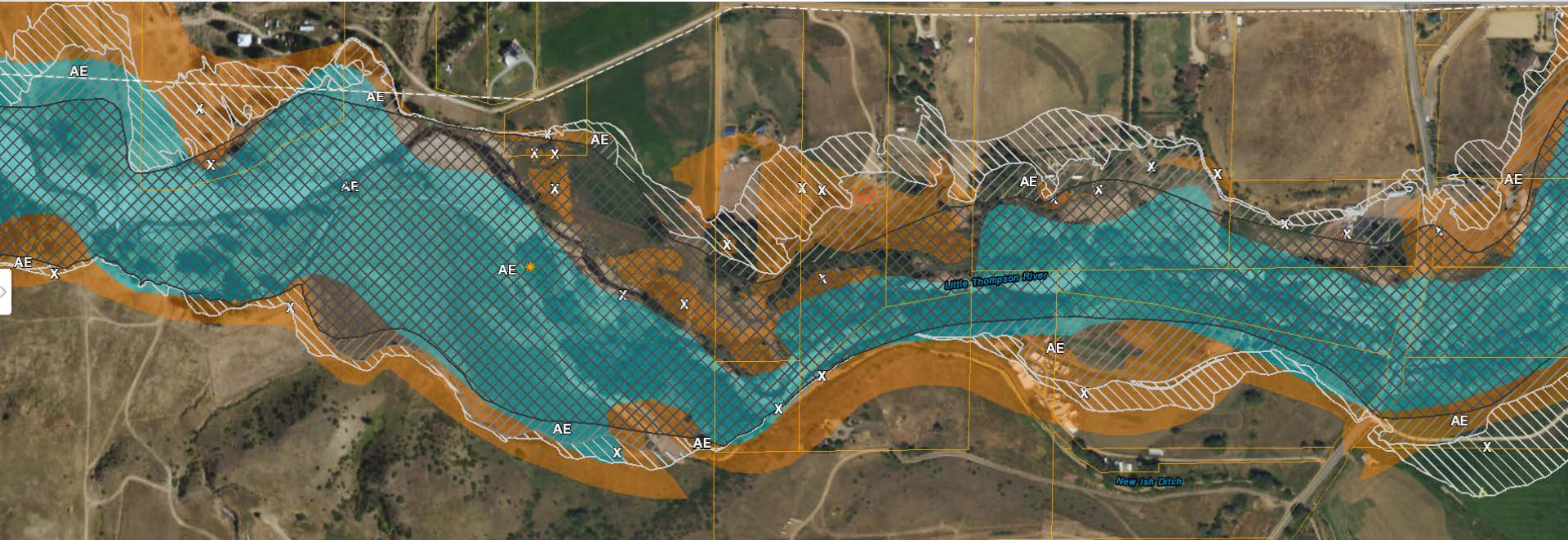


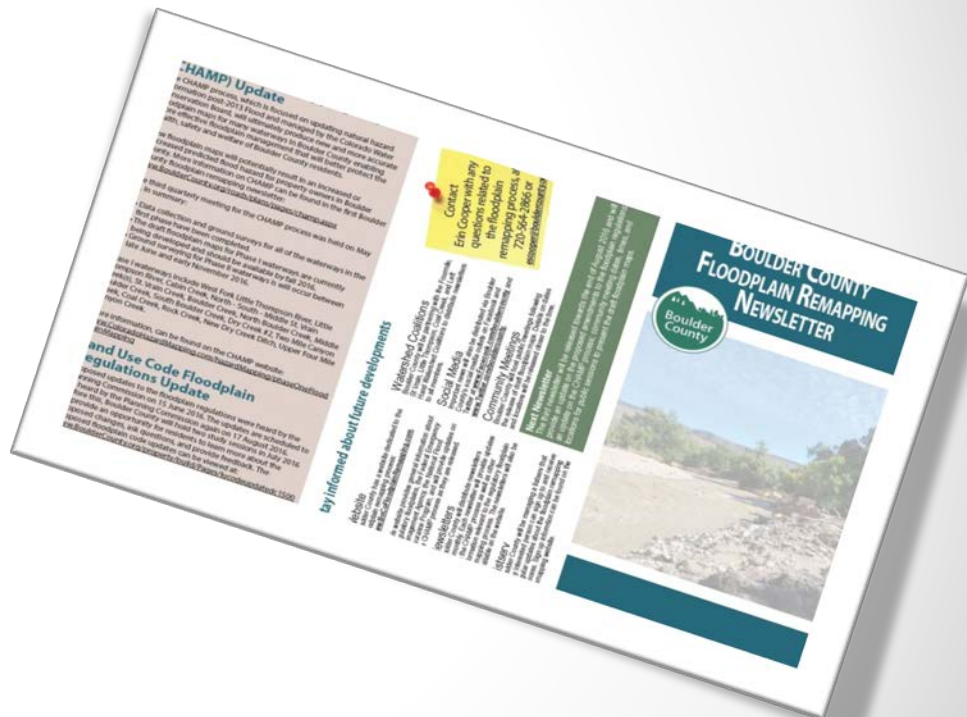
# Public Review of Draft Boulder County Floodplain Maps

May 9, 2017  
Longmont, CO



# HOUSEKEEPING

- Sign-in sheet
- Newsletters & Flyers
- Snacks & restrooms



# Tonight's Agenda

1. Introductions
2. Meeting Goals
3. Program Overview
4. Boulder County's Role
5. Data Overview
6. Online Resources
7. To the Tables!



# Introductions

- Erin Cooper, Boulder County
- Varda Blum, Boulder County
- George Gerstle, Boulder County
- Corey Elliott, CWCB
- Rigel Rucker, AECOM (CWCB)
- Additional Boulder County 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?

