



# Transportation Department

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## BOULDER COUNTY PLANNING COMMISSION AGENDA ITEM #3

June 20, 2018  
Hearing Room, Third Floor  
Boulder County Courthouse

### PUBLIC HEARING

#### **Docket Z-17-0002: Zoning Map Amendments to the Floodplain Overlay District based on CHAMP Phase II Floodplain Mapping**

Request: Zoning map amendments to the Floodplain Overlay District (“FO District”), specifically the Boulder County Floodplain and Floodway, based upon a second phase of draft floodplain remapping revisions and revised analyses from the Colorado Hazard Mapping Program (“CHAMP”), Federal Emergency Management Agency (“FEMA”) Risk MAP and other best available information.

Location: Waterways throughout unincorporated Boulder County.

Zoning: Areas to be newly mapped into the FO District; Additional areas rezoned as other flood risk zones within the FO District

Applicant: Boulder County

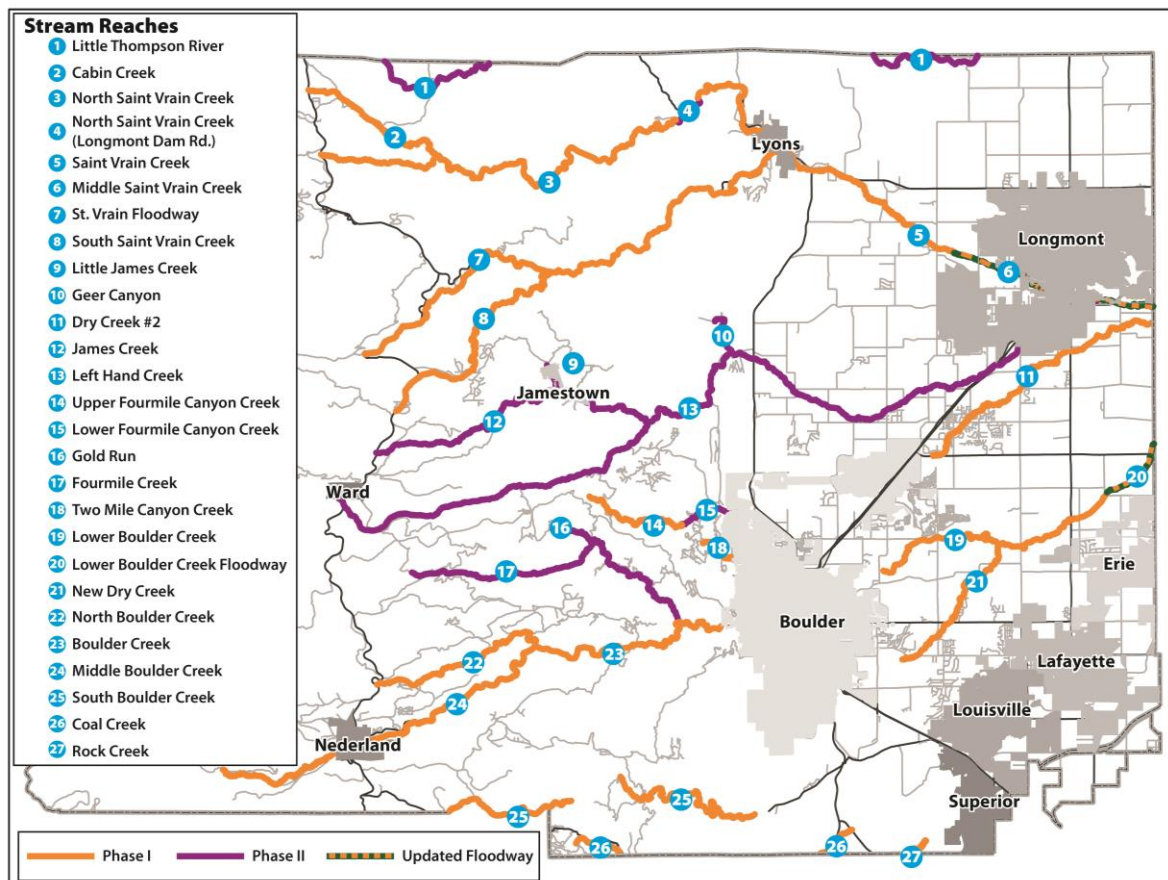
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**STAFF PLANNERS:** Varda Blum, Floodplain Program Manager and Erin Cooper, Floodplain Specialist

## **BACKGROUND**

The September 2013 flood significantly changed creek size, shape, and location and altered floodplains throughout Boulder County and other areas of the state. In response, the State of Colorado has taken steps towards bolstering long-term planning and resiliency efforts by approving funds through Senate Bill 15-245 for CHAMP, which is managed by the Colorado Water Conservation Board (“CWCB”). CHAMP is updating local flood hazard information including producing new regulatory floodplain maps for the most affected waterways (see Figure 1 below).



