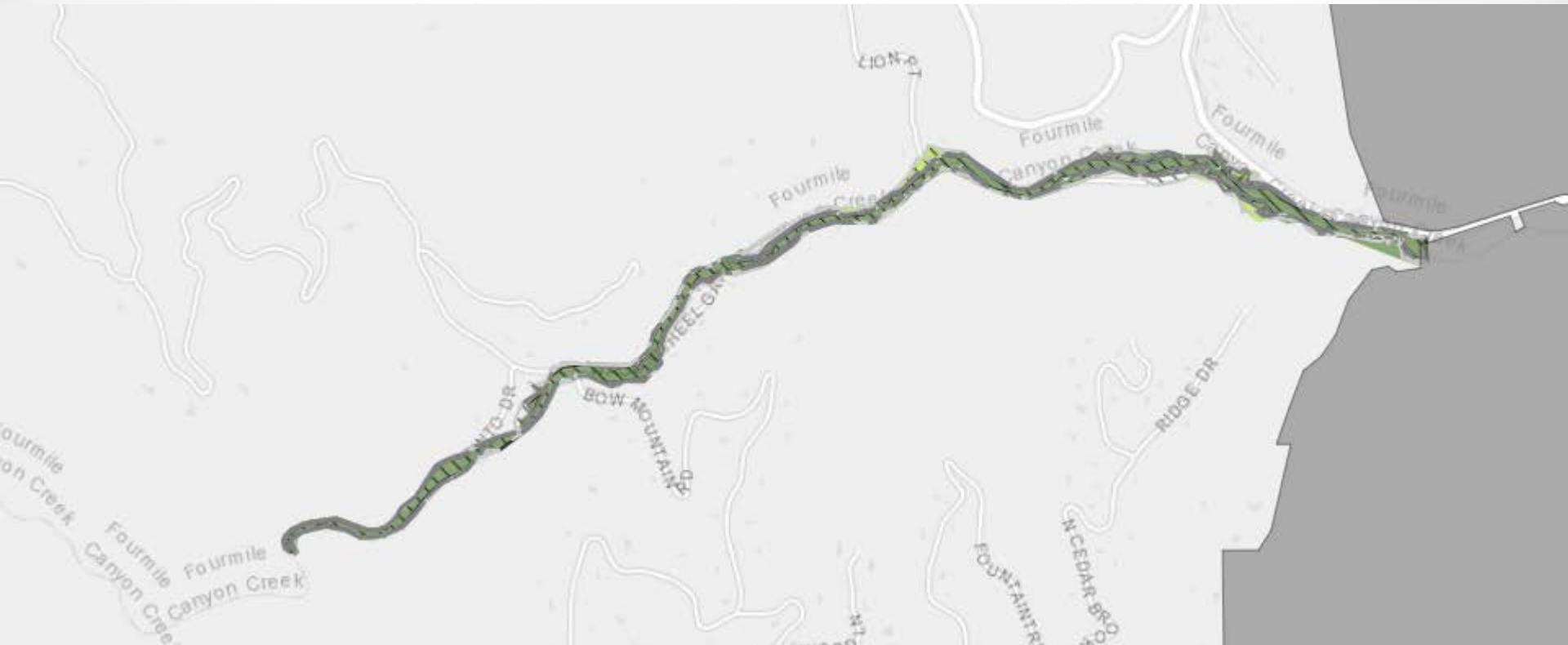


# Public Review of Draft Boulder County Floodplain Maps

January 25, 2018  
Boulder, CO

## Fourmile Canyon Creek



# HOUSEKEEPING

- Sign-in sheet
- Newsletters & Flyers
- Snacks, restrooms, etc.

**Boulder County**  
**BOULDER COUNTY FLOODPLAIN REMAPPING NEWSLETTER**  
5<sup>th</sup> Edition – Summer 2017

In Boulder County, flash flooding is a very serious danger, especially during the summer months (April through October). Boulder County maps and regulates flood hazard areas to manage these risks as well as to inform property owners of flood hazards near their homes and businesses.

**What is the Floodplain Remapping Project?**  
The 2013 flood event caused widespread damage to areas of the state. In response, the State is making resiliency efforts by funding the State Floodplain Remapping Initiative. This initiative is providing information including regulatory requirements and information for property owners.

Visit [www.BcCoFloodplainRemapping.com](http://www.BcCoFloodplainRemapping.com) and navigate to 'Floodplain Mapping - How to Stay Informed' for all past editions.

READ PREVIOUS NEWSLETTERS

throughout the county and other areas. The maps that will update local flood hazard maps provide detailed information to help property owners to protect people and property.

**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 lender (44CFR 64.3(b)). Insurance must be carried for the life of the mortgage. While flood insurance is not mandatory for homeowners or insured lender, anyone can be financially vulnerable to floods. People often mistakenly believe a building located outside of a mapped high-risk flood 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.