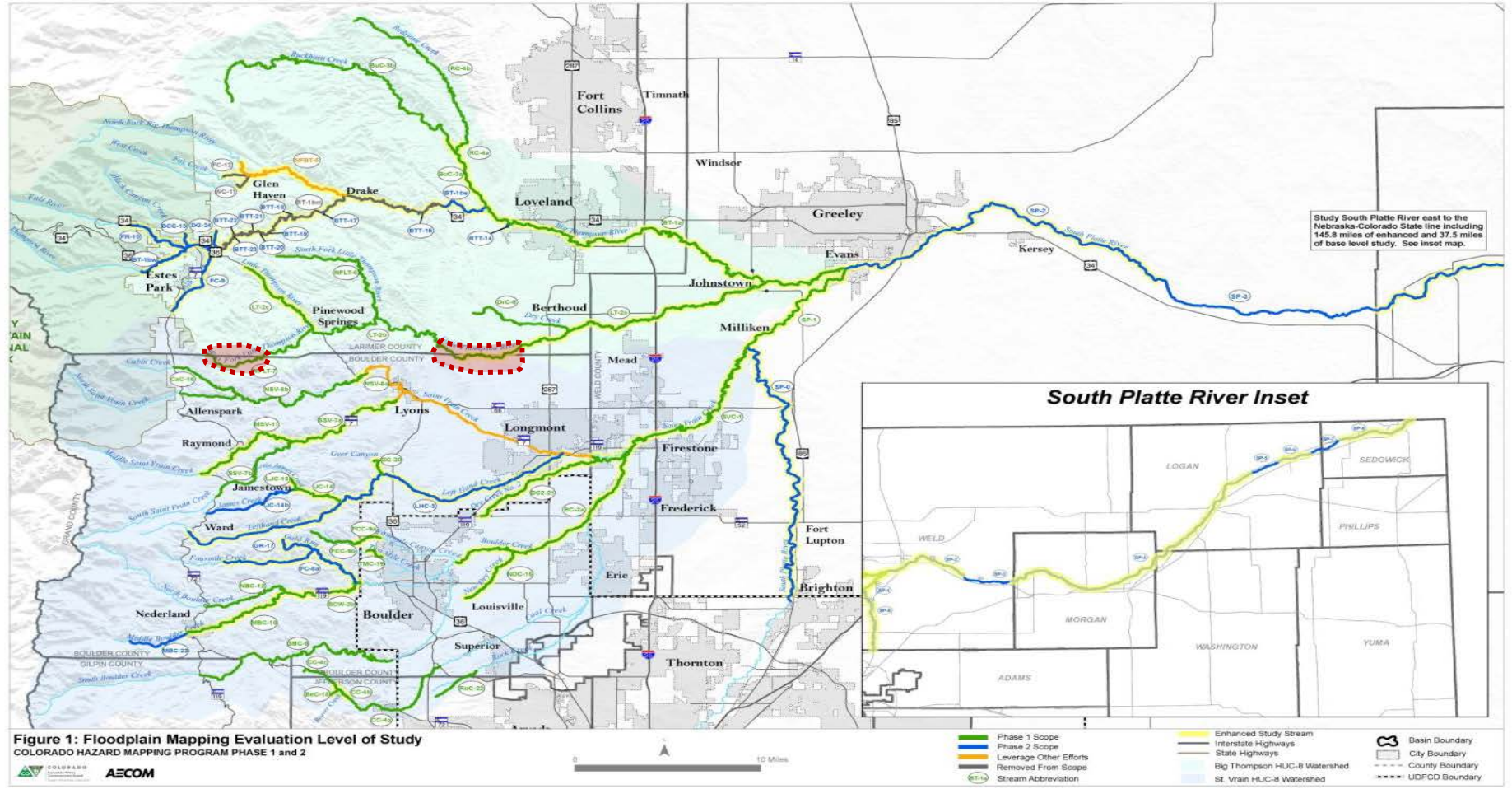
- Hazards change
- Floodplain delineations are often outdated and incorrect
- Maps regularly updated across the country by FEMA, States, Communities
- The State of CO initiated CHAMP after the Flood of 2013
  - Changes to flooding characteristics & understanding of rainfall

## 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?





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

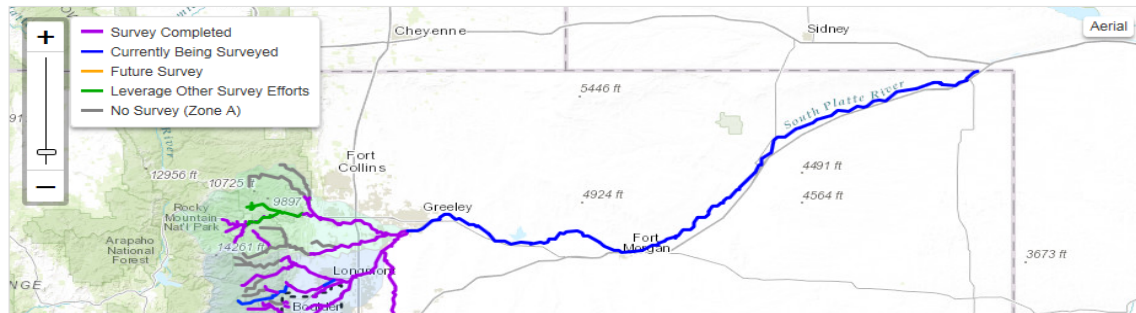
This page is dedicated to showing the latest news and information regarding the CO Hazard Mapping Program Floodplain Mapping.

### 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

Stream Segments	Legend
All Streams	No Known Coordination Need
Survey Status	Ongoing Study or Design
Level of Study	CLOMR/LOMR
Coordination	Construction

☐ 2015 Surveyed Locations

☒ UDFCD Boundary

UDFCD Boundary

☒ Hydrology Flow Changes

Flow Channel Locations



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





### 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.



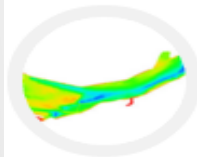
### Topographic Data Development

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 late 2017
- Data will be put onto preliminary Flood insurance Rate Maps in late 2018
- 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 early 2020



# Boulder County's Role

- Encourage community input to improve map accuracy
- Early adoption to promote health & safety of residents





# Flows Experienced & Modeled

## Modeled Discharges of the 100-yr Flood Event

**Little Thompson River** (@ Larimer/Weld County Line)

- **Newly Modeled** – 15,300 cfs (161 %increase)
- Effective FEMA – 9,500 cfs

**Little Thompson West Fork** (@ Big Elk Meadows)

- **Newly Modeled** – 1,000 cfs
- Effective FEMA – NA

## Estimated Peak Discharges Experienced in 2013 Flood

**Little Thompson River** (@ Larimer/Weld County Line)

13,400 cfs (50 to 100 yr event)

**Little Thompson River** (@ X bar 7)

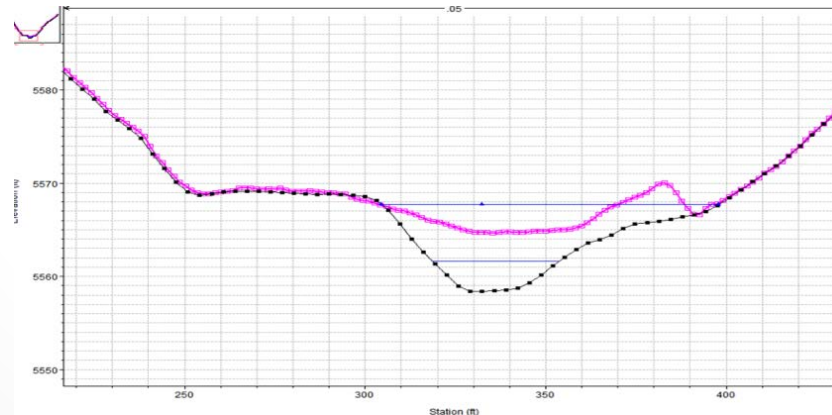
15,731 cfs (100 to 500 yr event)

