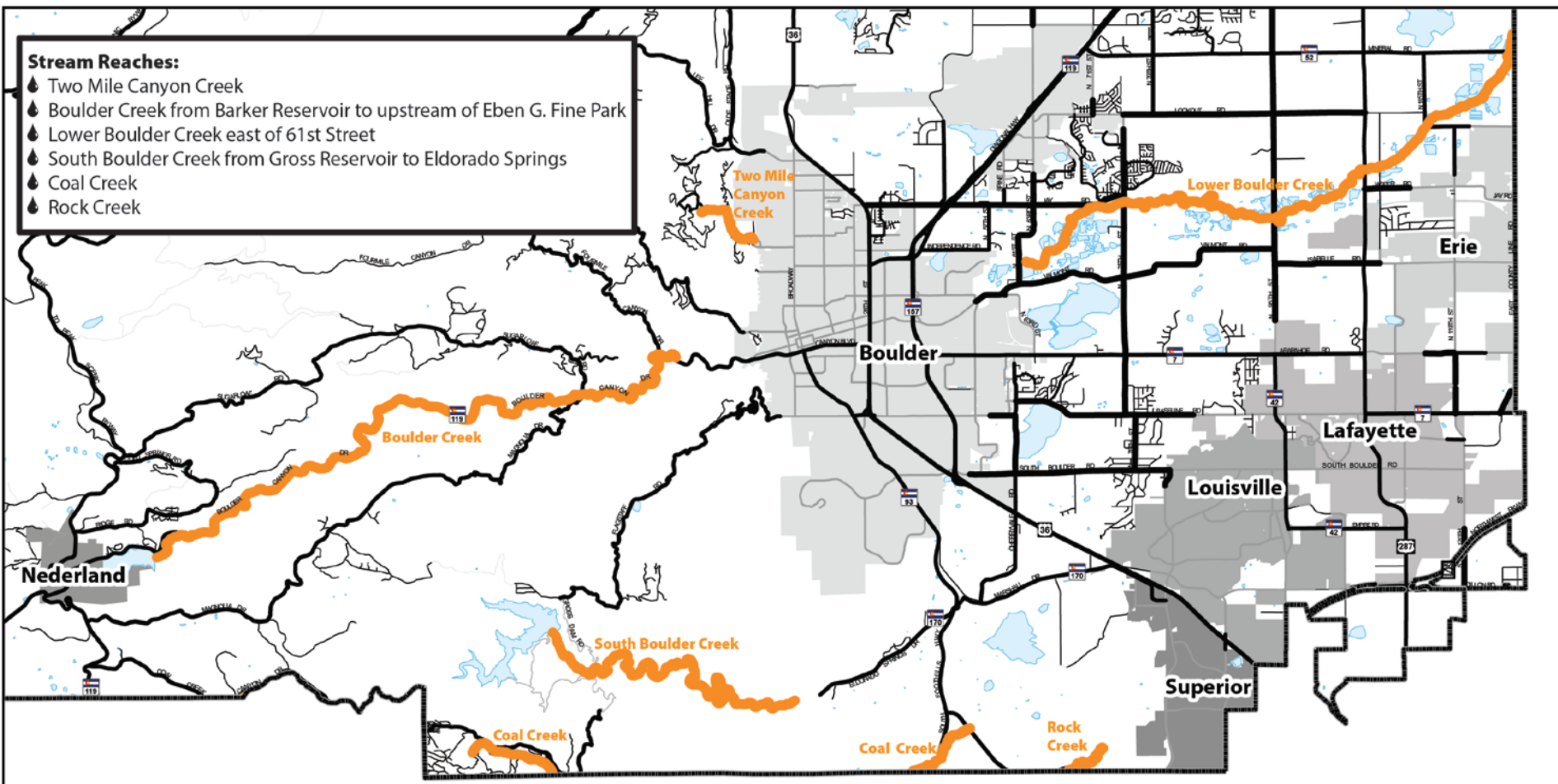


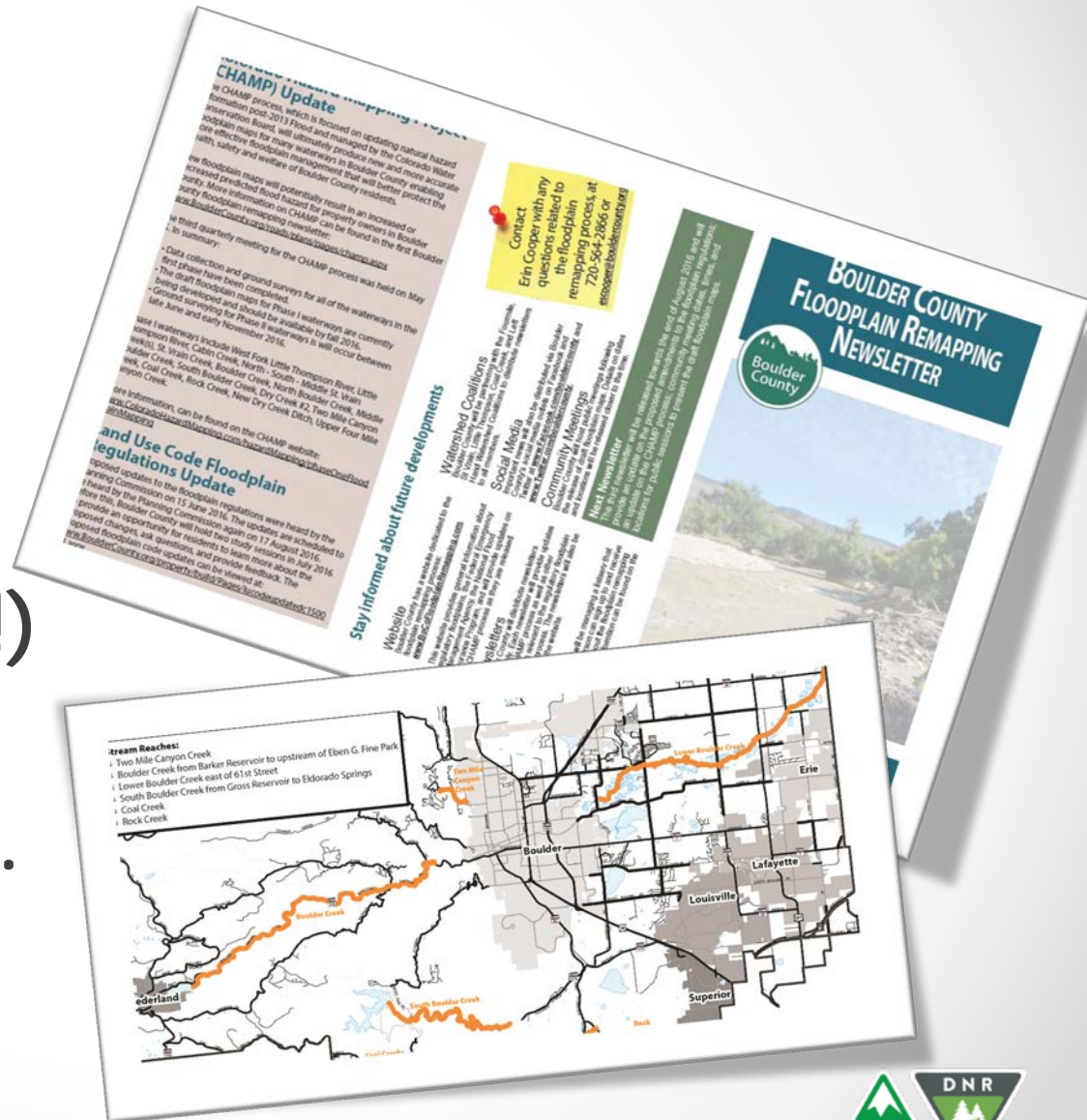
Public Review of Draft Boulder County Floodplain Maps

January 31, 2017
Boulder, CO



HOUSEKEEPING

- Sign-in sheet
- Newsletters & Flyers
- Locator Map (add your dot!)
- Snacks, restrooms, etc.



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
- Corey Elliott, CWCB
- Geoff Uhlemann, AECOM (CWCB)
- Garry Sanfaçon, Boulder County
- Kevin Doyle, Michael Baker Intl.
- 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?