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David Sutter, PE  
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# Tonight's Agenda

1. Introductions
2. Meeting Goals
3. Program Overview
4. Data Overview
5. Online Resources
6. To the Tables!



# Introductions

- Erin Cooper, Boulder County
- Varda Blum, Boulder County
- Rigel Rucker, AECOM (CWCB)
- Kevin Doyle, Michael Baker Intl.
- Stephanie DiBetitto, CWCB
- Thuy Patton, CWCB
- Additional Boulder County Support Staff



# Meeting goals:

1. Inform residents & landowners (you!) of the remapping process
2. Provide opportunity for public comment before the FEMA appeal period



# Colorado Hazard Mapping Program

## Why is this study being conducted?

- Hazards change
- Floodplain delineations are often outdated and incorrect
- Maps regularly updated across the country by FEMA, States, Communities
- The State of CO initiated CHAMP after the Flood of 2013
  - Changes to flooding characteristics
  - Changes to understanding of rainfall

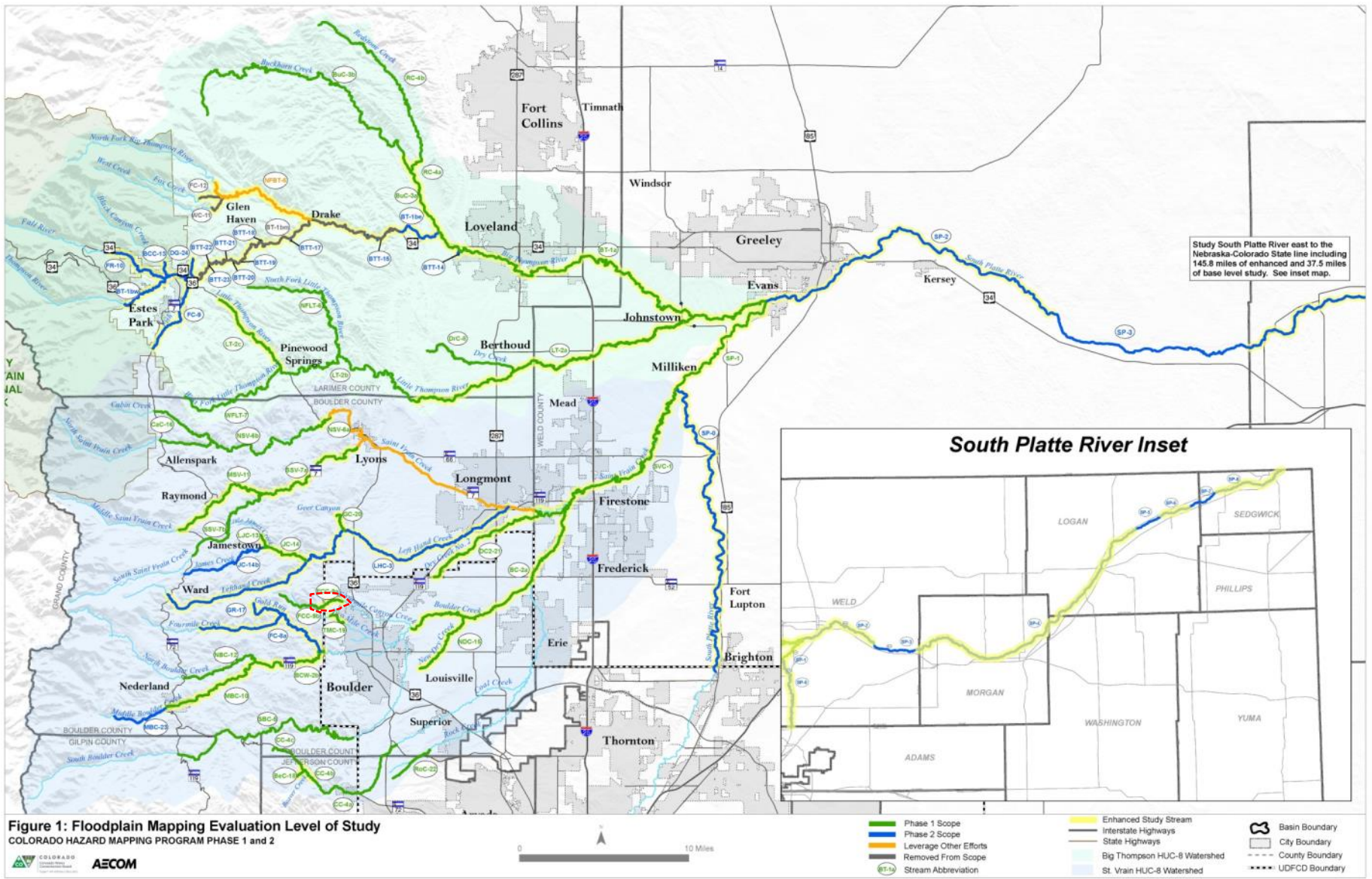
## Why does it impact you?