**Little Thompson West Fork** (@ Big Elk Meadows)

NA



# 2013 Flood vs. 100-yr Mapped Floodplain



# Roles and Responsibilities

## Federal Role (FEMA, NFIP)

- Floodplain mapping *lead*
- Floodplain management
- Flood insurance

## State Role (CWCB, CHAMP)

- Floodplain mapping – *as FEMA partner*
- Community assistance

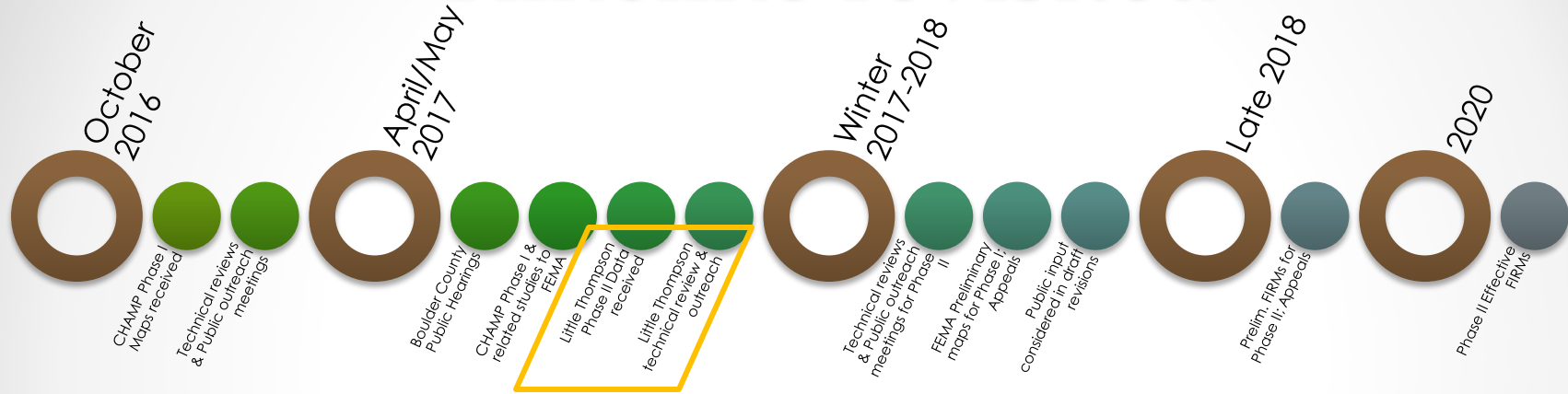
## Local Role (Boulder County)

- Floodplain mapping *participant*
- Floodplain regulation & outreach

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



# Timeline revisited

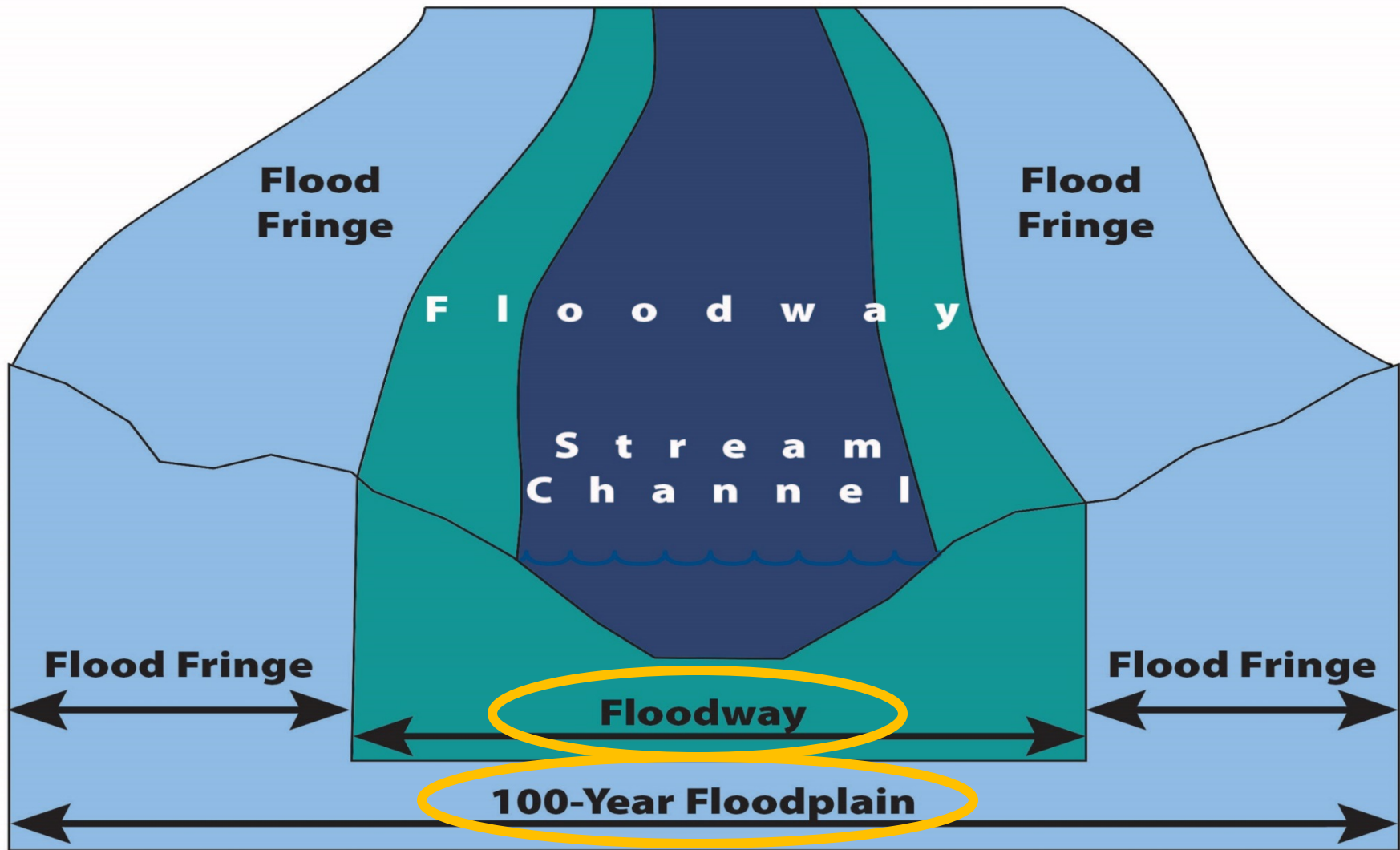


Now	Boulder County is reviewing the hydraulics and floodplain mapping for the Little Thompson River
Winter 2017/2018*	Additional Phase II draft maps will be released
Late 2018*	Preliminary Flood Insurance Rate Maps issued
2020*	Flood Insurance Rate Maps Effective