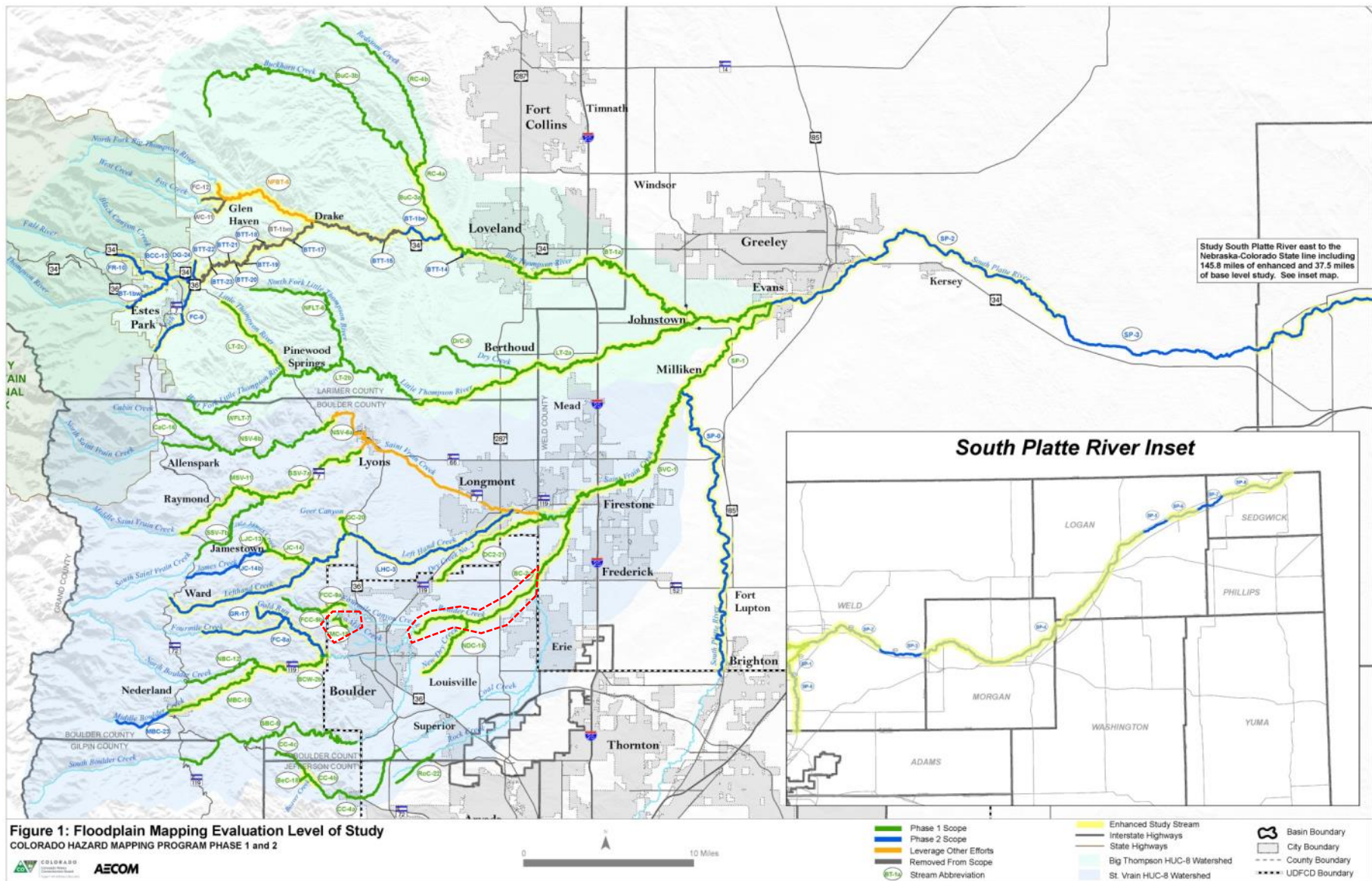
- Hazards change
- Floodplain delineations are often outdated and incorrect
- Maps regularly updated across the country by FEMA, States, Communities
- The State of CO initiated CHAMP after the Flood of 2013
 - Changes to flooding characteristics
 - Changes to understanding of rainfall

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?





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

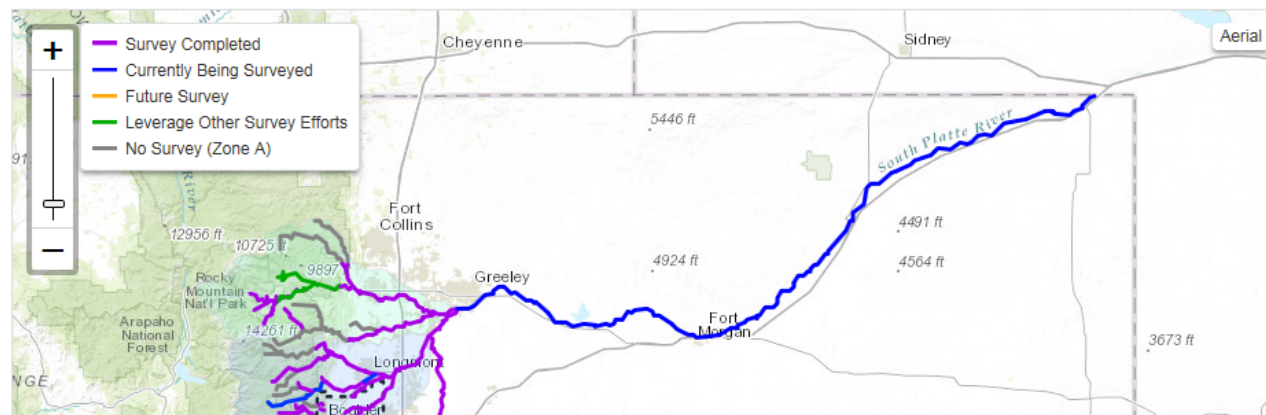
This page is dedicated to showing the latest news and information regarding the CO Hazard Mapping Program Floodplain Mapping.

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





Map Floodplain Mapping change

Layers Documents

Stream Segments

All Streams

No Known Coordination Need

Survey Status

Ongoing Study or Design

Level of Study

CLOM/LOMR

Coordination

Construction

2015 Surveyed Locations

UDFCD Boundary

UDFCD Boundary

Hydrology Flow Changes

Flow Change Locations

Lidar Extents

2012

Glen Haven

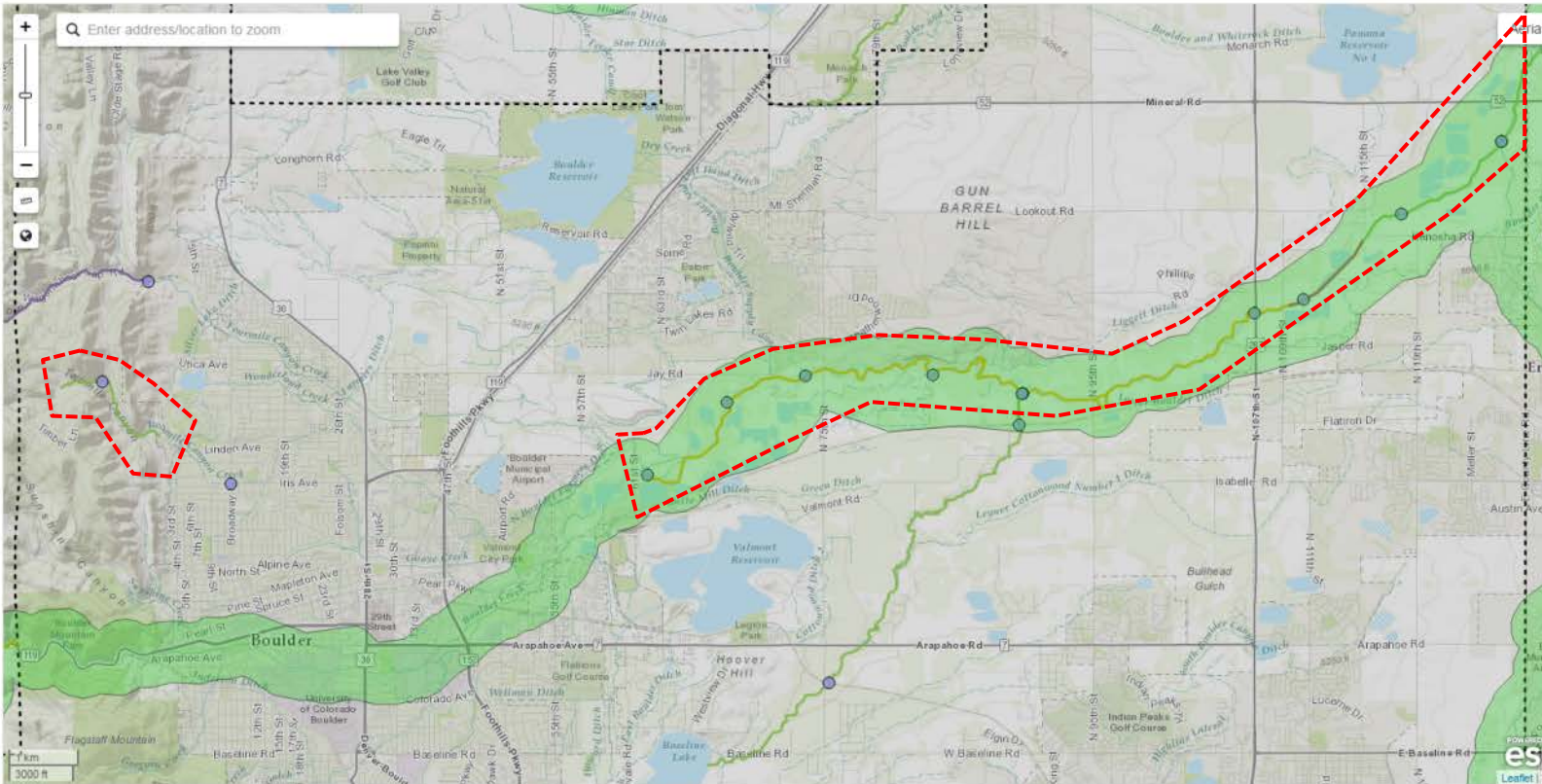
2014 USACE

2013 USGS

Longmont

NFHL Flood Hazard Zones

FEMA National Flood Hazard Layer



features can have associated documents





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.