- Know if you are at risk for flood hazards
- Will revise Flood Insurance Rate Maps that impact insurance rates (based on risk)
- Regulation is related to flood zone/floodway

## Where will there be changes?







Study South Platte River east to the Nebraska-Colorado State line including 145.8 miles of enhanced and 37.5 miles of base level study. See inset map.

**South Platte River Inset**



## Floodplain Mapping CO Hazard Mapping Program [change ▾](#)

This page is dedicated to showing the latest news and information regarding the CO Hazard Mapping Program Floodplain Mapping.

### About the Project

Following the September 2013 flood disaster, Colorado has taken steps toward long-term planning and resiliency efforts for flooding and other natural hazards. In early 2015, Colorado's Legislature passed a funding bill for the Colorado Hazard Mapping Program, which aims to provide a mitigation and land use framework in areas likely to be affected by future flooding, erosion, and debris flow events.

The Colorado Hazard Mapping Program is to prepare updated hazard information for the streams most affected by the September 2013 flooding, beginning in the Big Thompson & St. Vrain watersheds as well as the South Platte River. The work includes field reconnaissance and survey, creating terrain models from updated topographic datasets, evaluating hydrology (flows), and modeling to produce flood hazard area limits reflecting the changed conditions. Community leaders will use the updated hazard information to assess risk and identify mitigation opportunities in their community. The updated information is also intended to eventually be used to update Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), which are used to determine flood insurance requirements.

The Colorado Water Conservation Board (CWCB) is the lead agency coordinating the Colorado Hazard Mapping Program. CWCB is working with AECOM, a nationally-recognized engineering firm, to conduct the technical work.



### Project News and Events

#### Boulder County Floodplain Mapping Public Meeting Community Meeting Scheduled

12/13/2016 – Boulder County Transportation and the State of Colorado will host a public meeting to present recently updated draft floodplain maps from the Federal Emergency Management Agency (FEMA) and the Colorado Hazard Mapping Program (CHAMP). This initial meeting will review map information for North and South St. Vrain creeks and St. Vrain Creek from Longmont Dam Road and Red Gulch Road to Lyons and from Lyons east toward Airport Road in unincorporated Boulder County. Residents along these creek stretches and other interested parties are invited to attend a public presentation that will be followed by an interactive map review session with state and county staff. [View the meeting](#)

#### December 2016 CHAMP Newsletter

New Document Available  
12/08/2016 – December 2016 Newsletter for the CHAMP Project. [Download the document](#)

#### December 2016 Newsletter Posted

12/08/2016 – The [December 2016 CHAMP Newsletter](#) has been posted. [Read more](#)

#### Flood Risk Review - Gilpin & Jefferson Counties Community Meeting Scheduled

12/01/2016 – These FRR meetings will give community officials the chance to review and provide early feedback on draft versions of the floodplains prior to



**Layers** **Documents**

Stream Segments

Show: Level of Study

- Base Level Study (Zone A)
- Enhanced Level Study (Zone AE)

Year 1 Surveyed Locations

- Bridge
- + Cross Section
- Culvert
- ▲ Drop/Divert/Dam
- \* Not for Survey
- ◆ Other Feature