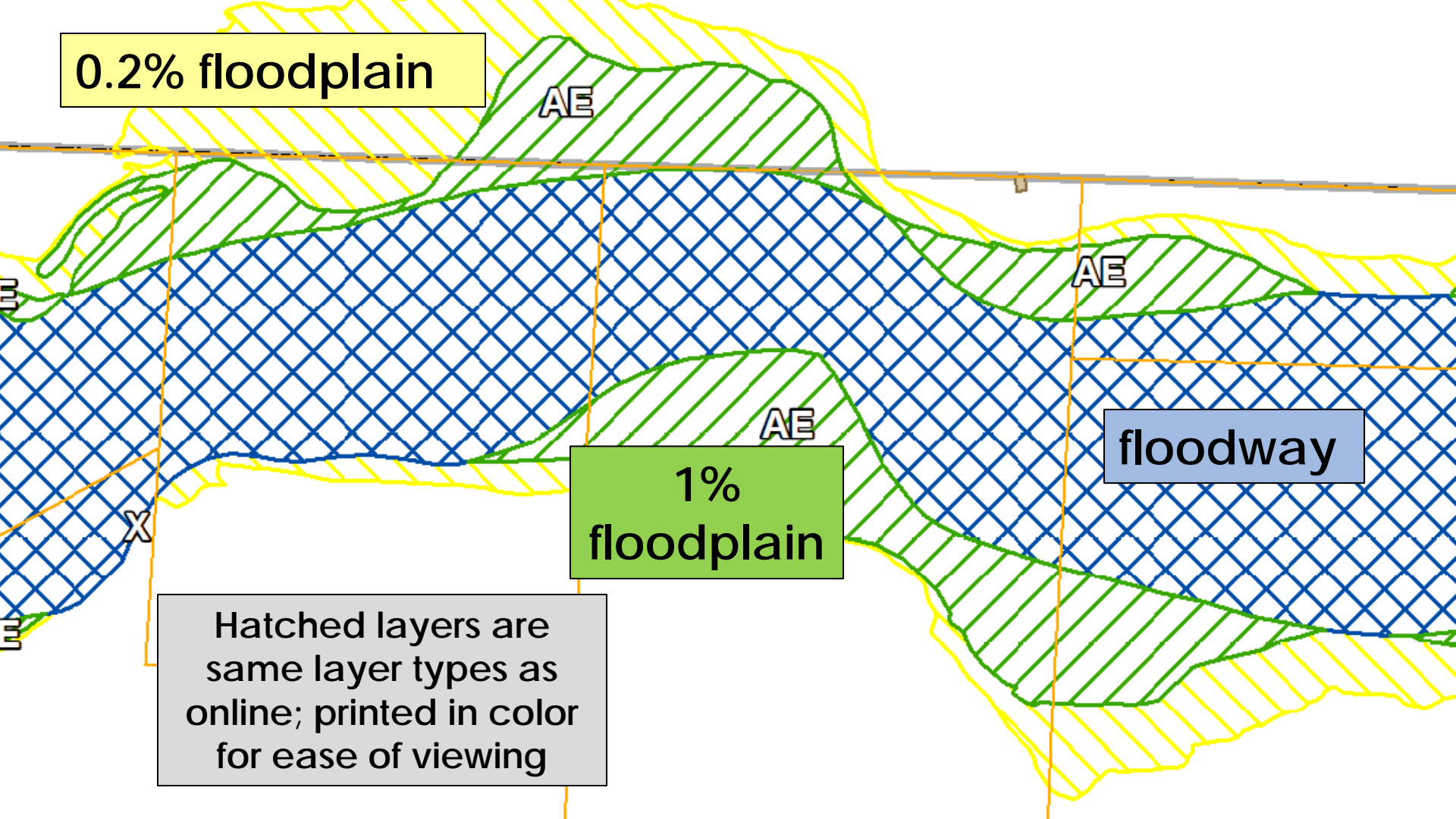
\*all dates subject to change







0.2% floodplain



AE

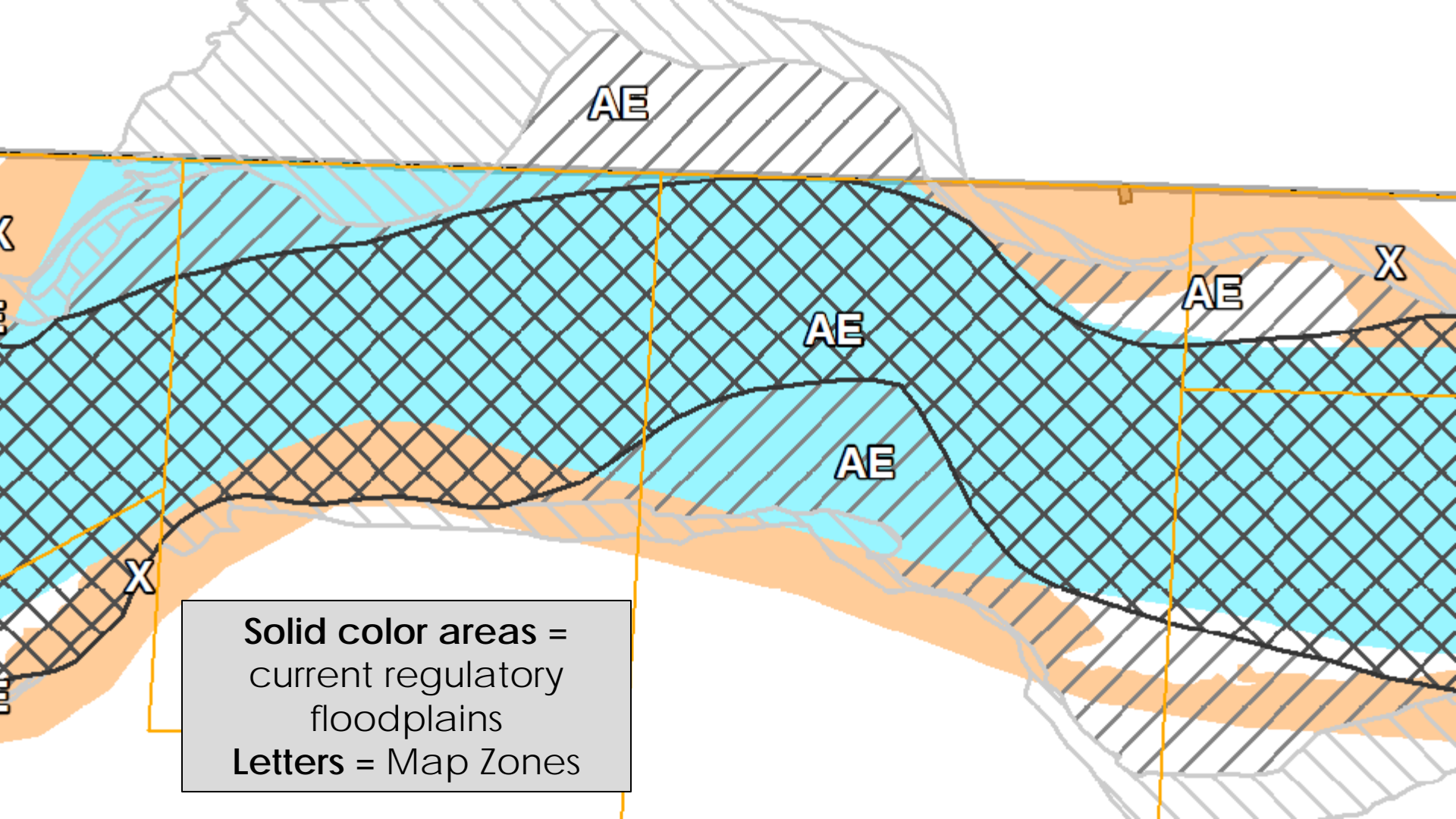
AE

AE

floodway

1%  
floodplain

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



**Solid color areas =**  
current regulatory  
floodplains  
**Letters = Map Zones**

# 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

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

### VIEW MAPS & PROVIDE FEEDBACK

Use the links below to view the draft maps and to provide input or ask questions:

- [View the Draft Maps](#) – You can comment directly from the map site by using the "Comment" button located below the "Find address or place" search field (Data updated April 6, 2017)
- [Proposed Regulatory Flood Risk Zones](#) – Read about the data visible on the draft web map portal (link above) and learn how these maps related to the proposed revisions to the Floodplain Overlay zoning district
- [Online Comment Form](#) – Submitted forms are sent directly to the county project team

### NEW INFORMATION

- Local Adoption of Map & Code Amendments
  - Docket webpage for proposed map and code amendments
- Public Meeting Resources
- Project Newsletter – Issue #4 – January 2017
- Project Newsletter – Issue #3 – Fall 2016
- Project Newsletter – Issue #2 – July 2016

### Floodplain Mapping Links

Floodplain Remapping Project

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

<http://bocofloodplainremapping.com>



# 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](#)

## Projects

- [Railroad Quiet Zones](#)
- [Closures & Construction](#) – A list of current construction projects and their travel
- [Boulder Creek Path Extension Project](#)
- [Brainard Lake Road Reconstruction](#)
- [North 83rd Street Reconstruction \(Niwot Road to SH 119\)](#)
- [Canyon Road Permanent Reconstruction – Flood Recovery Related Projects](#)
  - [James Canyon Reconstruction](#)
  - [Lefthand Canyon Reconstruction](#)
  - [Fourmile Canyon Reconstruction](#)
- [95th Street Intersections Project](#)
- [Countywide Transportation Sales Tax: 5-Year Project List](#)
- [Road & Bridge Project Bid Information](#)
- [Transportation Flood Recovery Projects](#)
- [Floodplain Remapping Project](#)
- [SH 7 Bus Rapid Transit Study](#)



### Regulatory Versus DRAFT Floodplain Data

**Comment Points**

Under Review for Phase II Study

**Proposed Regulatory Flood Risk Zones**

- Proposed Regulatory 100-Year Floodplain (Includes FEMA and CHAMP Zones AE, A, AO, and AH)
- Proposed Regulatory Floodway (Includes Extents of CHAMP Floodplain above 6,000 ft. Elevation)

**Draft CHAMP Flood Risk Zones**


- 100-Year Floodplain - Zones AE, A, AO, and AH (DRAFT)
- Floodway (DRAFT)
- 500-Year Floodplain (DRAFT)

Find Address or Place

**Layer List**

**Operational Layers**


- ☒ Comment Points
- ☒ Under Review for Phase II Study
- ☐ Draft CHAMP Cross Sections
- ☐ Current Regulatory Base Flood
- ☐ Current Regulatory Cross Section
- ☒ Proposed Regulatory Flood Risk
- ☒ Draft CHAMP Flood Risk Zones
- ☐ Current Regulatory Flood Risk




**This map is intended to display current Boulder County (Unincorporated Areas) regulatory flood hazard information in combination with DRAFT flood hazard data provided by the Colorado Hazard Mapping Program (CHAMP). Additional map layers represent the PROPOSED regulatory zones for county adoption (Updated April 2017).**

**Flood hazard data for incorporated areas within Boulder County (such as the Town of Lyons and the City of Longmont) is provided for informational purposes only.**


**Users can provide comments on the flood hazard data by using the COMMENT tool to place a point feature for their location of concern and providing feedback in the table once the point is placed. No authentication (sign in) is required.**




Click this button in the toolbar in the upper left hand corner to turn map data on or off




Click this button in the toolbar in the upper left hand corner to add comments to map



Click this button in the toolbar in the upper left hand corner for How To instructions regarding comment creation



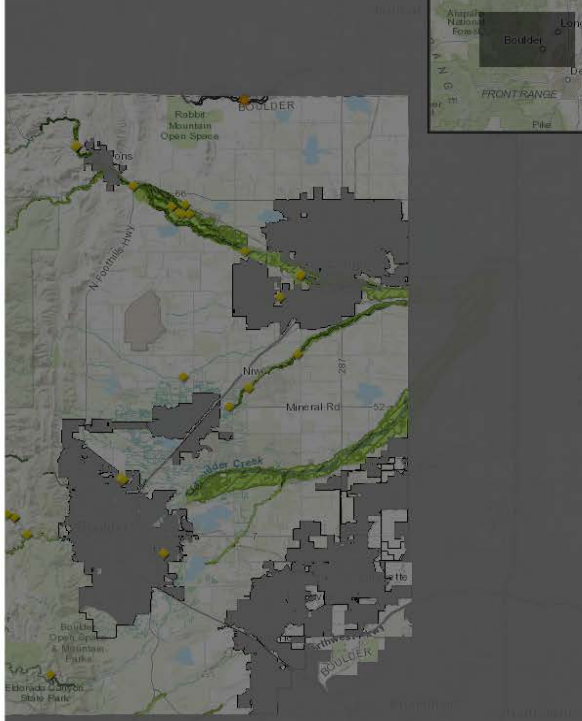
Click this button in the toolbar in the upper right hand corner to access additional information and mapping resources



Click this button in the toolbar in the upper right hand corner to "swipe" a layer on and off from left to right for easy comparison between layers

**DISCLAIMER:** This map is for illustrative purposes only and the features depicted on it are approximate. More site specific studies may be required to draw accurate conclusions. Boulder County makes no warranties regarding the accuracy, completeness, reliability, or suitability of this map. Boulder County disclaims any liability associated with the use or misuse of this map. In accessing and/or relying on this map, the user fully assumes any and all risk associated with the information contained therein.

**OK**



OK

- Comment Points
- Under Review for Phase II Study
- Proposed Regulatory Flood Risk Zones
- Proposed Regulatory 100-Year Floodplain (Includes FEMA and CHAMP Zones AE, A, AO, and AH)
  - Proposed Regulatory Floodway (Includes Extents of CHAMP Floodplain above 6,000 ft. Elevation)
- Draft CHAMP Flood Risk Zones
- 100-Year Floodplain - Zones AE, A, AO, and AH (DRAFT)
  - Floodway (DRAFT)
  - 500-Year Floodplain (DRAFT)