**Figure 1. All Stream Reaches included in CHAMP study within unincorporated Boulder County. Phase I reaches locally adopted under Docket Z-17-0001 (2017) and Phase II reaches, including updated floodways, are under the current Docket Z-17-0002.**

Most of the current effective regulatory floodplain maps for Boulder County were produced in the 1980's. In addition to the changes to waterways caused by the 2013 Flood which necessitate updating flood hazard information, many land use changes have occurred since the 1980's, the available information and technology has increased in accuracy, and CWCB and FEMA modeling standards have also changed. Ultimately, the new floodplain maps produced by CWCB/CHAMP will go through FEMA's extensive review and adoption process to be adopted by FEMA as Flood Insurance Rate Maps ("FIRMs"). FEMA flood insurance requirements and rate calculations will change upon adoption of these updated FIRMs.

Further, FEMA requires the extents of the FEMA effective 100-year floodplain to remain a part of the Floodplain Overlay District until it adopts the local studies as new FIRMs. Per guidance from FEMA and CWCB (Exhibit A), in locations within the Floodplain Overlay District where there is overlapping FEMA and Boulder County Floodplain and Floodway, the most conservative study is considered controlling. When the local study is eventually adopted by FEMA into the FIRM, the Boulder County Floodplain and Floodway generally becomes one and the same as the FEMA effective map in that area.

CHAMP has divided the stream reaches being studied in Boulder County into two phases of analysis – Phase I, as presented under Docket Z-17-0001 (2017), and Phase II, as presented under Docket Z-17-0002 (current docket). Phase I covered approximately 160 miles of stream on reaches including the North/Middle/South and main channels of St. Vrain Creek, the North/Middle/South and main channels of Boulder Creek, Coal Creek, Rock Creek, Twomile Canyon Creek, Fourmile Canyon Creek (upper), Dry Creek #2, New Dry Creek, and Cabin Creek. CHAMP Phase II covers approximately 70 miles of streams on reaches including the Little Thompson River, Geer Canyon, Left Hand Creek, James Creek, Fourmile Canyon Creek (lower), Gold Run, Fourmile Creek, and a section of North St. Vrain Creek. Two sections of stream (Lower Boulder Creek and a section of St. Vrain Creek) had floodplain studies completed as part of Phase I, and floodway analyses and mapping completed as part of Phase II (see Figure 2 in *Summary*).

In 2017, Boulder County undertook comprehensive zoning map amendments to the Floodplain Overlay District (“FO District”), specifically the local Boulder County Floodplain and Floodway, to adopt the CHAMP draft floodplain mapping from Phase I (Docket Z-17-0001). These map amendments were accomplished through the map adoption process set forth in the floodplain regulations in Article 4-400 of the Boulder County Land Use Code, and included technical review, public notification, and hearings before the Planning Commission and the Board of County Commissioners. Upon adoption of the Phase I mapping, the BOCC authorized staff to undertake review of Phase II mapping and other best available information and propose FO District comprehensive zoning map amendments via Docket Z-17-0002.

Incorporation of CHAMP Phase II draft mapping and floodway analyses under Docket Z-17-0002 into the Floodplain Overlay District will supplement the already adopted Phase I mapping with the second of the two major phases of post-Flood best available floodplain information. Based on FEMA review and adoption timelines, it is anticipated that the FEMA FIRMs for affected Boulder County areas will not be finalized and adopted for another three to five years. Boulder County’s local adoption of the updated CHAMP maps, as compared to the alternative of waiting for FEMA to adopt the maps as FIRMs, allows County staff to better protect the health, safety, and welfare of the residents of and visitors to Boulder County.

### **CHAMP Floodplain Mapping**

Floodplain mapping is based on hydraulic studies involving data collection, analysis, and numerical modeling of the interaction between the existing topography and the predicted flow in creeks during the 1% annual chance flood event. The CHAMP mapping incorporates post-flood topographic survey and analysis of flow that incorporates rainfall and stream data collected during the 2013 floods.

Traditionally, information about revised flood hazards is not received by the communities until after FEMA has already created a preliminary FIRM and distributes that preliminary FIRM at the beginning of a formal appeal period. However, at the request of County staff, CWCB committed to delivering ‘draft’ mapping associated with the CHAMP project to the county much earlier than is the norm so that county staff would be able to:

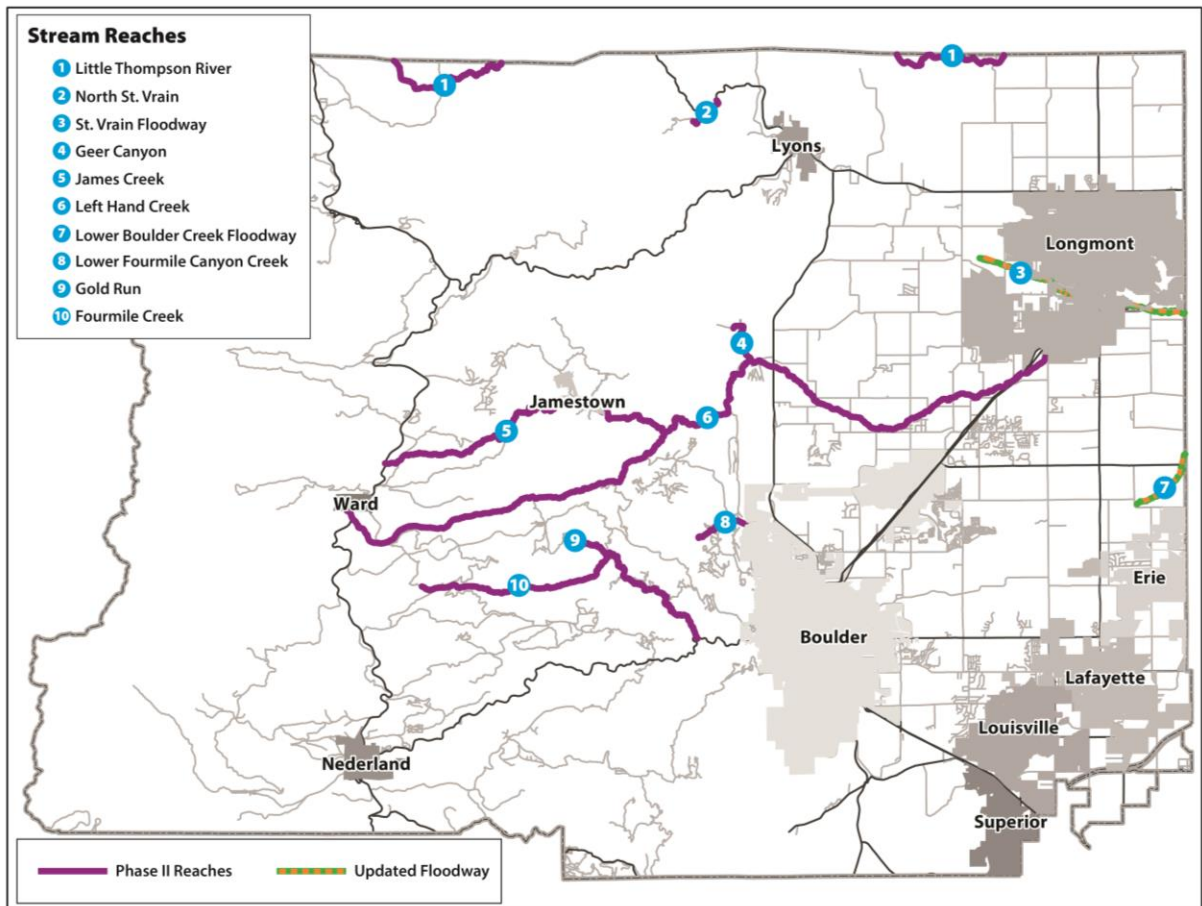
- Engage in technical review and provide feedback to CWCB/FEMA early in the process when change is easier to make,
- Engage community members that have site specific on-the-ground knowledge to also provide timely feedback to the remapping process, and
- Allow the county, after a period of technical review and outreach, to adopt the draft floodplain mapping as Best Available Information.

Boulder County received from the CWCB floodway analysis for two Phase I floodway reaches and Phase II draft information identified in Figures 1 and 2 that is the subject of this hearing in a series of deliverables of floodplain mapping and modeling data from January to March 2018. Between the delivery of each data set and the date of this hearing, County staff has engaged in technical review, requested revisions to drafts data, and conducted extensive outreach to residents that is described below in further detail.

On March 30 and June 8, 2018, the County received the final versions of the updated Phase I floodways and Phase II draft mapping, respectively, from CWCB that reflect and incorporate County staff technical review input and public comments conducted and collected over the spring of 2018. The final versions of the revised Phase I floodways and draft Phase II mapping have been submitted by CHAMP to FEMA for review to inform FEMA revisions to the FIRM.

#### **SUMMARY OF PROPOSED FLOODPLAIN OVERLAY DISTRICT ZONING MAP AMENDMENTS (Docket Z-17-0002)**

The proposed zoning map amendments include updates to the Boulder County Floodplain and Floodway within the Floodplain Overlay District, along approximately 70 miles of stream reaches within unincorporated Boulder County shown below (Figure 2):



**Figure 2: Locations of Proposed Zoning Map Amendments to Boulder County Floodplain within the Floodplain Overlay District (Z-17-0002)**

Within the stream reaches listed in Figure 2, some affected areas are being newly mapped into the FO District. These reaches include Gold Run and portions of James Creek. Several other reaches are currently mapped by FEMA as detailed studies but, in addition to having revised floodplain analysis and mapping, are also having floodways defined and mapped where they were either not defined or defined but not mapped previously. Additionally, St. Vrain Creek and lower Boulder Creek had floodplain information adopted as part of Z-17-0001 and are part of this docket as well because of revised floodway analyses on portions of these reaches.