UDFCD Boundary

- - UDFCD Boundary

Year 2 Surveyed Locations

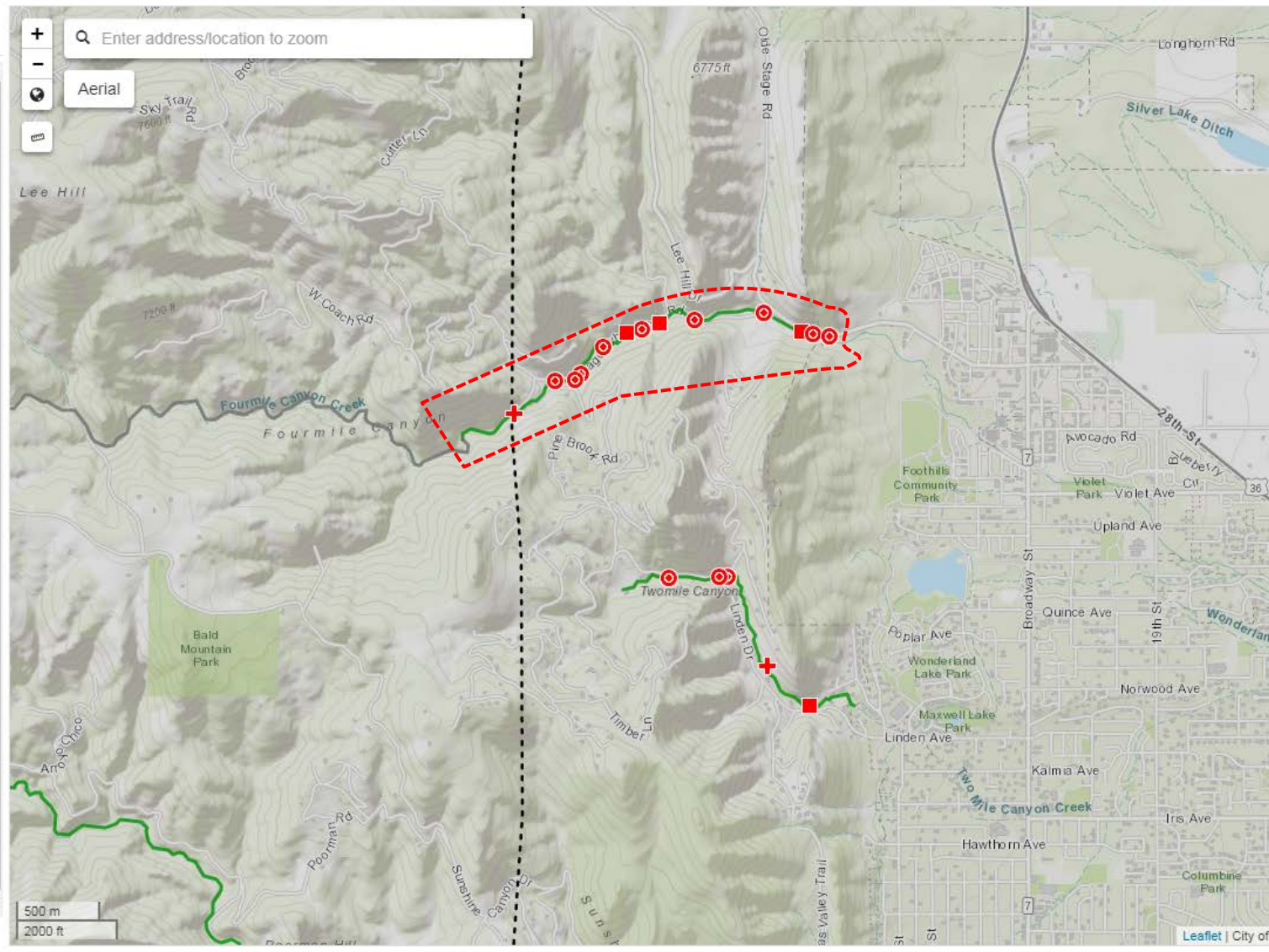
Hydrology Flow Changes

Lidar Extents

- 2012
- 2013 USGS
- 2014 USACE
- Longmont
- Glen Haven

NFHL Flood Hazard Zones  
FEMA National Flood Hazard Layer

features can have associated documents



© 2018 - Colorado Water Conservation Board





## Field Reconnaissance & Survey

Survey data is used to determine precise elevations and dimensions of portions of the floodplain and to verify and refine topographic data. The project team is currently conducting detailed field reconnaissance and survey of the specific study area.



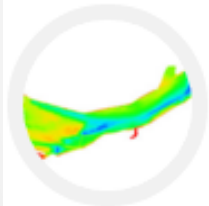
## Topographic Data Development

Topographic data is data used to model the surface of the earth. The study team will leverage existing topography (see [lidar availability on the full map page](#)) and will also be collected, approximately 7 square miles in Loveland, CO.



## Hydrology

Hydrology is used to determine the amount of water flow anticipated in each stream. The study team will calculate new peak flood discharges for the 10%, 4%, 2%, 1%, '1% plus' and 0.2% annual chance events for 73 miles of study in the Big Thompson Watershed and 58 miles in the St. Vrain watershed.



## Hydraulics

Hydraulic models are created to calculate the depth of water anticipated during flood events. Hydrologic results are used along with survey and topographic data to model stream behavior.

## Floodplain Mapping



Flood Hazard Mapping involves plotting the extents of calculated water surface elevations on maps using hydraulic model results and topographic data. These maps can be used by community leaders to identify hazard mitigation opportunities and make development decisions. It's anticipated that this data will eventually be used to update FEMA's Flood Insurance Rate Maps.



[www.coloradohazardmapping.com](http://www.coloradohazardmapping.com)



# Colorado Hazard Mapping Program

## What happens next?

- There are still multiple reviews that will occur, so data is subject to change
- Boulder County being proactive to bring this information to you in draft form
- This is a first look for you to get your input well in advance of data finalization

## When will changes go into effect?

- CHAMP team will review comments
- FEMA will review data in spring/summer 2018
- Data will be put onto preliminary Flood insurance Rate Maps late 2018/early 2019
- A formal 90 day appeal period will commence where anyone can appeal maps with technical data
- Once resolved, maps will be released as final (effective), likely 2021



# Flows Experienced & Modeled

## Modeled Discharges of the 100-yr Flood Event

**Fourmile Canyon Creek** (@ Pinto Dr.)

- Updated- 2,010 cfs (0% change)
- Effective FEMA - 2,010 cfs

**Fourmile Canyon Creek** (@ City of Boulder limits)

- Updated - 3,296 cfs (0% change)
- Effective FEMA - 3,296 cfs

## Estimated Peak Discharges Experienced in 2013 Flood

**Fourmile Canyon Creek** (@ Pinto Dr.)

1,080 cfs (~50 yr event)