Find Address or Place

Layer List

Operational Layers

☒ Comment Points

☒ Under Review for Phase II Study

☐ Draft CHAMP Cross Sections

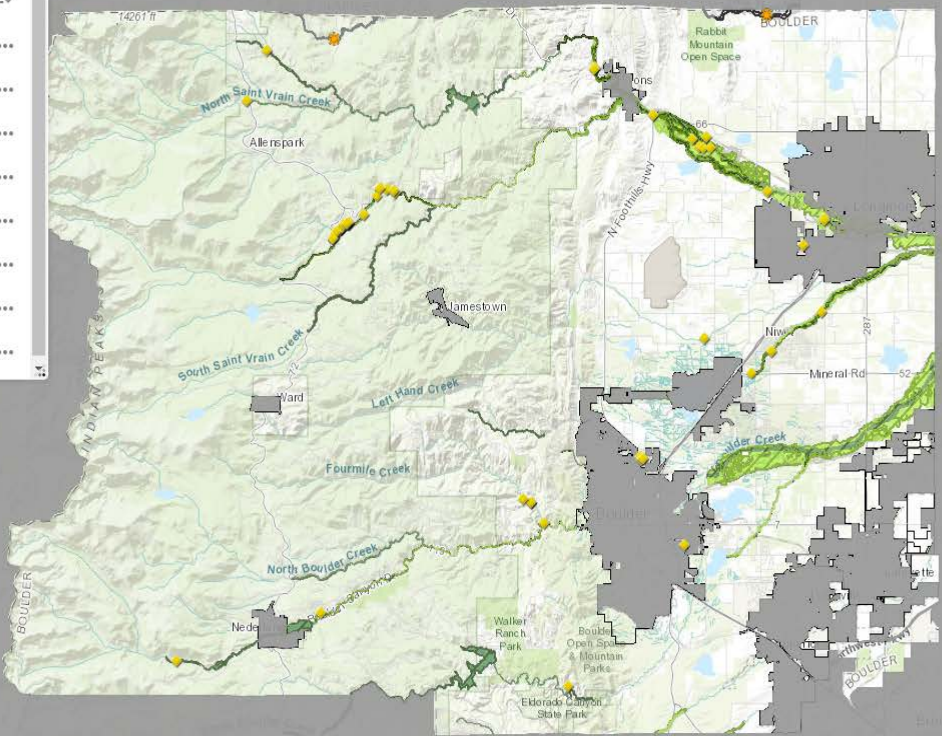
☐ Current Regulatory Base Flood Elevations

☐ Current Regulatory Cross Sections

☒ Proposed Regulatory Flood Risk Zones

☒ Draft CHAMP Flood Risk Zones

☒ Current Regulatory Flood Risk Zones





Comment Points

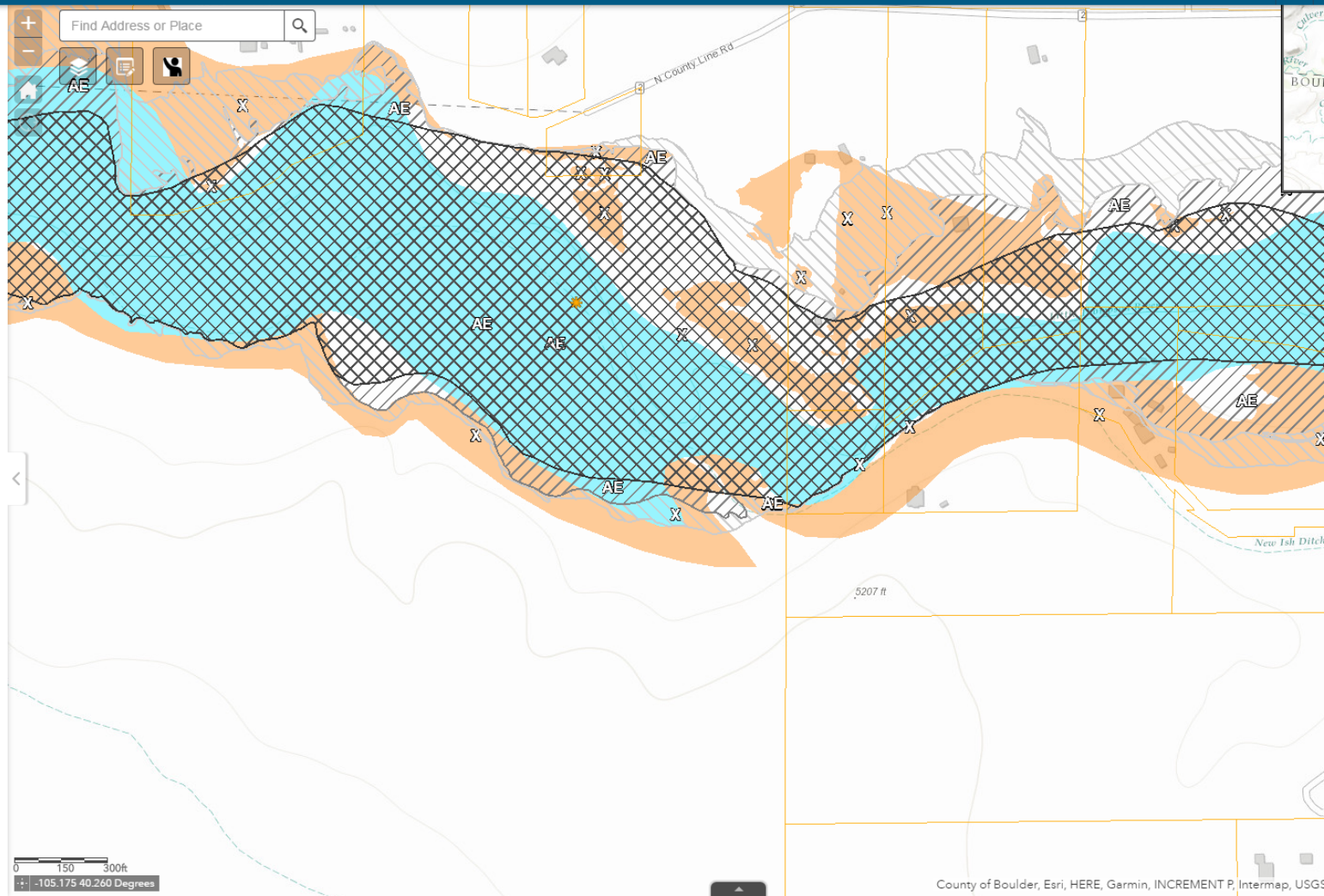
Under Review for Phase II Study

Draft CHAMP Flood Risk Zones

- ☐ 100-Year Floodplain - Zones AE, A, AO, and AH (DRAFT)
- ☒ Floodway (DRAFT)
- ☐ 500-Year Floodplain (DRAFT)


Current Regulatory Flood Risk Zones

- ☒ 100-Year Floodplain - Zones AE, A, AO and AH (FEMA)
- ☒ Floodway (FEMA)
- ☒ 500-Year Floodplain - Zone X500 (FEMA)
- ☒ Floodway (Boulder County)
- ☒ 500-Year Floodplain - Zone X500 (Boulder County)
- ☒ 100-Year Floodplain - Zones AE, A, AO, and AH (Boulder County)







# How to comment

 **Regulatory Versus DRAFT Floodplain Data**

**Comment Points**



**Under Review for Phase II Study**








**Draft CHAMP Flood Risk Zones**

...


- ☐ 100-Year Floodplain - Zones AE, A, AO, and AH (DRAFT)
- ☒ Floodway (DRAFT)
- ☐ 500-Year Floodplain (DRAFT)

**Current Regulatory Flood Risk Zones**

...

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-  Floodway (Boulder County)
-  500-Year Floodplain - Zone X500 (Boulder County)


...