The details of the proposed zoning map amendments are shown on an interactive web map at <https://bit.ly/2LnG5Hj>. The web map can also be accessed from the [www.BoulderCounty.org](http://www.BoulderCounty.org) homepage, by going under 'Property & Land' in the main heading, then going to 'Floodplain Management' in the drop-down window that appears. A link at the top of the Floodplain Management main page will connect the viewer to the Floodplain Remapping Project pages where all remapping-related information is located. On that page, one can click the 'View the Draft Floodplain Maps' button to access the web map.

On the web map the proposed amendments to the Floodplain Overlay District are on the layer labeled 'Proposed Regulatory Flood Risk Zones'. This layer includes changes to the FO District based upon the layer titled 'Draft CHAMP Flood Risk Zones'. In order to see which

areas of the Floodplain Overlay District are currently effective FEMA Floodplain and Floodway or Boulder County Floodplain and Floodway, toggle on and off the ‘Boulder County Regulatory Flood Risk Zones’ and ‘FEMA Flood Risk Zones’ layers. Additional explanation of the layers of the web map as well as how a user can provide comments directly on the map is provided in Exhibit B.

### **REFERRAL, PUBLIC NOTICE, AND PUBLIC INVOLVEMENT (Z-17-0002)**

Staff has held regular coordination meetings with FEMA and the CWCB throughout the technical review and outreach portions of this project. All agencies are in support of the proposed map amendments.

Notification to affected property owners and agencies of the proposed comprehensive zoning map amendments for Docket Z-17-0002 has been made in a variety of ways, including:

1. Maintenance of a Floodplain Remapping Project website (1,620 unique visits since December 2017) and docket webpage established May 22, 2018;
2. Floodplain remapping newsletters (three new editions since the adoption of Docket Z-17-0001, each distributed to approximately 800 email addresses and shared with local stakeholder groups);
3. Maintenance of an interactive web map for comparison of current regulatory and proposed regulatory floodplain zones (1,934 total visits since December 2017);
4. Public map review meetings (6 meetings, 798 postcard notifications mailed, approximately 100 attendees);
5. Planning Commission Study Session held on May 16, 2018; and
6. Boulder County Planning Commission Public Hearing (June 20, 2018; 798 postcard notifications mailed to property owners, multiple email notifications to local stakeholders, and over 3,300 email addresses contacted via Boulder County listservs)

Additional details of the public notice and involvement process are provided in Exhibit C.

### **PUBLIC COMMENT**

Opportunities existed for property owners to provide comments through:

- an online comment form linked to the project website,
- a comment tool linked to the web map,
- public map review meetings, and
- email and telephone inquiries.

Every comment that county staff received that addressed the draft mapping for stream reaches included under Docket Z-17-0002 was transmitted to the CWCB for consideration. CHAMP staff provided responses to those comments that were technical in nature and informed their model and map development and response.

All comments received throughout the outreach period, and the CHAMP team’s disposition of those comments, are compiled in Exhibit D. The public will have another opportunity to review maps and provide technical input during the formal FEMA appeal period after the County receives preliminary FIRMS, expected in 2019.



## **ARTICLE 4-1102 ZONING MAP AMENDMENT CRITERIA**

Staff has reviewed the conditions and standards for approval for zoning map amendments under Article 4-1102 of the Boulder County Land Use Code, and finds the following:

**1) A public need exists for the map amendment;**

As described above, the current FO District floodplain mapping is largely out of date and lacks the accuracy that current technology and standards can provide. The proposed map amendments based on this best available information will more accurately represent where flooding will likely occur, providing detailed information for property owners regarding flood risks, and enabling more effective floodplain management that will better protect the health, safety and welfare of Boulder County residents.

Therefore staff determines that this criteria is met.

**2) The amendment is consistent with and in furtherance of the stated intent and purposes of this Code;**

Staff finds that the proposed FO District map amendments are consistent with and in furtherance of the stated intent and purpose of Article 4-400 of the Land Use Code, Floodplain Overlay District:

Section 4-401, Purpose, ‘ .... *to protect life, property, and health; to ensure the best available data is used in making development decisions; ...*’.

New floodplain maps will more accurately represent where flooding will likely occur, providing detailed information for property owners regarding flood risks and enabling more effective floodplain management that will better protect the health, safety and welfare of Boulder County residents.

Therefore staff determines that this criteria is met.