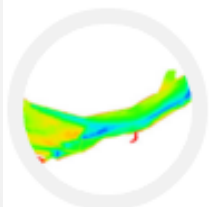
Topographic Data Development

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



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 2017
- Data will be put onto preliminary Flood insurance Rate Maps in fall 2017
- 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 late 2018/early 2019

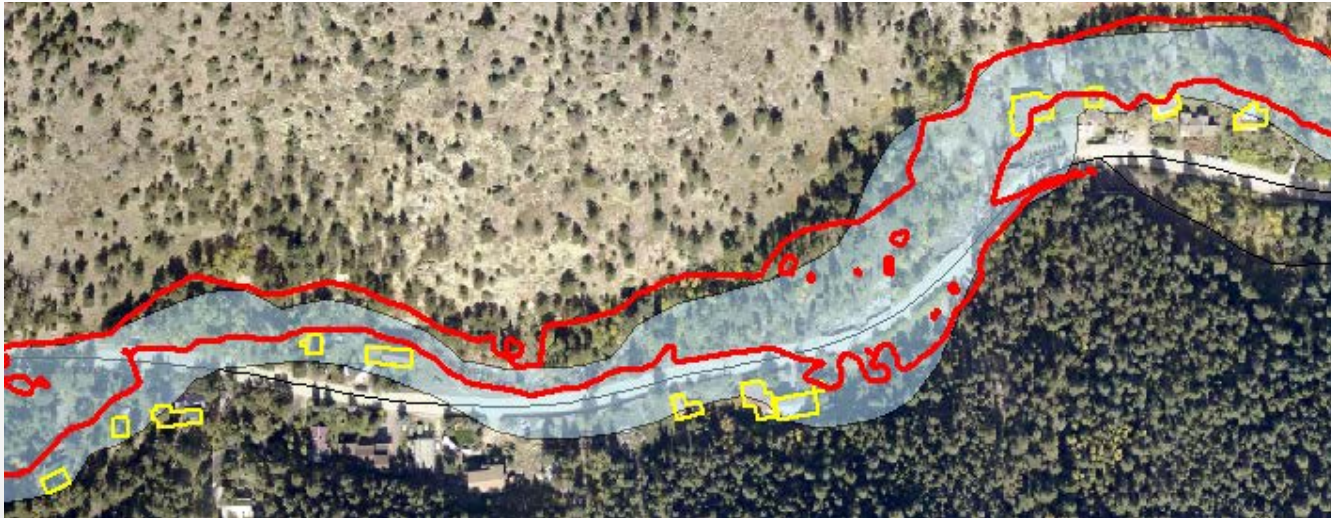


Boulder County's role

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



Destroyed structure along the Middle St. Vrain



Flows Experienced & Modeled

Modeled Discharges of the 100-yr Flood Event

Boulder Creek (@ Hwy 287)	<ul style="list-style-type: none">•Newly Modeled – 13,500 cfs (6% increase)•Effective FEMA – 12,700 cfs
Boulder Creek (below Fourmile Cr)	<ul style="list-style-type: none">•Newly Modeled – 6,850 cfs (41% decrease)•Effective FEMA – 11,650 cfs
South Boulder Creek (above Eldorado Springs)	<ul style="list-style-type: none">•Newly Modeled – 5,330 cfs (new study)•Effective FEMA – NA

Estimated Peak Discharges Experienced in 2013 Flood

Boulder Creek (@ Hwy 287)	9,000 cfs (~50 yr event)
Boulder Creek (below Fourmile Cr)	4,818 cfs (~50 yr event)
South Boulder Creek (above Eldorado Springs)	2,120 cfs (<25 yr event)



Flows Experienced & Modeled

Modeled Discharges of the 100-yr Flood Event

Two Mile Canyon Creek (@ Linden and 4th St)

- Newly Modeled – 699 cfs (0% increase)
- Effective FEMA – 699 cfs

Coal Creek (@ Hwy 93)

- Newly Modeled – 3,590 cfs (new study)
- Effective FEMA – NA

Rock Creek (@ Hwy 128)

- Newly Modeled – 1,190 cfs (new study)
- Effective FEMA – NA

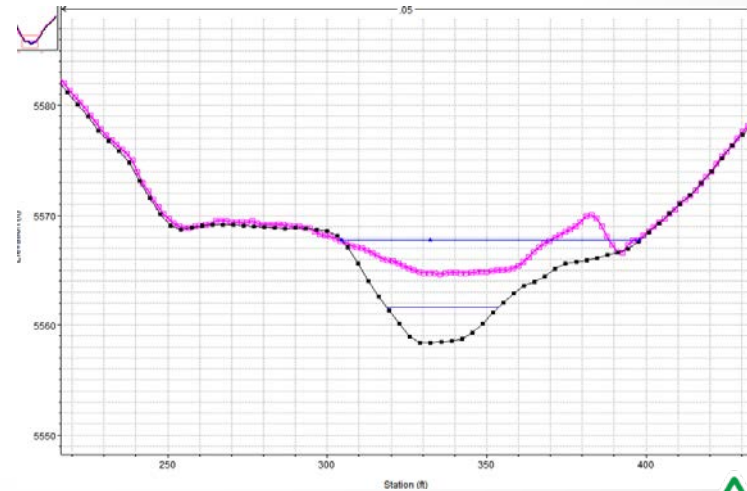
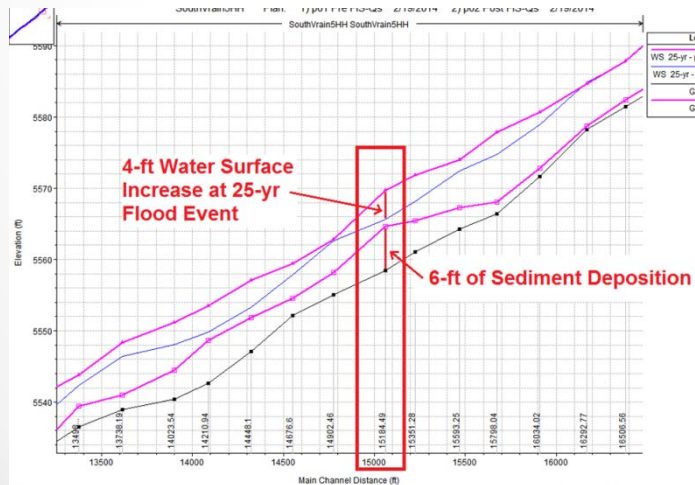
Estimated Peak Discharges Experienced in 2013 Flood

Coal Creek (near Plainview Rd)

3,900 cfs (> 100 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

State Role (CWCB)

- Community assistance
- Flood Risk Mapping

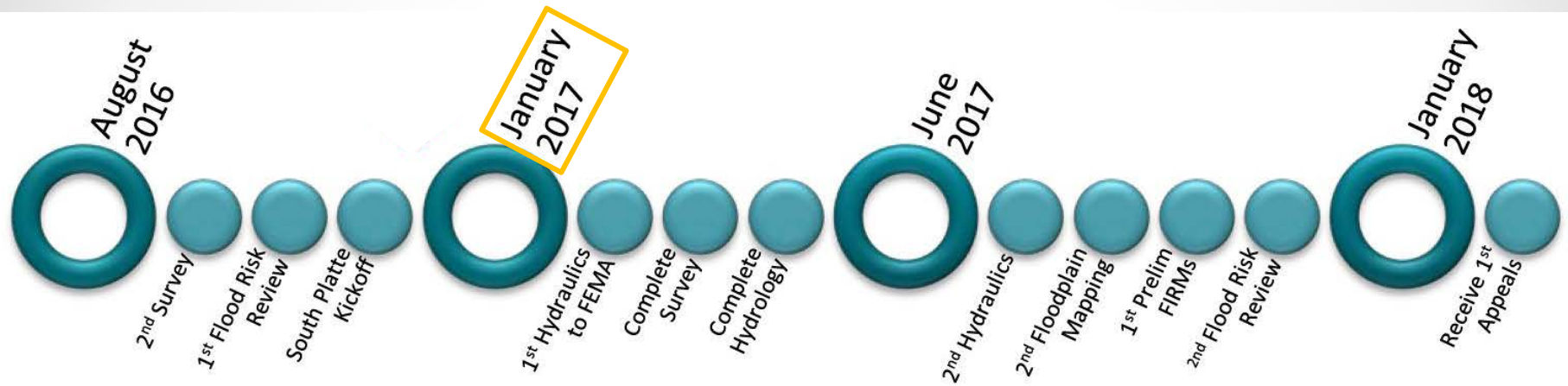
Local Role (Boulder County)

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

Ultimate Goal – Protect Life, Health, & Safety



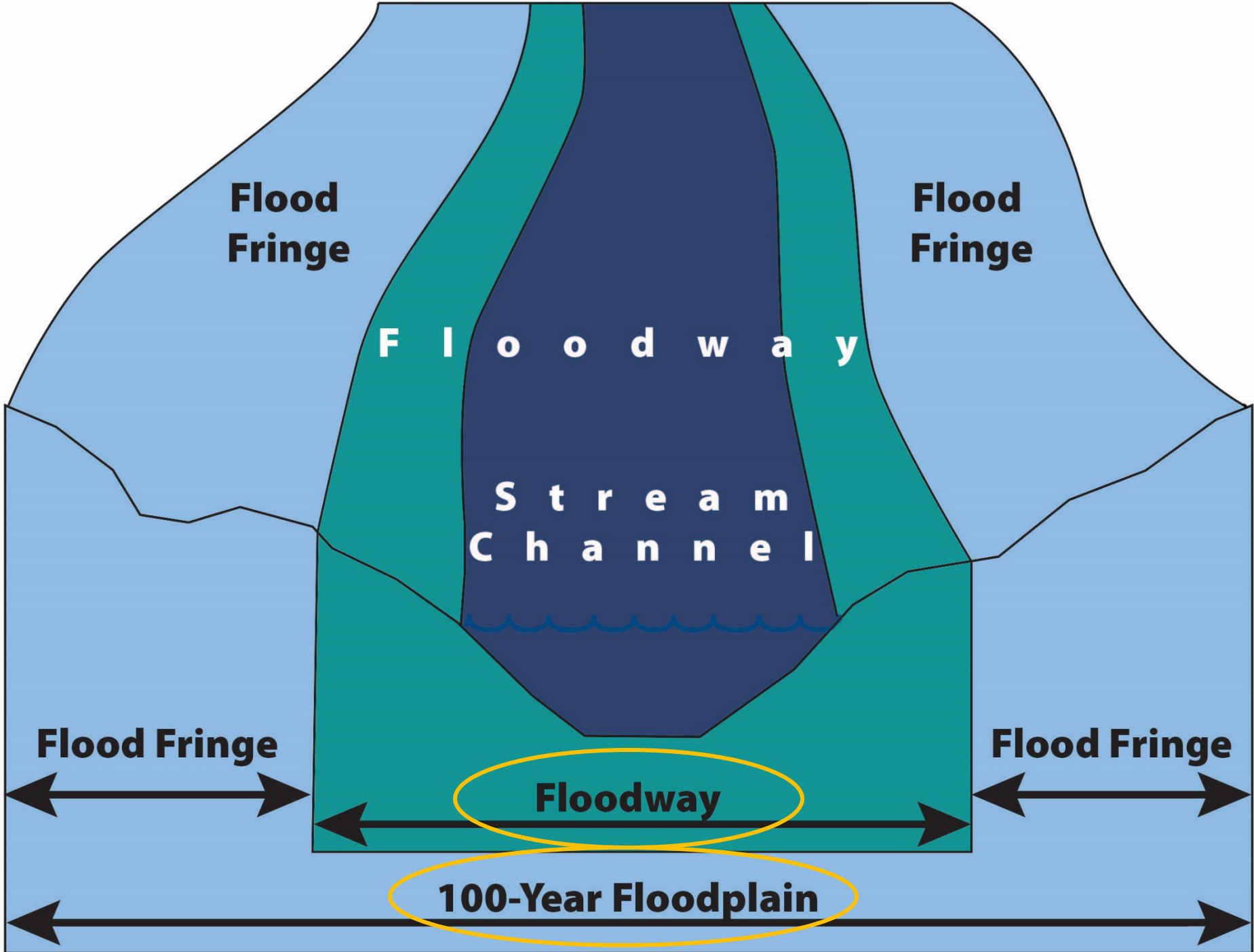
Timeline revisited



- | | |
|-------------|--|
| Now | Boulder County is reviewing the hydraulics and floodplain mapping |
| Spring 2017 | FEMA will review the hydraulics and floodplain mapping, Boulder County to adopt floodplain as "best available data" |
| Late 2017 | Preliminary Flood Insurance Rate Maps issued |
| Early 2019 | Flood Insurance Rate Maps Effective |