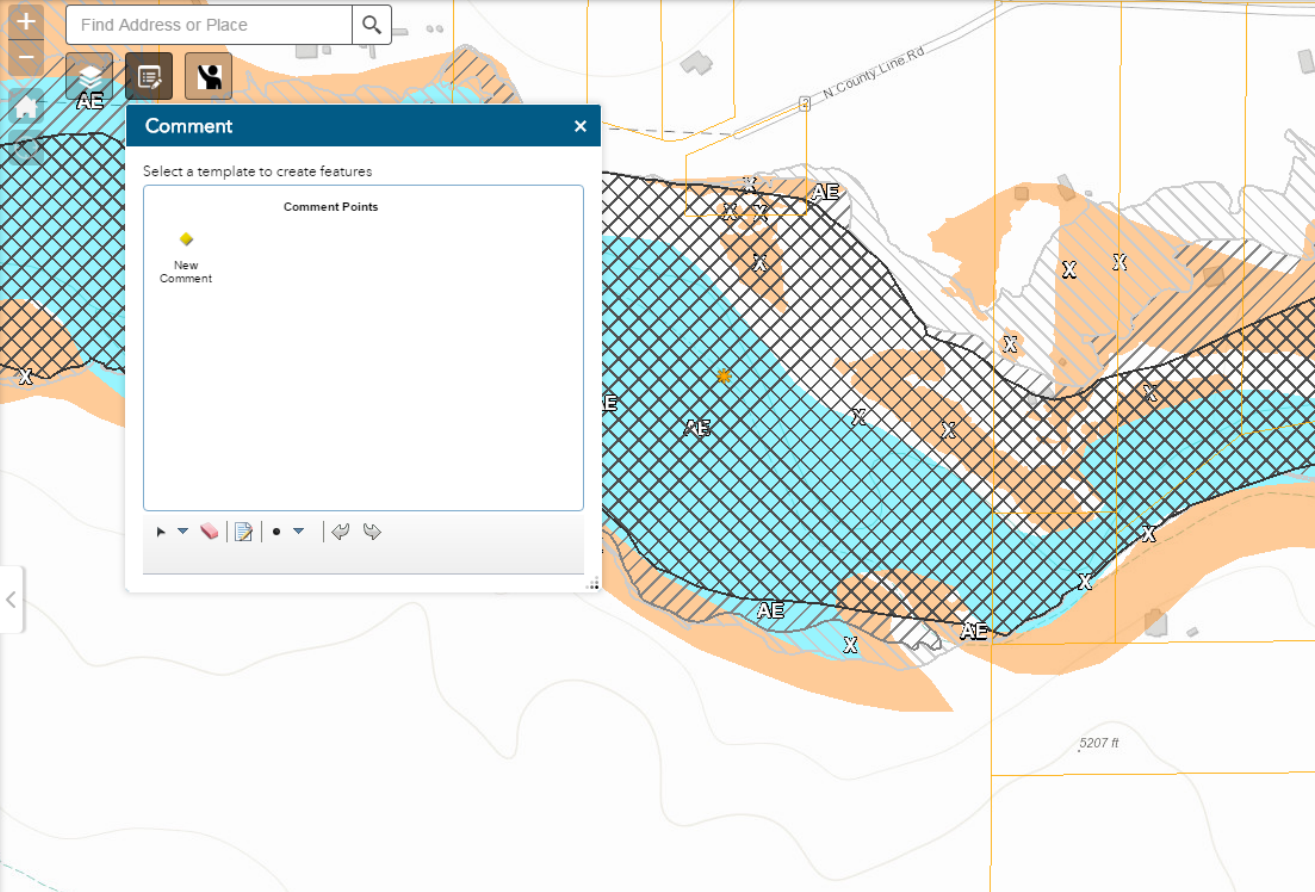
-  100-Year Floodplain - Zones AE, A, AO, and AH (Boulder County)

**Comment**


Select a template to create features

**Comment Points**


 New Comment




# How to comment

 **Regulatory Versus DRAFT Floodplain Data**

**Comment Points**








**Under Review for Phase II Study**




**Draft CHAMP Flood Risk Zones**


- ☒ 100-Year Floodplain - Zones AE, A, AO, and AH (DRAFT)
- ☒ Floodway (DRAFT)
- ☐ 500-Year Floodplain (DRAFT)

**Current Regulatory Flood Risk Zones**


-  100-Year Floodplain - Zones AE, A, AO and AH (FEMA)
-  Floodway (FEMA)
-  500-Year Floodplain - Zone X500 (FEMA)
-  Floodway (Boulder County)
-  500-Year Floodplain - Zone X500 (Boulder County)

 100-Year Floodplain - Zones AE, A, AO, and AH (Boulder County)

**Map Interface:**

- Find Address or Place
- Map navigation controls (Zoom in, Zoom out, Home, etc.)
- Comment** dialog box:
  - Select a template to create features
  - Comment Points**
  -  New Comment
- Map showing flood risk zones (AE, A, AO, AH, X500) and comment points (marked with 'X').
- Map scale: 5207 ft

# How to comment

 **Regulatory Versus DRAFT Floodplain Data**

**Comment Points**

Under Review for Phase II Study

Draft CHAMP Flood Risk Zones

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Current Regulatory Flood Risk Zones

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- ☐ 500-Year Floodplain - Zone X500 (FEMA)
- ☐ Floodway (Boulder County)
- ☐ 500-Year Floodplain - Zone X500 (Boulder County)
- ☐ 100-Year Floodplain - Zones AE, A, AO, and AH (Boulder County)