**3) The amendment is in accordance with the *Boulder County Comprehensive Plan*;**

Staff finds the proposed map amendment is in accordance with the Boulder County Comprehensive Plan, Natural Hazards Element, Goals, Policies, & Maps including:

- Natural Hazard Goal L.1: *‘Inappropriate development in natural hazard areas should be reduced as much as possible or eliminated in order to minimize potential harm to life, health, and property’*
- Natural Hazards Policy NH1.02: *‘Natural hazards potentially affecting the county should continue to be identified and made known to the public and public officials. The county should promote a high level of public awareness about the risks of these identified hazards which may impact people, property, and their environment....’*
- Natural Hazards Policy NH4.01: *‘The county should strongly discourage and strictly control land use development from locating in designated floodplains, as identified in the Boulder County Zoning Maps’*

Adopting the best available floodplain information to the Floodplain Overlay District will reduce as much as possible inappropriate development in known flood risk areas. The proposed amendments will also make the best available flood risk information known to the public and public officials and result in the desired high level of public awareness of the risks of the identified flood hazards. This information will allow property owners to make better informed decisions about their property and will enable the county to make better regulatory decisions.

Therefore staff determines that this criteria is met.

- 4) The subject property is an appropriate site for the map amendment, and is a reasonable unit of land for such reclassification;**

Staff finds that their technical review of the hydrologic data, modeling procedures, and floodplain mapping supporting the proposed amendments, and CHAMP having also engaged in extensive quality assurance and determined that the draft mapping is suitable for submittal to FEMA for their review, indicates that the proposed amendments represent the best available flood hazard information and that the subject properties are appropriate sites for the map amendment and should be reclassified as proposed.

Therefore staff determines that this criteria is met.

- 5) The map amendment would not have a material adverse effect on the surrounding area;**

Staff finds that this map amendment will benefit the welfare, health, and safety of surrounding areas by supporting appropriate regulation of development within identified flood hazard areas, minimizing development that might increase flood hazard risks for those surrounding areas.

Therefore staff determines that this criteria is met.

- 6) The map amendment will not result in an over-intensive use of land;**

Staff finds this criteria not applicable.

- 7) The map amendment will not have a material adverse effect on community capital improvement programs;**

Staff finds this criteria not applicable.

- 8) The map amendment will not require a level of community facilities and services greater than that which is available;**

Staff finds that local adoption of the best available flood hazard risk information serves to inform residents and visitors to the county of known flood hazards. Knowing the risk encourages preparation for that risk and ultimately results in a more resilient community and also better use of community resources during flooding events.

Therefore staff determines that this criteria is met.

- 9) The map amendment will not result in undue traffic congestion or traffic hazards;**



Staff finds this criteria not applicable.

**10) The map amendment will not cause significant air, odor, water, or noise pollution;**

Staff finds this criteria not applicable.

**11) The map amendment will not permit the use of any area designated within the *Boulder County Comprehensive Plan* for the extraction of commercial mineral deposits in a manner which would interfere with the present or future extraction of such deposit by an extractor to any greater extent than under the present zoning of the property;**

Staff finds this criteria not applicable.

**12) It must be demonstrated that any structures to be built on the property will not be affected by geologic hazards if they exist;**

Staff finds this criteria not applicable.

**13) The map amendment will not otherwise be detrimental to the health, safety, or welfare of the present or future inhabitants of Boulder County;**

Staff finds that the proposal to amend the extent of the FO District with best available information in the form of updated floodplain maps, as compared to the alternative of waiting for FEMA to adopt maps as FIRMs, is beneficial to the health, safety, and welfare of both present and future inhabitants of Boulder County because it provides more accurate hazard information critical for bolstering long term planning and resiliency efforts, and enables land use planning and regulatory actions using the best available data.

Therefore staff determines this criteria is met.

**STAFF RECOMMENDATION**

Local adoption of best available information in the form of updated floodplain maps, through the proposed zoning map amendment, as compared to the alternative of waiting for FEMA to adopt maps as FIRMs, provides more accurate hazard information critical for bolstering long term planning and resiliency efforts, and enables land use planning and regulatory actions using the best available information. Use of the more accurate information prior to final adoption by FEMA allows County staff to better protect the health, safety, and welfare of the residents of and visitors to Boulder County in a more timely and transparent manner.