*all dates subject to change





**Flood
Fringe**

**Flood
Fringe**

F l o o d w a y

**S t r e a m
C h a n n e l**

Flood Fringe

Flood Fringe

Floodway

100-Year Floodplain



A map showing a floodway and its associated floodplains. The floodway is a central, narrow area filled with a black cross-hatch pattern. To its left is the 500-year floodplain, indicated by light gray diagonal hatching. To the right of the floodway is the 100-year floodplain, indicated by a white background. A red arrow points from the text '500-year floodplain' to the 500-year floodplain area. Another red arrow points from the text '100-year floodplain' to the 100-year floodplain area. A third red arrow points from the text 'floodway' to the floodway area. The floodway is labeled 'AE' at both the top and bottom. A road labeled 'N STATE ST' is visible on the right side of the map. A yellow banner at the bottom contains the text 'Some maps on your tables have draft layers in colors (not gray)'.

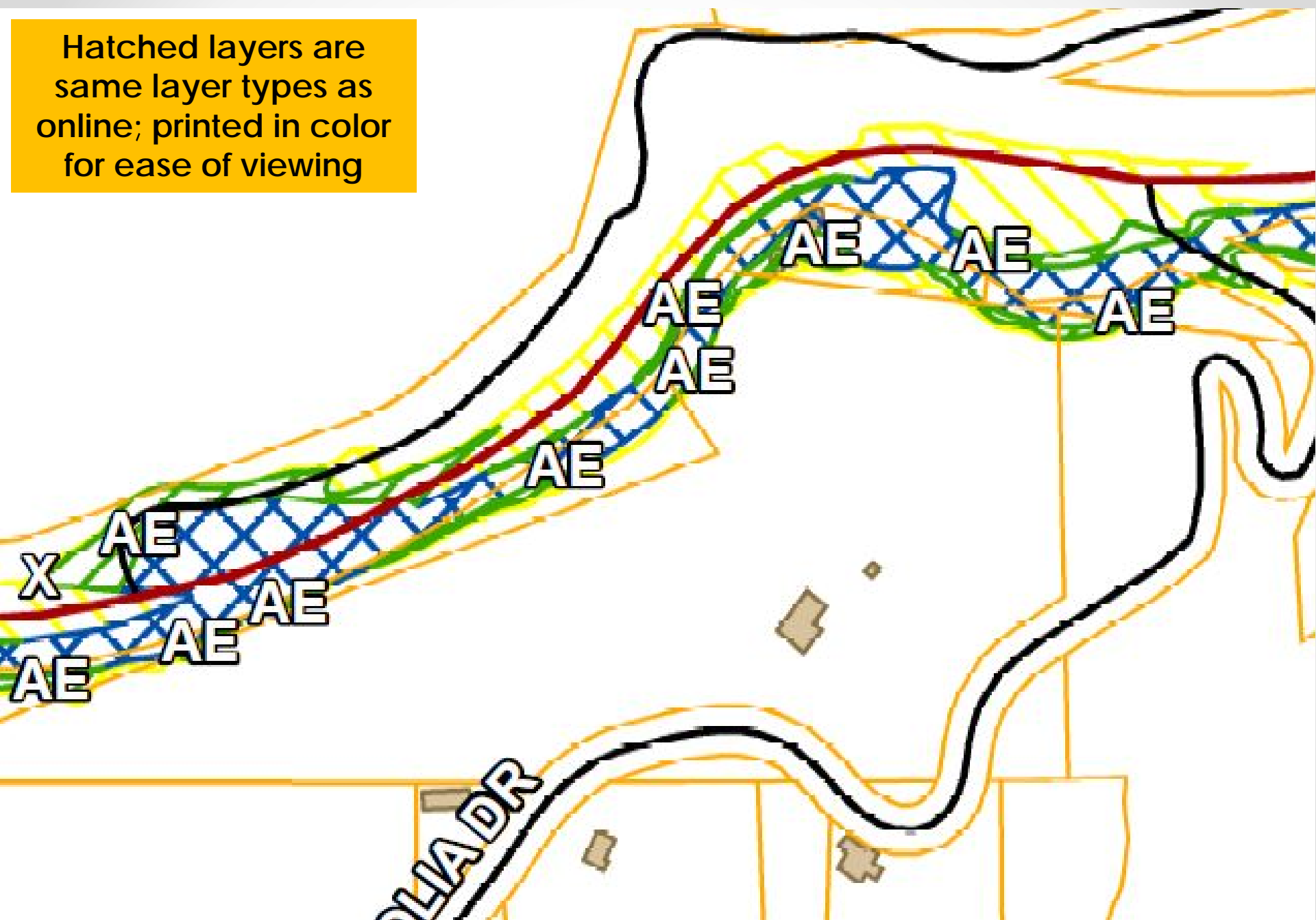
500-year
floodplain

100-year
floodplain

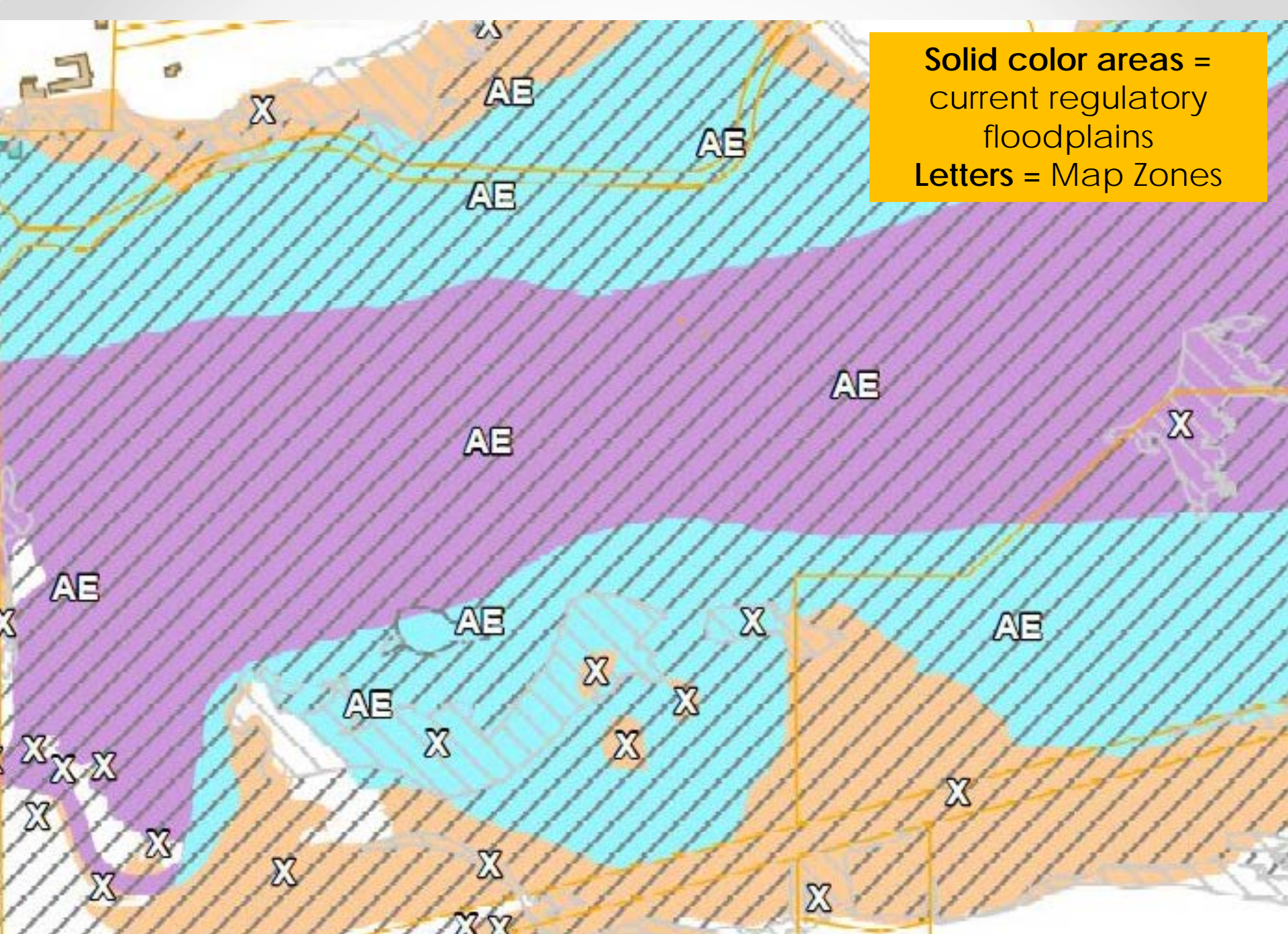
floodway

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

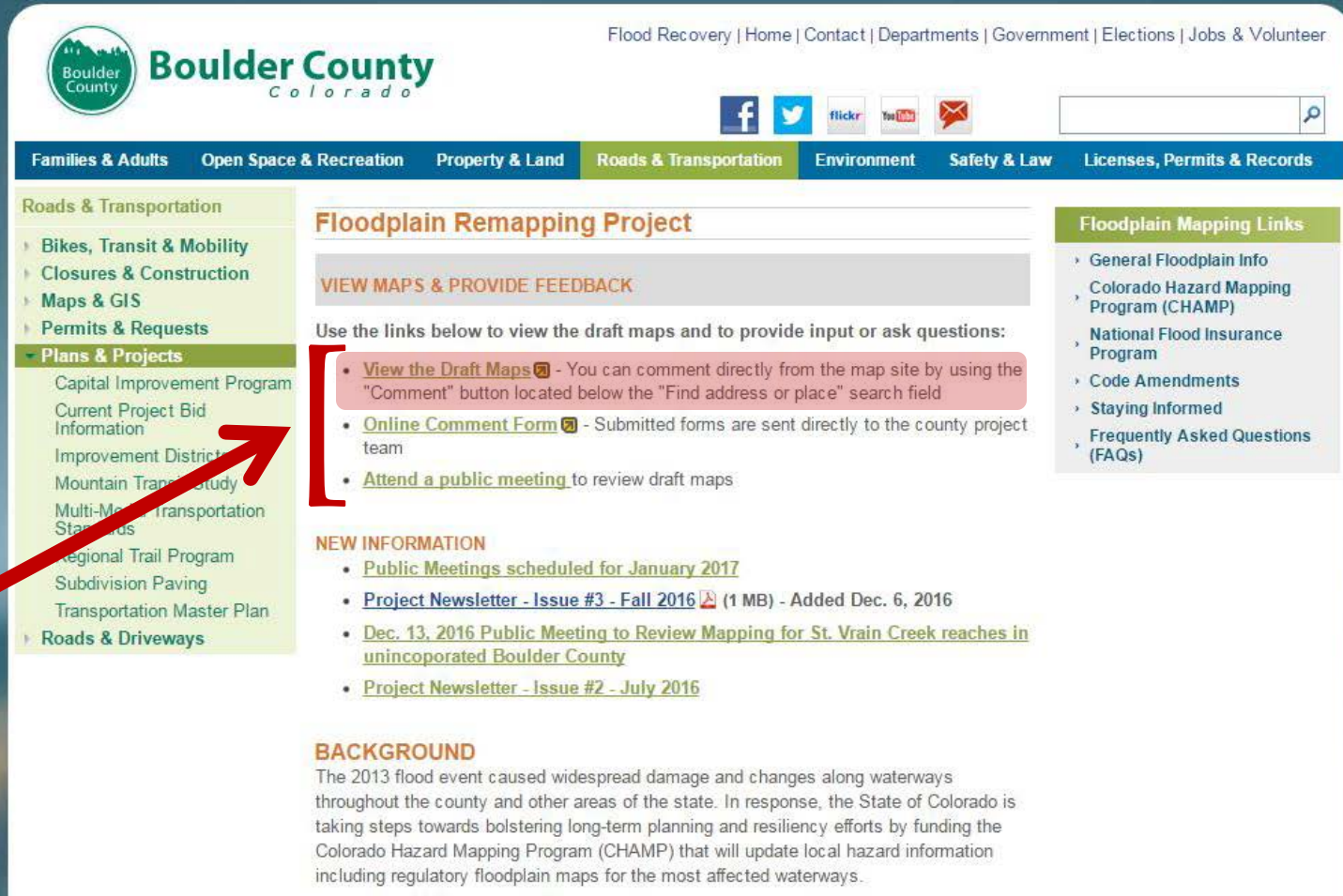
Hatched layers are
same layer types as
online; printed in color
for ease of viewing



Solid color areas =
current regulatory
floodplains
Letters = Map Zones



County Floodplain Remapping



Boulder County
Colorado

Flood Recovery | Home | Contact | Departments | Government | Elections | Jobs & Volunteer

[Families & Adults](#) [Open Space & Recreation](#) [Property & Land](#) [Roads & Transportation](#) [Environment](#) [Safety & Law](#) [Licenses, Permits & Records](#)

Roads & Transportation

- › Bikes, Transit & Mobility
- › Closures & Construction
- › Maps & GIS
- › Permits & Requests
- ▼ **Plans & Projects**
 - Capital Improvement Program
 - Current Project Bid Information
 - Improvement District
 - Mountain Transit Study
 - Multi-Modal Transportation Standards
 - Regional Trail Program
 - Subdivision Paving
 - Transportation Master Plan
- › Roads & Driveways

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
- [Online Comment Form](#) - Submitted forms are sent directly to the county project team
- [Attend a public meeting](#) to review draft maps

NEW INFORMATION

- [Public Meetings scheduled for January 2017](#)
- [Project Newsletter - Issue #3 - Fall 2016](#) (1 MB) - Added Dec. 6, 2016