**Comment**

Select a template to create features

Comment Points

New Comment

**Comment Points**

NAME

DATE

ADDRESS

EMAIL

PHONE

COMMENT

Find Address or Place

N County Line Rd

AE

X

5207 ft

# Instructions button



## Regulatory Versus DRAFT Floodplain Data

### Comment Points



### Under Review for Phase II Study

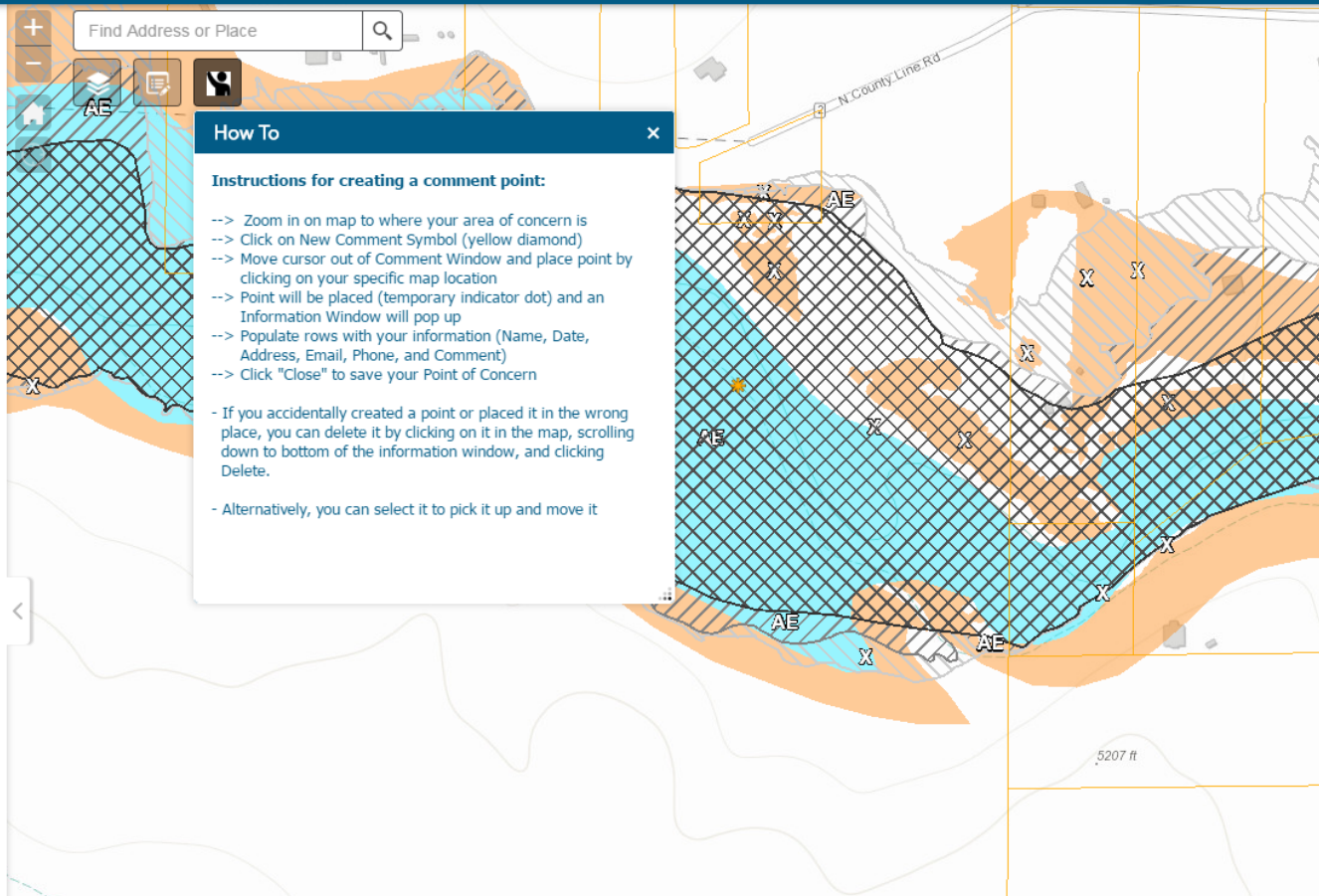


### Draft CHAMP Flood Risk Zones

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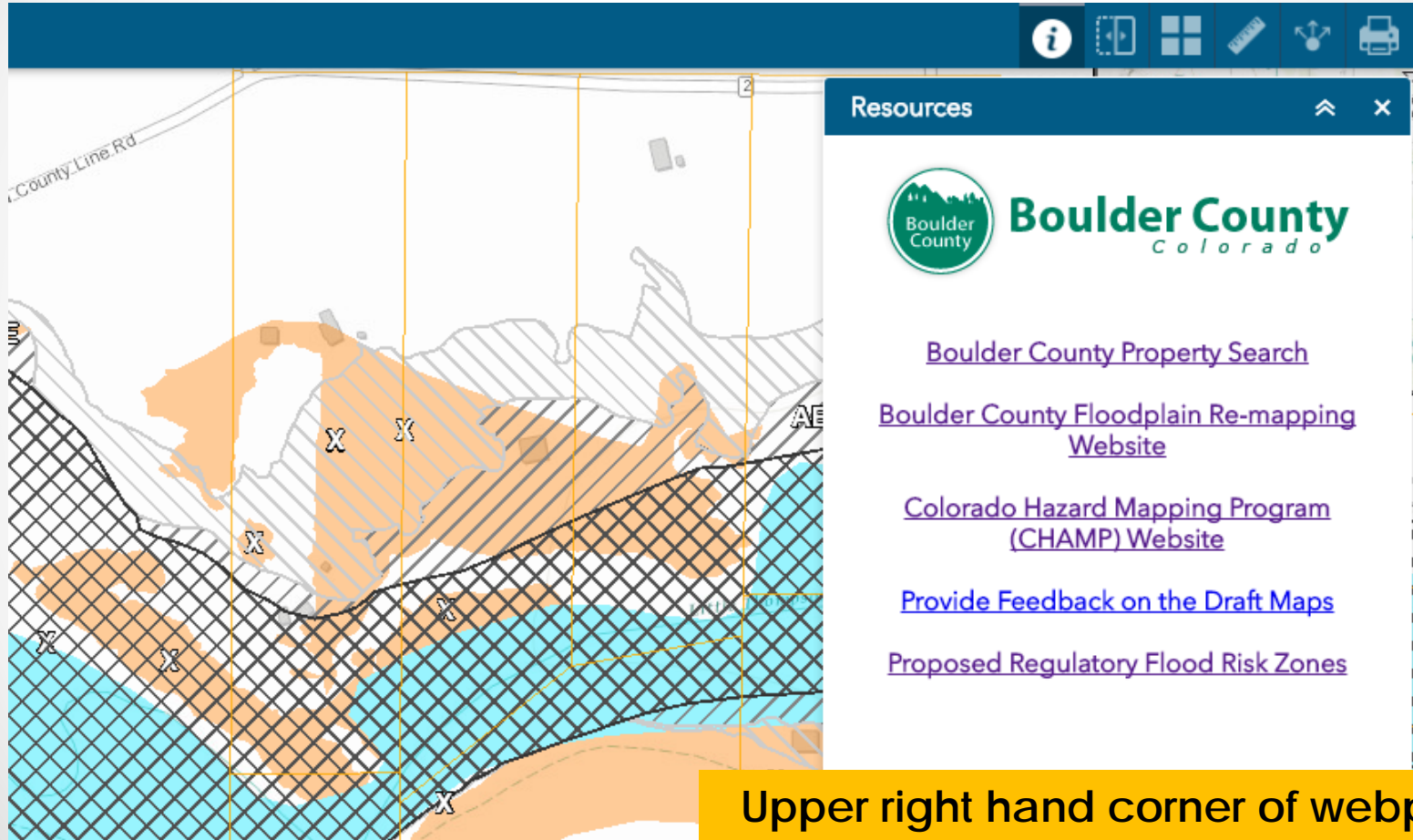
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- ☐ 100-Year Floodplain - Zones AE, A, AO and AH (FEMA)
  - ☐ Floodway (FEMA)
  - ☐ 500-Year Floodplain - Zone X500 (FEMA)
  - ☐ Floodway (Boulder County)
  - ☐ 500-Year Floodplain - Zone X500 (Boulder County)
- 
- ☐ 100-Year Floodplain - Zones AE, A, AO, and AH (Boulder County)






# Resources button



The image is a screenshot of a web application interface. On the left, a map displays various flood risk zones: orange solid areas, blue hatched areas, and black hatched areas. Several 'X' markers are placed on the map. A road labeled 'County Line Rd' is visible in the upper left. A dark blue navigation bar at the top contains icons for information, mobile view, grid, ruler, share, and print. On the right, a 'Resources' sidebar is open, featuring the Boulder County logo and a list of links. A yellow banner at the bottom right contains text.

Resources

 **Boulder County**  
Colorado

- [Boulder County Property Search](#)
- [Boulder County Floodplain Re-mapping Website](#)
- [Colorado Hazard Mapping Program \(CHAMP\) Website](#)
- [Provide Feedback on the Draft Maps](#)
- [Proposed Regulatory Flood Risk Zones](#)

Upper right hand corner of webpage



# 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: MAY 14<sup>th</sup>**

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