**STAFF RECOMMENDS THE PLANNING COMMISSION RECOMMEND TO THE BOARD OF COUNTY COMMISSIONERS APPROVAL OF Docket Z-17-0002: Zoning Map Amendments to the Floodplain Overlay District based on CHAMP Phase II Floodplain Mapping and certify the Docket for action to the Board and the official record of the Docket before the Commission with its staff comments, public testimony, and Commission discussion/action.**

The Board of County Commissioners is scheduled to review the proposed map amendments and regulations at a public hearing on *Tuesday July 24, 2018 at 9:30 A.M.*

Attachments:

- Exhibit A: Accessing and Commenting on the Draft Floodplain Maps
- Exhibit B: List of public notice and involvement activities
- Exhibit C: List of public comments received on draft floodplain mapping

# Best Available Information

## A Tool for Your Community to Reduce Flood Risk

FEMA and the State of Colorado

### What is best available information?

The Federal Emergency Management Agency (FEMA) defines Best Available Information (BAI) as either:

- The existing flood hazard information adopted by a community and reflected on an effective Flood Insurance Rate Map (FIRM), Flood Boundary and Floodway Map and/or within a Flood Insurance Study report; or
- Draft or preliminary flood hazard information supplied by FEMA or from another source and reasonably used by the community.

In general, when draft or preliminary information is available, only that information which consists of more restrictive 1% annual-chance (100-year) flood discharges, flood hazard zone boundaries (including floodways), and water-surface elevations shall be considered BAI, so long as it meets FEMA's technical and accuracy standards.

### Why is best available information important for Colorado communities?

BAI is an important component of local floodplain management because it represents the most suitable flood hazard information for performing community planning, engineering, development review, permitting, and emergency management functions, and helps communities become more hazard-resilient by working towards the following floodplain management goals:

- protection of life, health, and property
- protection of public and private infrastructure
- improving public flood risk awareness
- reduction in rescue and relief efforts
- reduction of economic and social hardships
- compliance with minimum National Flood Insurance Program (NFIP) Standards
- lower flood insurance premiums



**COLORADO**  
Colorado Water  
Conservation Board  
Department of Natural Resources



**FEMA**

## How can my community use this data?

First, check the local codes and ordinances. Your community may have to go through a local adoption process before the data can be used to make planning, permitting, and development review decisions. Otherwise, you can use the new data starting immediately. The ways in which this data can be applied are almost limitless. We encourage you to think of unique ways your community can put this data to work, and have provided a few examples below.

- Zoning district updates
- Land use code/ordinance updates
- Permitting
- Community Rating System points
- Mitigation project planning
- Grant applications
- Stormwater management and design
- Flood evacuation route planning
- Reverse 911 system updates
- Emergency shelter planning
- Capital Improvement Project planning
- Outreach applications
- Social Vulnerability analyses

For an example of how adopting higher regulatory standards can benefit your community, check out the [case study that was conducted after the 2013 flood event in Colorado](#).

For more information on how your community can use BAI to guide development in potential and established flood areas, please visit the FEMA website at <https://www.fema.gov/use-flood-insurance-study-data-available-data>.

## What qualifies as “reasonable” use of draft or preliminary flood hazard information?

The concept of ‘reasonable’ ensures that use of the data would not be detrimental to a proposed development or to the community’s standing within the NFIP. FEMA specifies that draft or preliminary information should be used in cases where it is more restrictive [i.e., where there are discharges, floodplain boundaries, or increasing Base Flood Elevations (BFEs)] when compared to the current effective information. FEMA prohibits its use when discharges or BFEs are decreasing when compared to the current effective information. This is because draft or preliminary information has not been through a formal appeal period and is subject to change. After draft or preliminary information proceeds through a formalized appeal process, any appeals have been resolved, and a final notice has been provided to the community through issuance of a Letter of Final Determination (LFD), the information is required to be used for floodplain management decisions, not for ‘reasonable’ use.



In Zones B, C, or X:

There is no requirement for a community to use the draft or preliminary flood risk data in these zones. FEMA does, however, encourage communities to reasonably use this information to help meet the floodplain management goals outlined on Page 1.

In Zone A:

Local officials are required by the NFIP regulations to reasonably utilize draft or preliminary flood risk data as BAI to manage development in Zone A areas. Examples of ways BAI must be used in Zone A areas are:

- 1) Use BAI to determine the required minimum elevation of the first floor, HVAC, electric, and plumbing fixtures for new residential construction/substantial improvements.
- 2) Use BAI to identify floodway boundaries, which can impact permitting submittal requirements for proposed development projects (proposed projects in the floodway must, at a minimum, demonstrate through hydraulic modeling that they will not result in any increase greater than 0.00 feet in 1-percent-annual-chance (100-year) water-surface elevations.

In Zone AE, A1-30, AH, and AO:

FEMA encourages communities to reasonably utilize draft or preliminary flood risk data in instances where it provides more restrictive 100-year flood discharges, flood hazard zone boundaries (including floodways), and water-surface elevations to ensure the floodplain management goals outlined on page 1 are met. The community cannot use the less restrictive data to regulate development until a LFD has been issued. Use of less-restrictive draft or preliminary flood hazard information prior to the issuance of a LFD may result in significantly higher flood risk to people and property if the data changes before it is finalized. Additionally, it may result in higher flood insurance premiums, and the community may be in violation of their locally-adopted Flood Damage Prevention Ordinance.