- [Dec. 13, 2016 Public Meeting to Review Mapping for St. Vrain Creek reaches in unincorporated Boulder County](#)
- [Project Newsletter - Issue #2 - July 2016](#)

BACKGROUND

The 2013 flood event caused widespread damage and changes along waterways throughout the county and other areas of the state. In response, the State of Colorado is taking steps towards bolstering long-term planning and resiliency efforts by funding the Colorado Hazard Mapping Program (CHAMP) that will update local hazard information including regulatory floodplain maps for the most affected waterways.

Floodplain Mapping Links

- › General Floodplain Info
- › Colorado Hazard Mapping Program (CHAMP)
- › National Flood Insurance Program
- › Code Amendments
- › Staying Informed
- › Frequently Asked Questions (FAQs)

<http://bocofloodplainremapping.com>



Using the Map Review Website

Regulatory Versus DRAFT Floodplain Data

Comment Points

Areas of Potential Change

DRAFT Flood Risk Zones

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

Layer List

Operational Layers

- ☒ Comment Points
- ☒ Areas of Potential Change
- ☐ DRAFT Cross Sections
- ☐ Boulder County Regulatory Base Flood
- ☐ Boulder County Regulatory Cross Section
- ☒ DRAFT Flood Risk Zones
- ☐ Boulder County Regulatory Floodway

Boulder County Colorado

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). 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

Basic Instructions:

- > Zoom in on map to where your area of concern is
- > Click on New Comment Symbol (yellow diamond)
- > Move cursor out of Comment Window and place point by clicking on your specific map location
- > Point will be placed (temporarily a red dot) and an Information Window will pop up
- > Populate rows with your information (Name, Date, Address, Email, Phone, and Comment)
- > Click "Close" to save your Point of Concern

- If you accidentally created a point or placed it in the wrong place, you can delete it by clicking on it in the map, scrolling down to bottom of the information window, and clicking Delete.

- Alternatively, you can select it to pick it up and move it

OK

Direct link: <http://arcg.is/2fF4CZY>



Comment Points

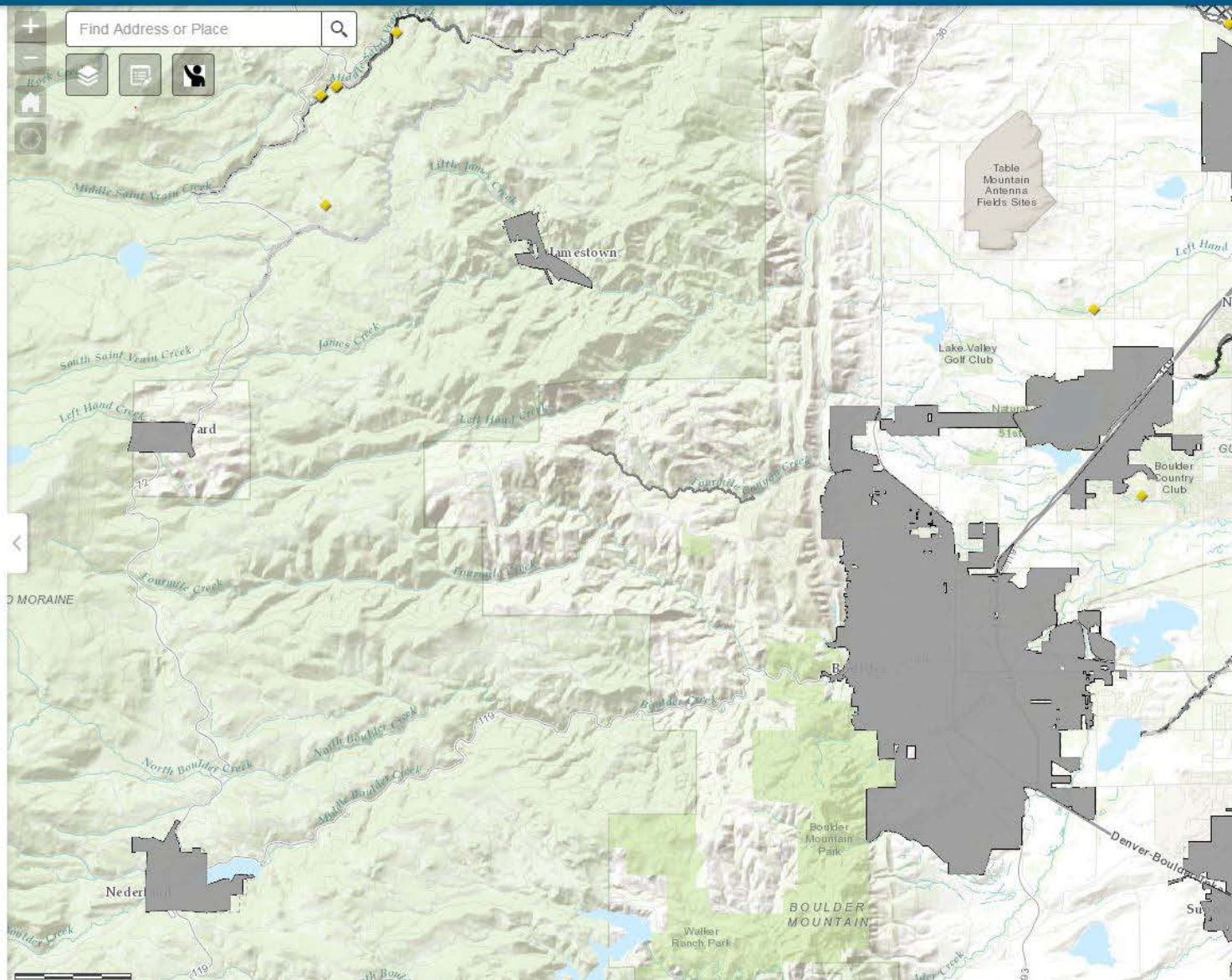


Areas of Potential Change



DRAFT Flood Risk Zones

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- ☒ Floodway (DRAFT)
- ☒ 500-Year Floodplain (DRAFT)