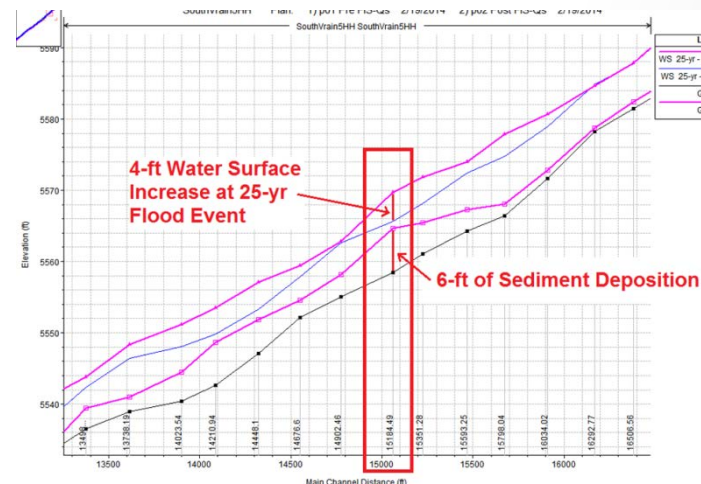
**Fourmile Canyon Creek** (@ City of Boulder limits)

1,460 cfs (10 - 25 yr event)





# 2013 Flood vs. 100-yr Mapped Floodplain



# Roles and Responsibilities

## Federal Role (FEMA)

- Flood Risk Mapping
- Flood Risk Management
- Flood Insurance – available to anyone in Boulder County

## State Role (CWCB)

- Community assistance
- Flood Risk Mapping

## Local Role (Boulder County)

- Adoption of floodplain mapping and code
- Flood risk mapping participation

*Ultimate Goal – Protect Life, Health, & Safety*



# Timeline revisited

## PHASE II ESTIMATED TIMELINE:

Late 2017/Early 2018:  
Phase II Drafts for  
Community Review

Early 2018:  
Phase II Drafts  
to FEMA

Mid 2018:  
Phase II Local  
Adoption

Late 2018:  
Phase II  
Preliminary FIRMs

2019:  
Phase II FEMA  
Appeals Period

2021+:  
Effective FIRMs



Now	Boulder County is reviewing the CHAMP hydraulics and floodplain mapping
Spring/ Summer 2018	<ul style="list-style-type: none"><li>FEMA will review the CHAMP hydraulics and floodplain mapping</li><li><b>Boulder County to adopt CHAMP floodplain as "best available data"</b></li></ul>

*all dates subject to change*



# Timeline revisited

## PHASE II ESTIMATED TIMELINE:

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to FEMA

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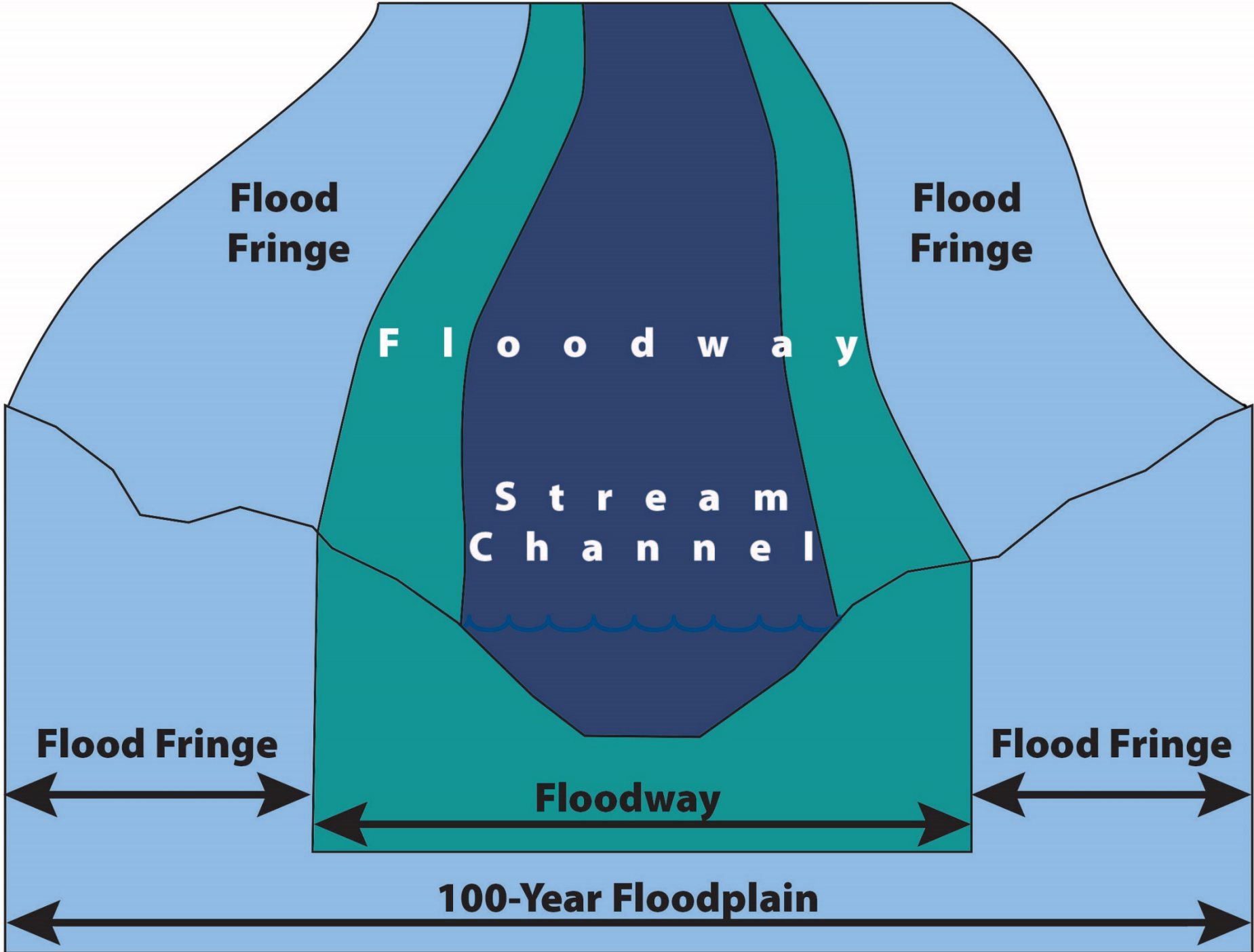