Using factors such as years of gage record, amount of development, and presence of new hydraulic structures, FEMA has inventoried many of the effective detailed study areas (Zone AE, A1-30, AH, AO, VE, and V1-30) to determine if the study information presented on the current effective FIRM is still a reasonable representation of flood risk. In areas where validated studies exist, these studies should take precedent over Large-Scale Automated Engineering or Base-Level Engineering studies.

For more on the application of BAI in different flood risk zones, refer to FEMA Policy #104-008-2 <https://www.fema.gov/use-flood-insurance-study-data-available-data>.

## How does this data help me with disaster response and recovery activities?

BAI should be used to help plan and implement response activities such as creating evacuation zones, evacuation routes, emergency shelters, and emergency notification systems like Reverse-911.

Flood recovery projects funded by all Federal and most state grant programs must use BAI as the basis for design, unless a local design standard is more restrictive. An example of this is FEMA Public Assistance. The following is an example scenario which demonstrates how this data can be used:

- A public vehicular bridge on a county road is destroyed during a large flood event. Once the bridge is replaced, the county intends to apply for reimbursement through the Community Development Block Grant- Disaster Recovery program.
- Following the flood event, a state agency developed an updated 100-year flood discharge at the bridge (2,400 cfs), which turned out to be lower than the current effective flood discharge (3,100 cfs).
- The county's bridge design consultant must use the BAI to design the replacement bridge. In this case, the BAI is the higher of the 2 discharges; therefore, the bridge must be designed using the higher discharge of 3,100 cfs.

Additionally, much like its application to new construction and substantial improvements, BAI can be used to regulate repair of substantial damage. For example:

- A home has been determined to be 60 percent damaged (when compared to current market value) by a recent flood event. The current effective flood risk zone for the home is Zone AE and the current effective BFE is 1,110.0 feet NAVD88.
- Following the flood event, a draft Base-Level Engineering study completed by FEMA shows that the 100-year water-surface elevation at the home is approximately 1,112.0 feet NAVD88. This study should be considered the BAI for this specific home.
- Because the home was substantially damaged, during repair the first floor should be elevated to the higher of the two available BFEs, which is 1,112.0 feet NAVD88, plus any additional freeboard regulated by the local community.



## What about other grant programs that are not related to flood recovery?

The requirement to use BAI applies to any Federal or state grant program.

## How can I leverage this data to update my mitigation plan and/or apply for a mitigation project?

Mitigation planning relies on having quality data available to prioritize, design, and implement mitigation projects. In most cases, the highest-quality data will be synonymous with BAI. Good hazard mitigation plans will have procedures built in to account for updates to flood risk information. If BAI is available, local planners should use this information in conjunction with projects identified in the plan to determine if the project priority and design is still appropriate considering the hazard and risk identified with the BAI. In addition, as mitigation projects are funded, their designs should consider the best flood hazard information available at the time of design.

Furthermore, incorporating BAI into risk assessment tools or computer programs, such as Hazus, can produce more-refined flood loss information. These results can be directly incorporated into the local hazard mitigation plan or used for operational and response planning.

## Can Best Available Information be used to submit a Letter of Map Change (LOMC)?

For Letters of Map Amendment (LOMAs)/Letters of Map Revision based on Fill (LOMR-Fs): In Zone A areas, BAI can, in some cases, be used to support a request to remove a structure, property, or portion of property from the Special Flood Hazard Area. The BAI study information should be submitted to FEMA with the LOMA/LOMR-F application, where it will be reviewed to determine whether it meets certain technical and accuracy standards in order to be used to process the LOMA/LOMR-F. In detailed flood risk zones such as Zone AE areas, however, FEMA must use the current effective BFEs compared to structure and/or property elevations to determine if that structure and/or property is eligible for a LOMA or LOMR-F.



For Letters of Map Revision (LOMRs): In certain instances, a draft study can be submitted to FEMA with a LOMR application. If the data is obtained from a source other than FEMA, FEMA will review the draft study information to determine whether it meets certain technical and accuracy standards in order to be published as effective information. Should FEMA determine that additional data is necessary, it may be up to the community to submit the additional data.

### Can Best Available Information be downloaded and incorporated it into my local GIS software?

Yes. These days, most draft or preliminary study information is provided in digital/GIS format. FEMA encourages the use of BAI in-conjunction with other digital datasets to enhance floodplain management decision making. Examples of other digital datasets to pair with BAI include:

- Aerial imagery
- Local transportation data
- Zoning/land use information
- Building footprints
- Parcel boundaries
- Critical facility locations
- U.S. census bureau information

### Who can I contact for more information?

For questions about specific applications of this data in your community, contact your State NFIP Coordinator, Stephanie DiBetitto at [stephanie.dibetitto@state.co.us](mailto:stephanie.dibetitto@state.co.us), 303-866-3441, ext. 3221 or Matt Buddie, the NFIP Specialist for FEMA Region VIII at [matthew.buddie@fema.dhs.gov](mailto:matthew.buddie@fema.dhs.gov), 303-235-4730.