Comment Points

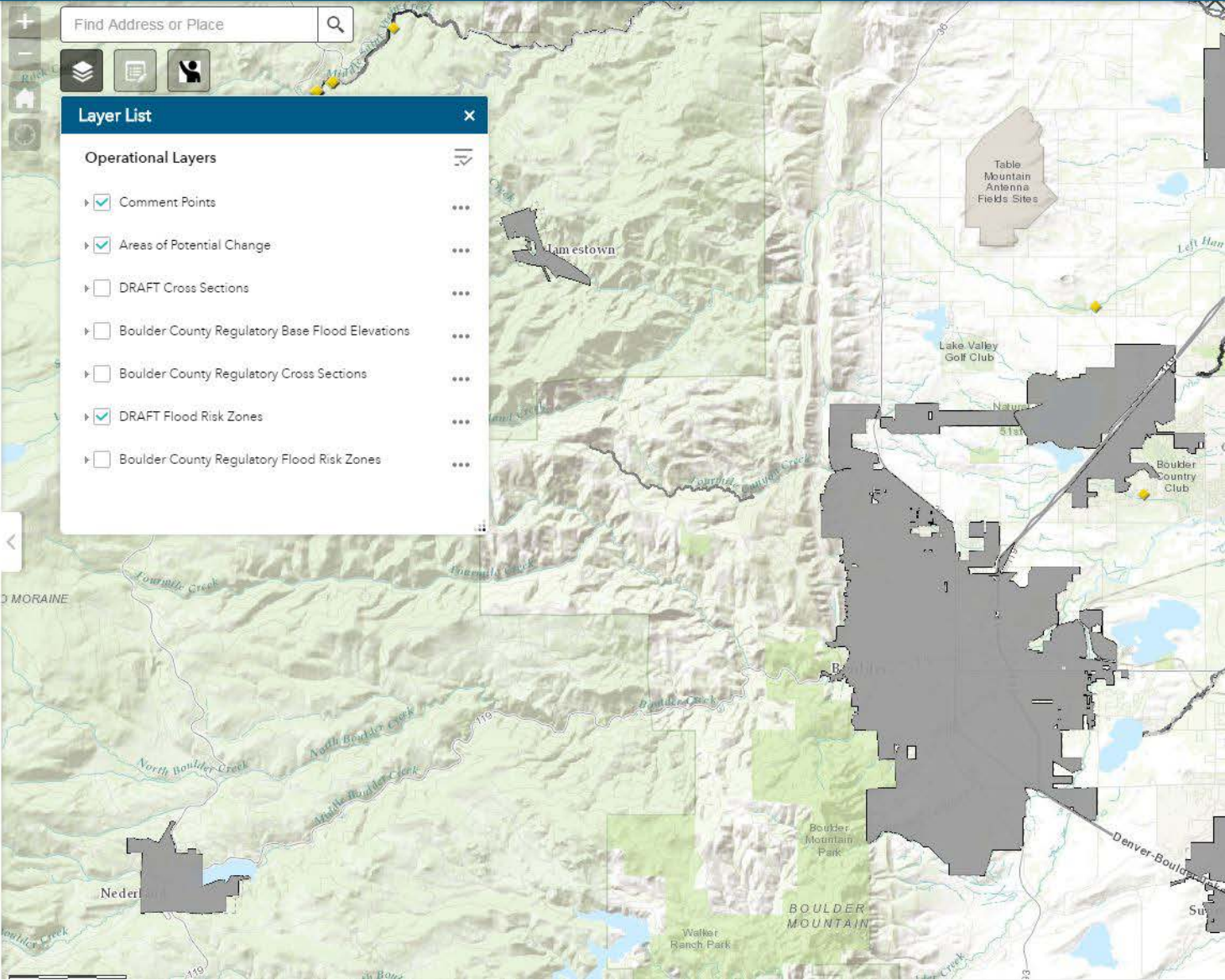


Areas of Potential Change



DRAFT Flood Risk Zones

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- ☒ Floodway (DRAFT)
- ☐ 500-Year Floodplain (DRAFT)



Comment Points

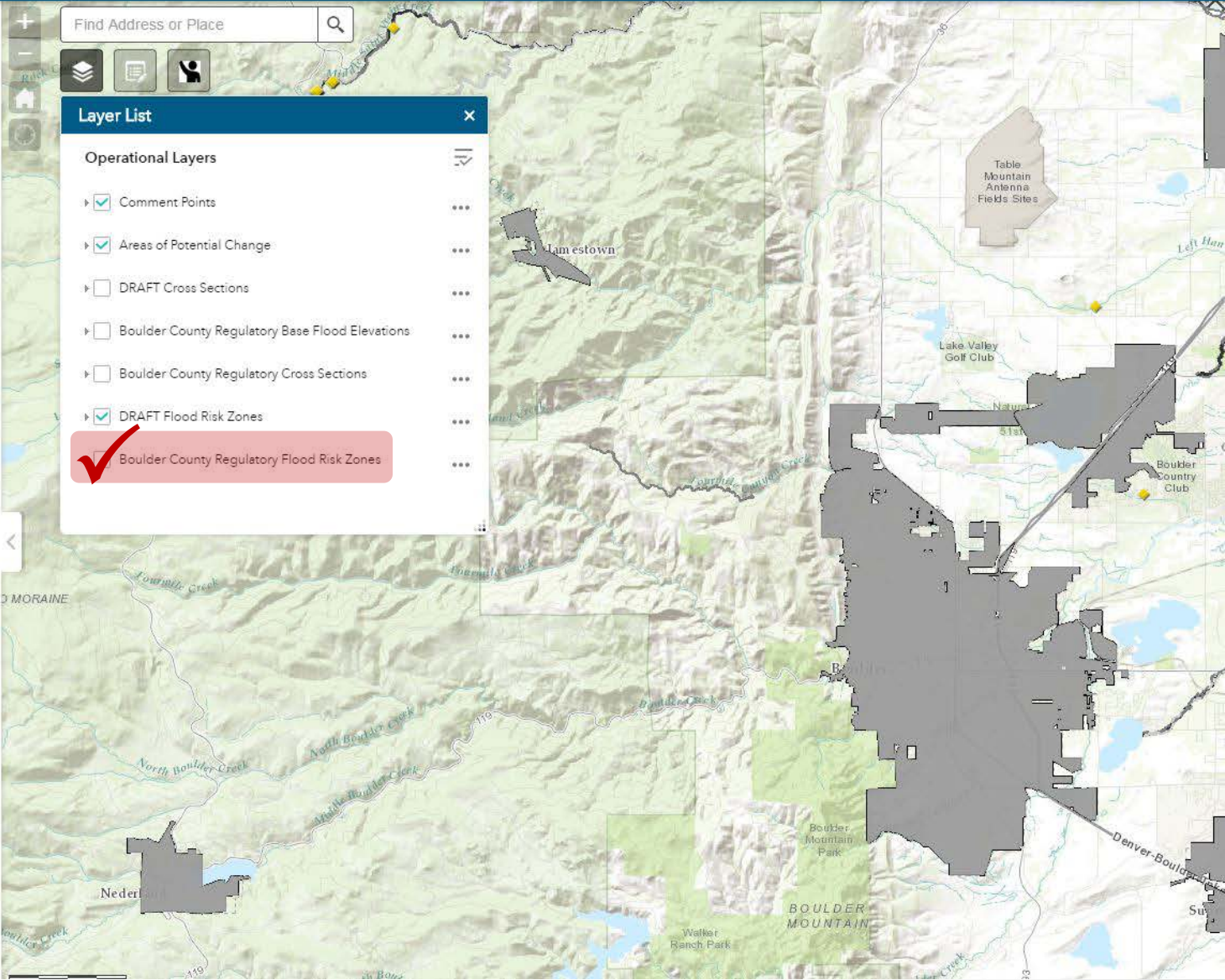


Areas of Potential Change



DRAFT Flood Risk Zones

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



Layer List

Operational Layers

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- ☒ Areas of Potential Change
- ☐ DRAFT Cross Sections
- ☐ Boulder County Regulatory Base Flood Elevations
- ☐ Boulder County Regulatory Cross Sections
- ☒ DRAFT Flood Risk Zones
- ☒ Boulder County Regulatory Flood Risk Zones