<p>Late 2018</p>	<ul style="list-style-type: none"> <li>• Post Wagonwheel Gap Rd. Construction Study submitted to FEMA</li> <li>• CHAMP Preliminary Flood Insurance Rate Maps issued</li> </ul>
<p>2019</p>	<ul style="list-style-type: none"> <li>• Post Wagonwheel Gap Rd. Construction Study goes effective</li> <li>• FEMA Appeals Period for CHAMP mapping</li> </ul>
<p>2021</p>	<p>FEMA Flood Insurance Rate Maps become effective</p>

*all dates subject to change*





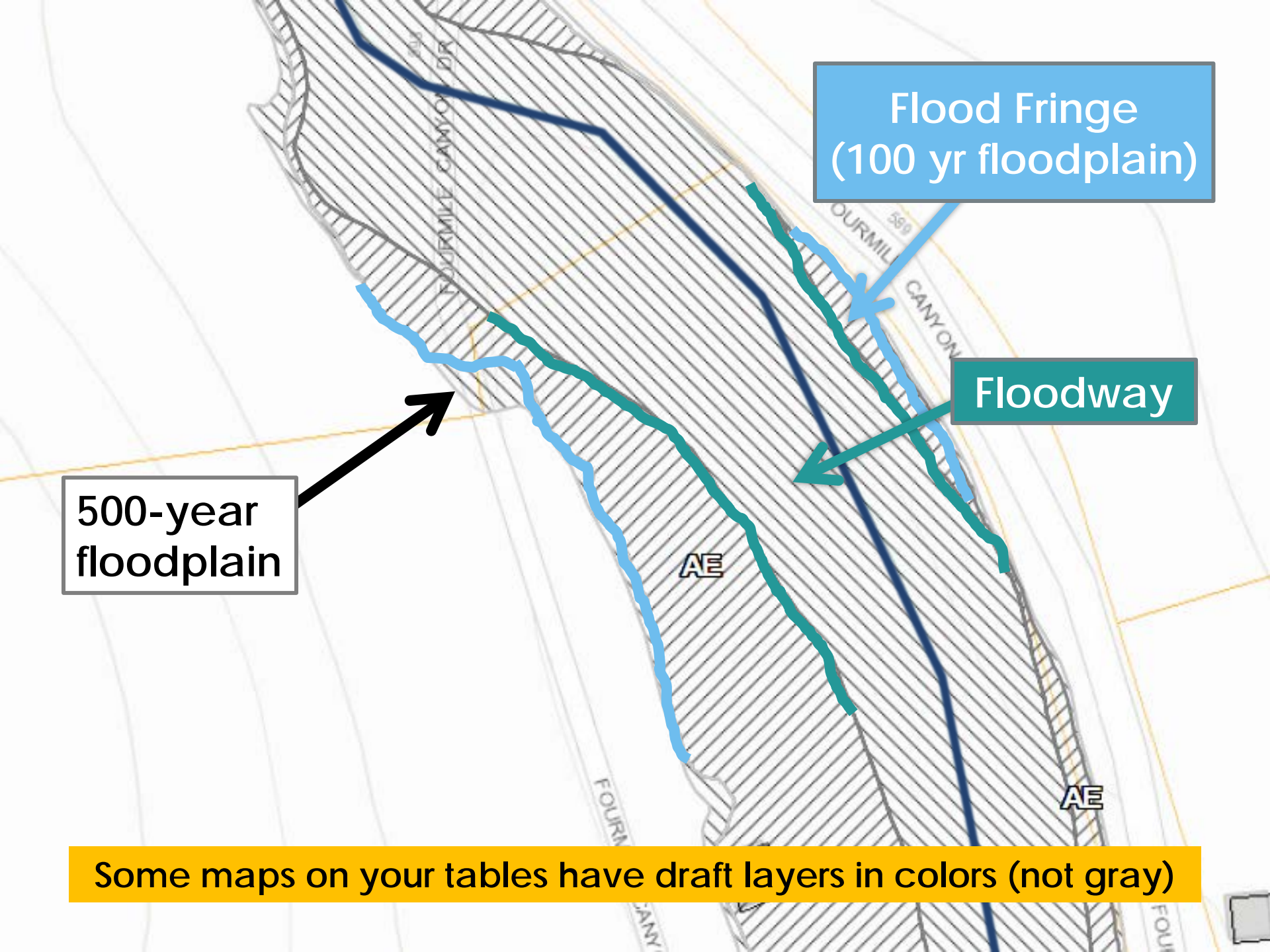


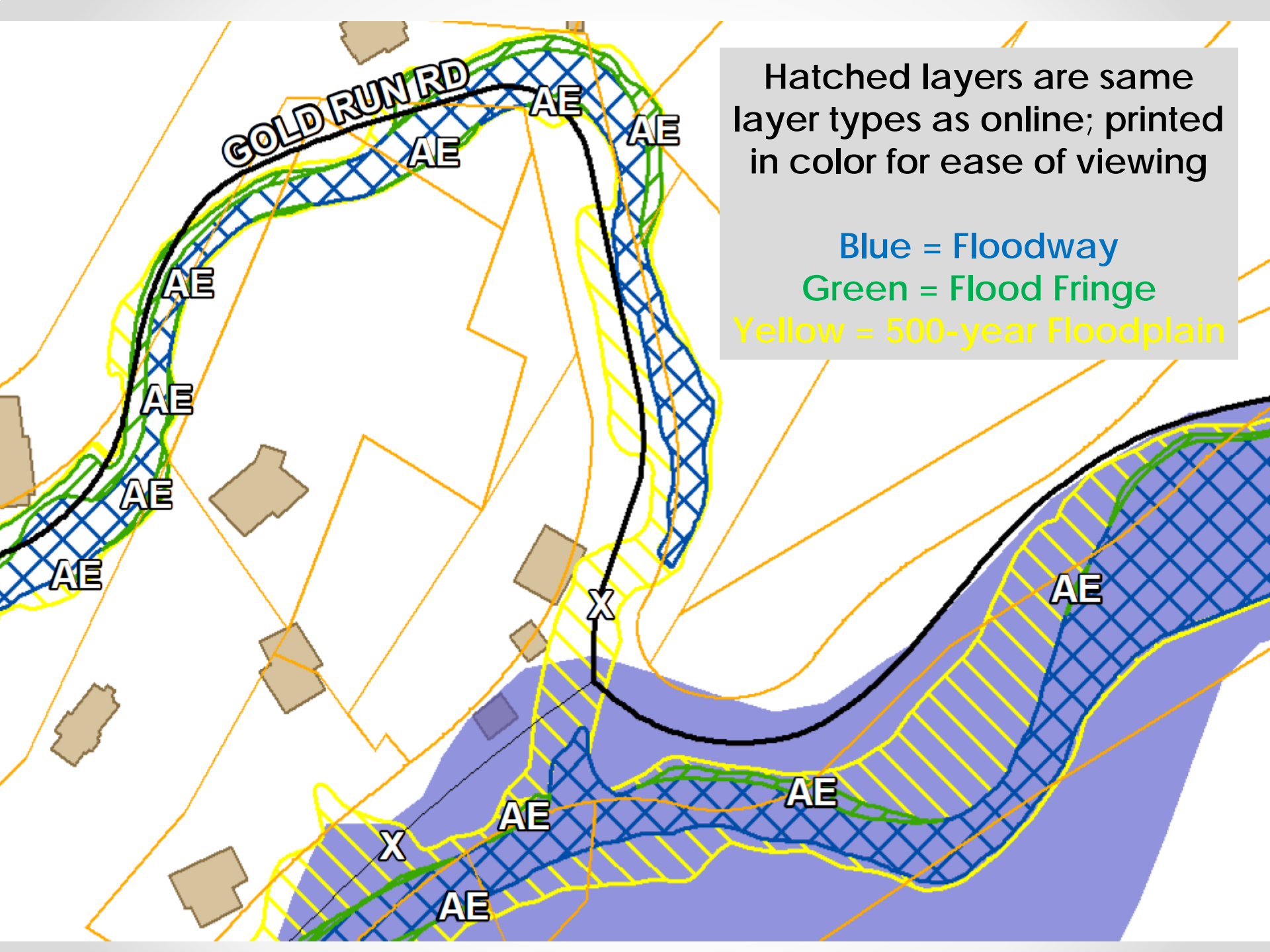
Flood Fringe  
(100 yr floodplain)