Comment Points



Areas of Potential Change

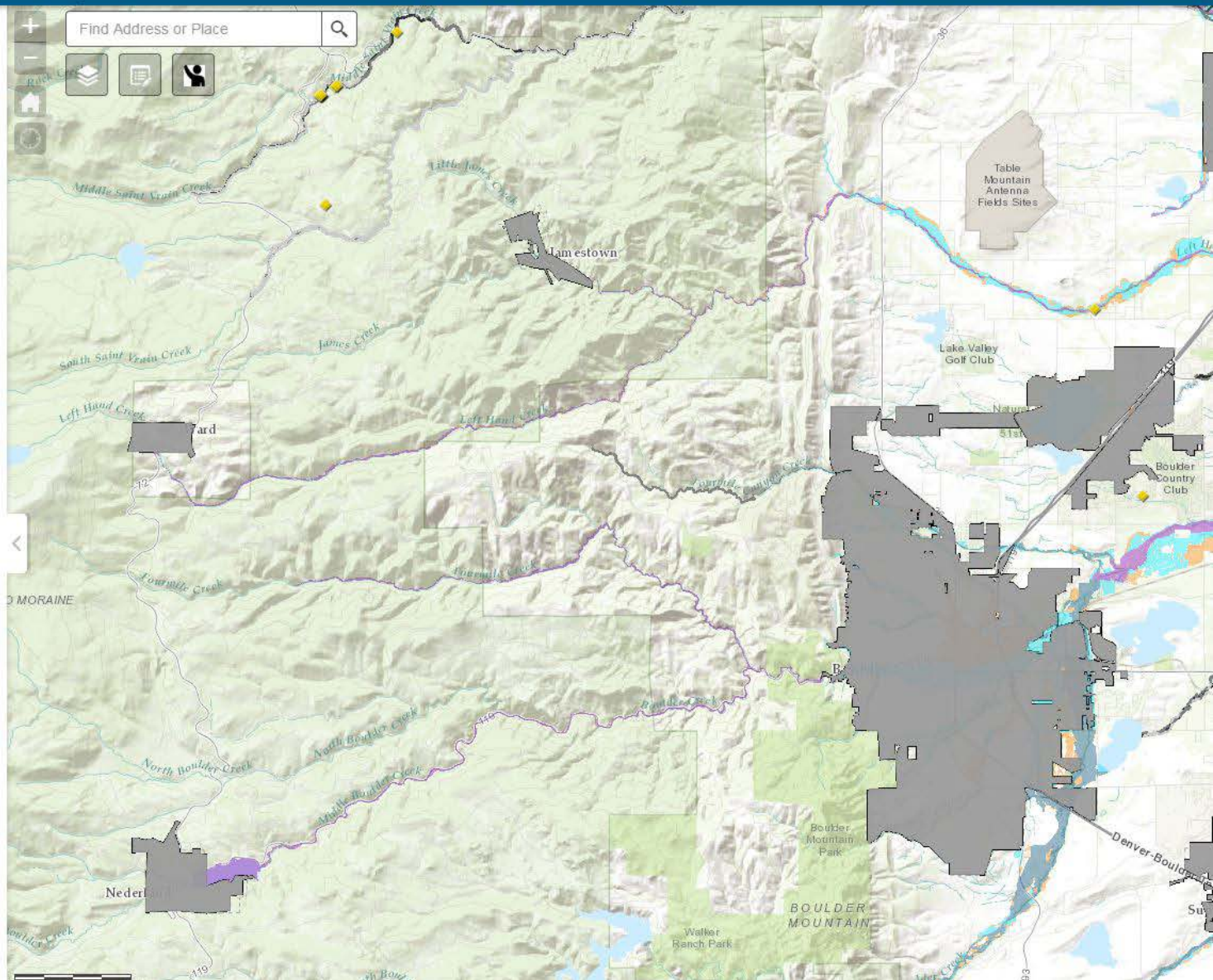


DRAFT Flood Risk Zones

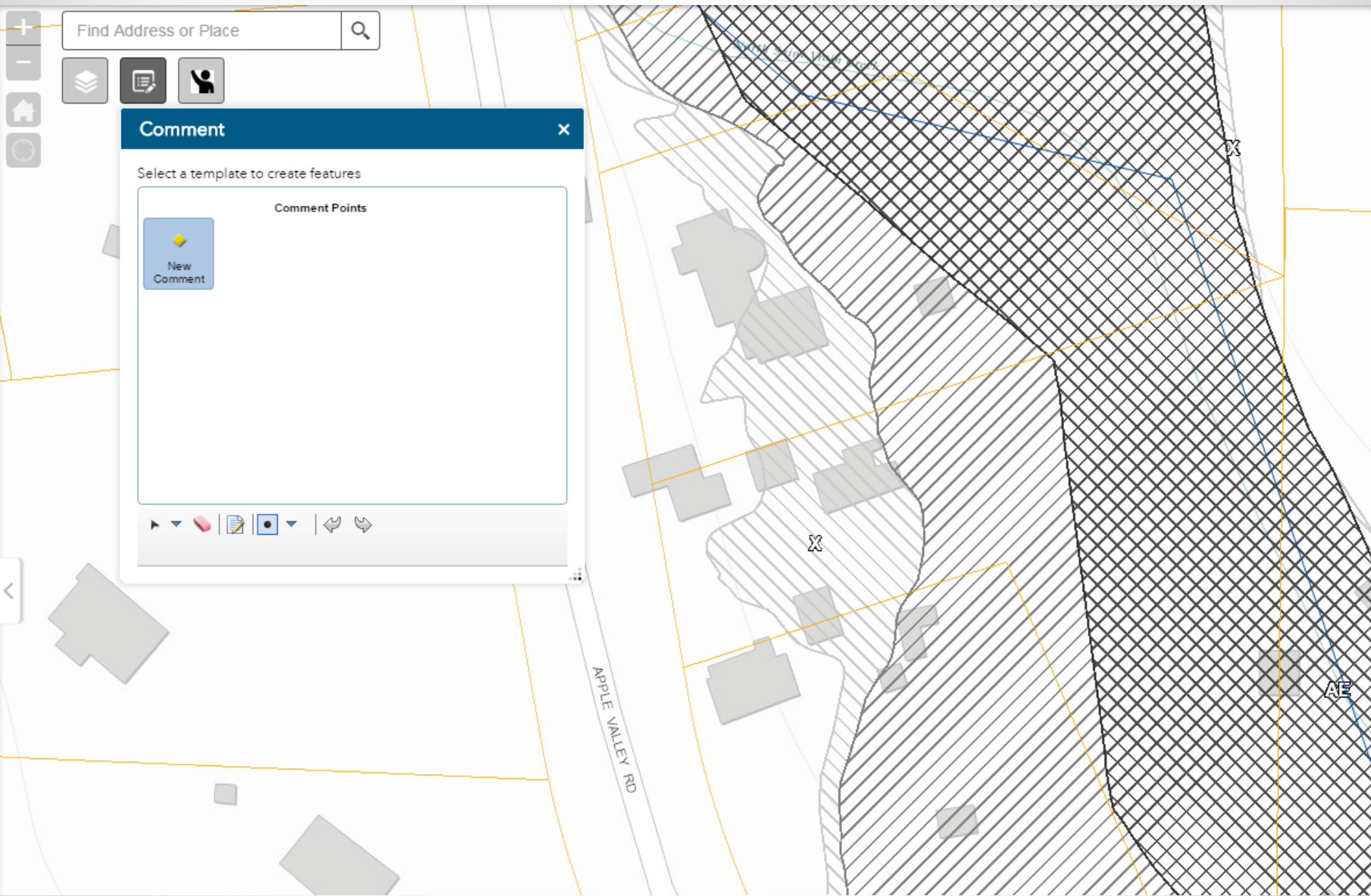
- ☐ 100-Year Floodplain - Zones AE, A, AO, and AH (DRAFT)
- ☒ Floodway (DRAFT)
- ☐ 500-Year Floodplain (DRAFT)

Boulder County Regulatory Flood Risk Zones

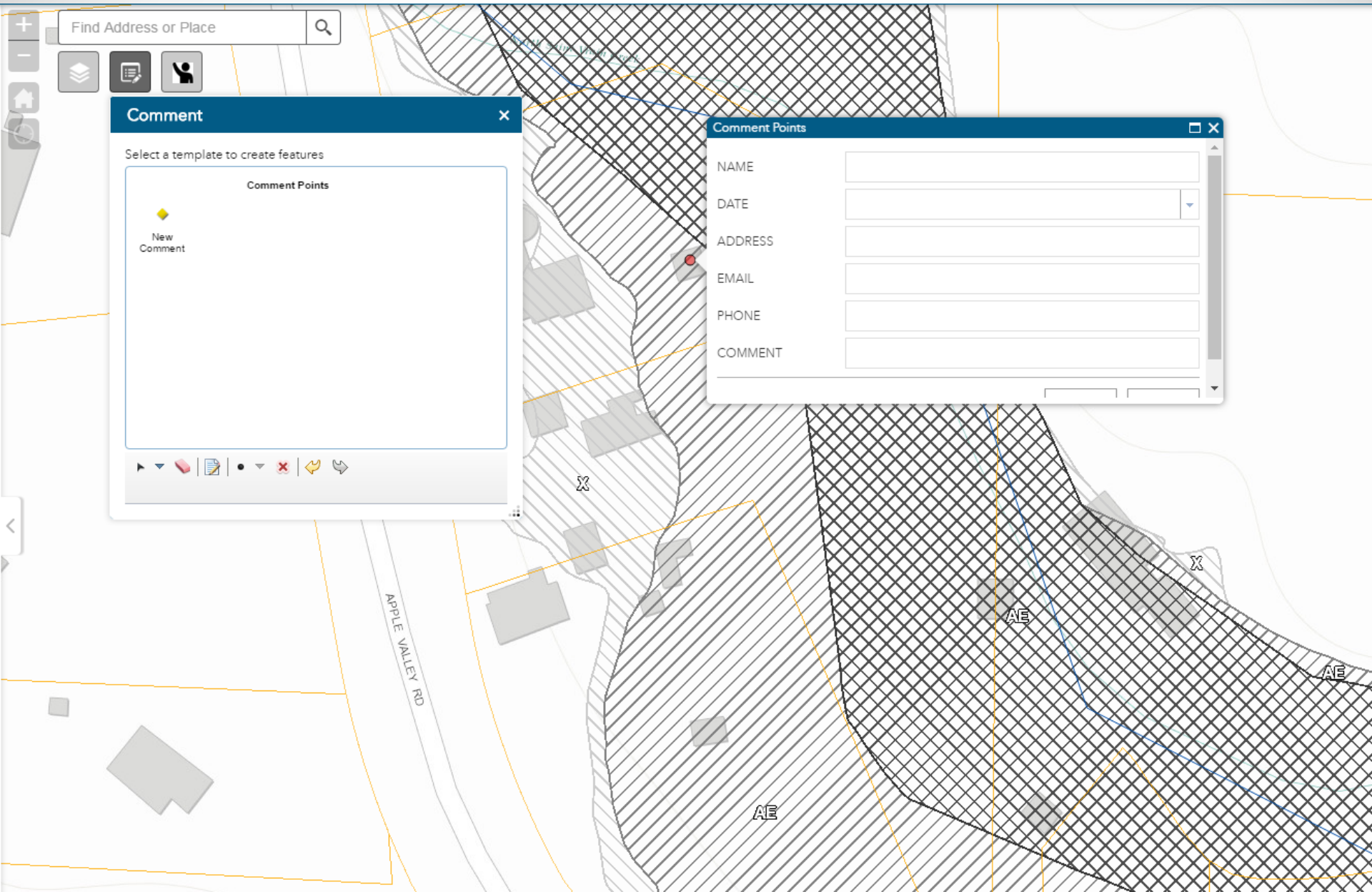
- 100-Year Floodplain - Zones AE, A, AO, and AH (FEMA)
- Floodway (FEMA)
- 500-Year Floodplain - Zone X500 (FEMA)
- Floodway (Boulder County)
- 500-Year Floodplain - Zone X500 (Boulder County)
- 100-Year Floodplain - Zones AE, A, AO, and AH (Boulder County)



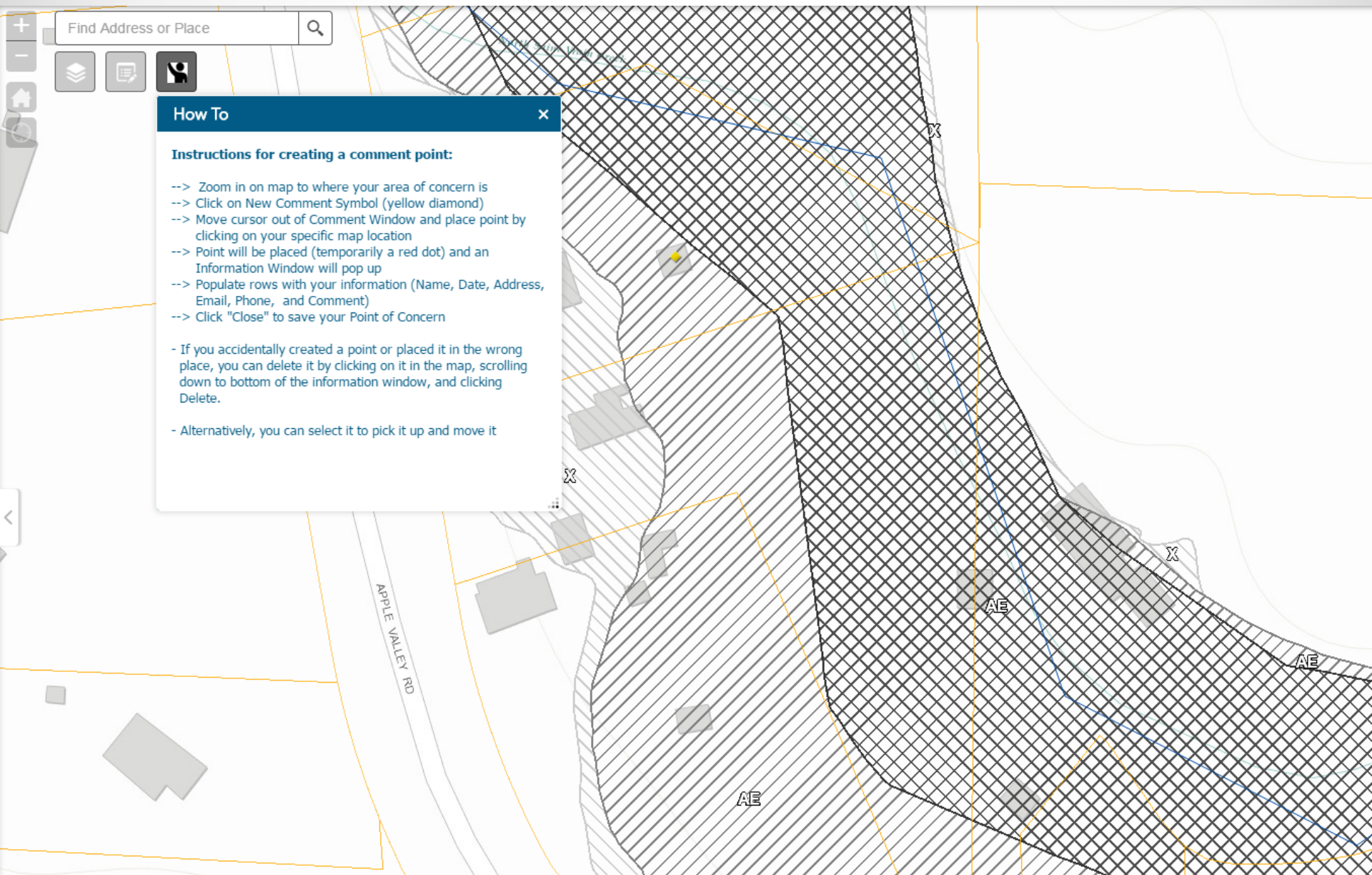
How to comment



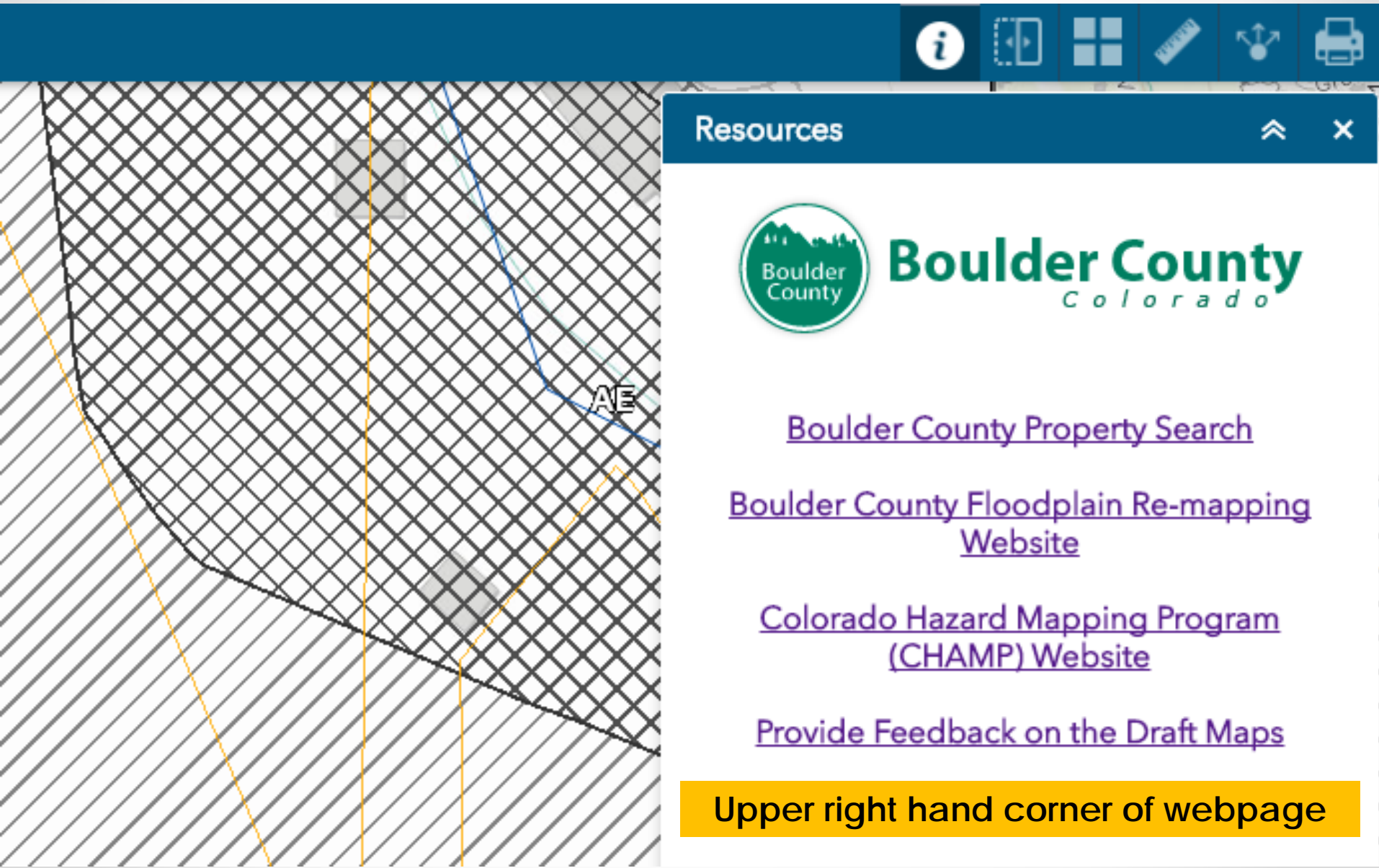
How to comment



Instructions button




Resources button



The image shows a web application interface. On the left is a map with a grid overlay and a blue line labeled 'AE'. On the right is a 'Resources' panel with a blue header and a list of links. The panel includes the Boulder County logo and four links: 'Boulder County Property Search', 'Boulder County Floodplain Re-mapping Website', 'Colorado Hazard Mapping Program (CHAMP) Website', and 'Provide Feedback on the Draft Maps'. A yellow banner at the bottom right of the panel reads 'Upper right hand corner of webpage'.

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](#)

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 for this area: FEBRUARY 28th**

Remapping Point of Contact: Erin Cooper
floodplainmapscomment@bouldercounty.org