Floodway

500-year  
floodplain

Some maps on your tables have draft layers in colors (not gray)





Hatched layers are same layer types as online; printed in color for ease of viewing

Blue = Floodway  
Green = Flood Fringe  
Yellow = 500-year Floodplain







# County Floodplain Remapping

[Property Search](#)[Jobs](#)[Volunteer](#)[Elections](#)[County Government](#)[Departments](#)[Contact](#)[Select Language](#)[FAMILIES  
& ADULTS](#)[OPEN SPACE  
& RECREATION](#)[PROPERTY  
& LAND](#)[ROADS  
& TRANSPORTATION](#)[ENVIRONMENT  
& SUSTAINABILITY](#)[SAFETY  
& LAW](#)[LICENSES, PERMITS  
& RECORDS](#)

## FLOODPLAIN REMAPPING PROJECT

[Home](#) / [Roads & Transportation](#) / [Floodplain Remapping Project](#)

### Floodplain Remapping Project

#### VIEW MAPS & PROVIDE FEEDBACK

[OFFICIAL FLOODPLAIN MAP](#)

The interactive webmap (use the button above) is meant to show detailed flood risk zones and related FEMA map amendments or revisions that are currently regulated throughout unincorporated Boulder County. (Data updated on June 1, 2017 to reflect **adopted changes** to the Floodplain Overlay Zoning District).

This map will update as new FEMA maps become effective throughout Boulder County and as the Boulder County Board of County Commissioners updates floodplain information on maps below)

[REVIEW DRAFT FLOODPLAIN MAPS](#)

DRAFT floodplain maps are now available for stream reaches in Phase II of the Colorado Hazard Mapping Program (CHAMP) study. Visit the interactive webmap (by using the button above) to review and provide comments on the draft flood risk zones that are currently under review by Boulder County.

#### Floodplain Mapping Links

[Floodplain Remapping Project](#)[Floodplain Mapping – How to Stay Informed](#)[Floodplain Information](#)[Colorado Hazard Mapping Program \(CHAMP\)](#)[National Flood Insurance Program \(NFIP\)](#)[Floodplain Mapping and Code Amendments](#)[Floodplain Remapping Project Frequently Asked Questions](#)

<http://bocofloodplainremapping.com>



# Using the Map Review Website

## 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.

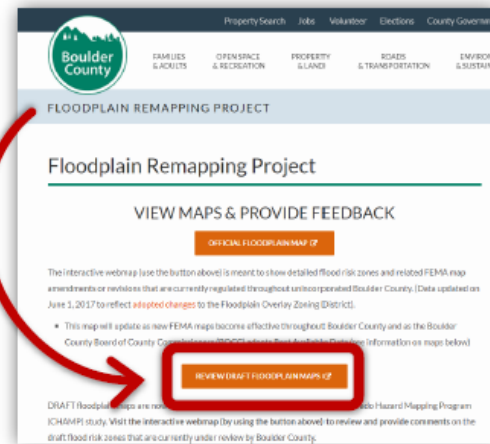
### ACCESSING THE WEB MAP

From the [bouldercounty.org](http://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](http://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.

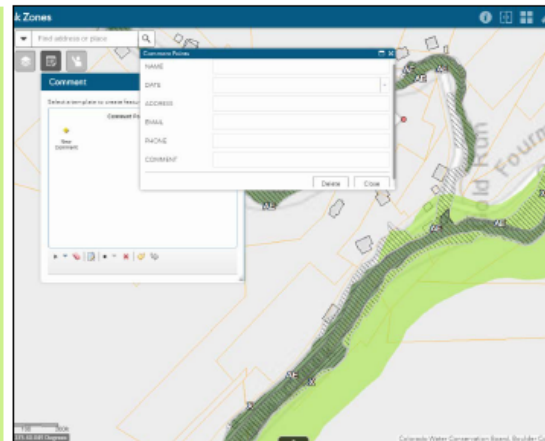
Now you're ready to view the map & comment!



## STEPS TO PLACE A COMMENT

### FOLLOW THESE STEPS:

- Zoom in on map to the area of concern
- Click on the '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](mailto:escooper@bouldercounty.org).



# Draft Maps at the Tables

What we'd like to learn from your review:

- Structure locations – accurate?
- Planned work?
- Topographic details
- Impacts to water flow

Comments!

- Please include *name & contact info* on maps
- Use comment forms
- If you think the map needs revision, tell us WHY

**DEADLINE for comments for this area: FEBRUARY 4<sup>th</sup>**

Remapping Point of Contact: Erin Cooper  
[floodplainmapscomment@bouldercounty.org](mailto:floodplainmapscomment@bouldercounty.org)