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## 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.

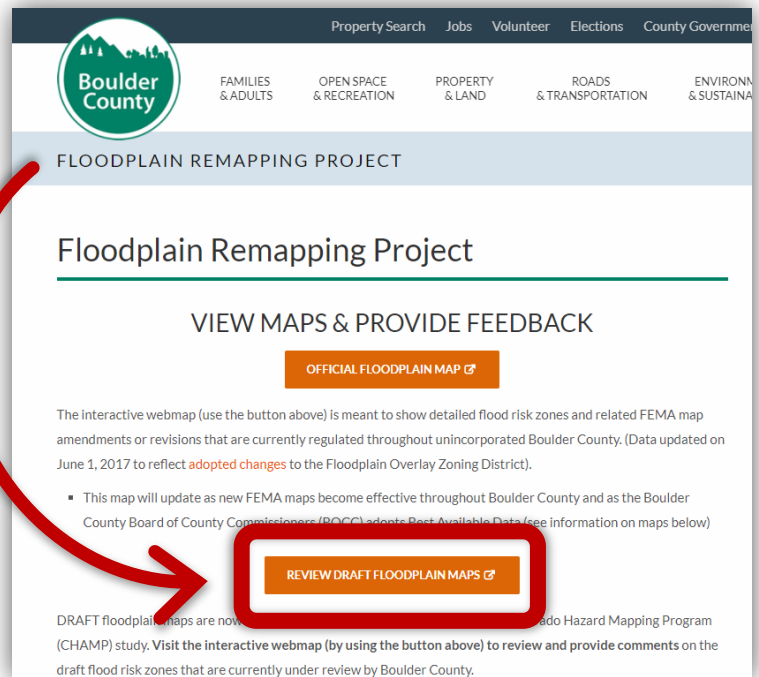
### ACCESSING THE WEB MAP

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.

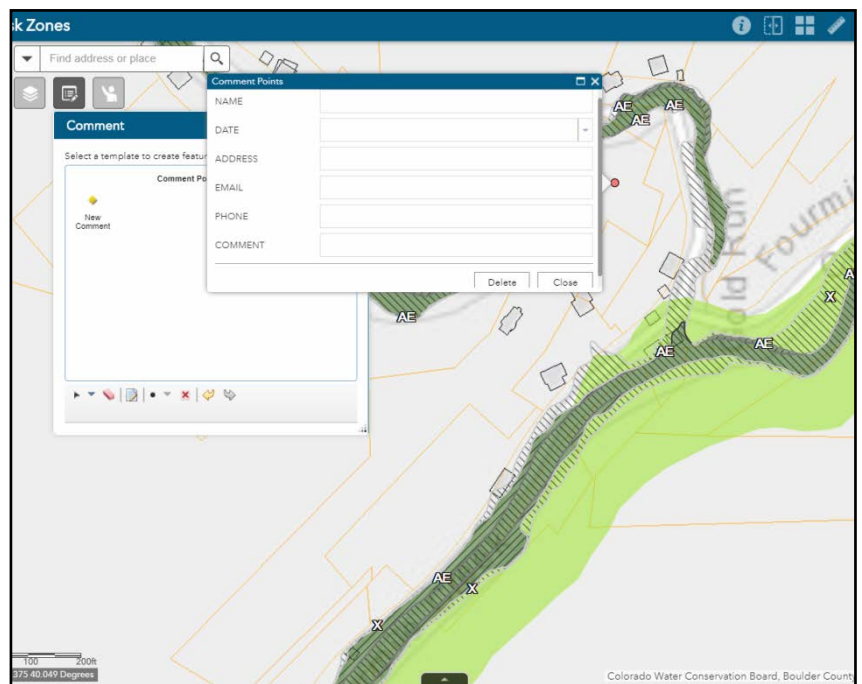
Now you're ready to view the map & comment!



### STEPS TO PLACE A COMMENT

#### FOLLOW THESE STEPS:

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

## **PUBLIC NOTICE AND INVOLVEMENT (Z-17-0002)**

### **1) Floodplain Remapping Project Website:**

- a. Since the Floodplain Remapping Project homepage was updated in April 2017, there have been over 3,200 unique visits to the site (as of May 31, 2018).
- b. Since outreach began for Phase II remapping in December 2017, the webpage has had 1,620 unique visits (as of May 31, 2018).

### **2) Boulder County Floodplain Remapping Newsletters:**

- a. **August 22, 2017** – Notice of the **fifth edition** of the Boulder County Floodplain Remapping Newsletter sent via email to approximately 645 email addresses comprising the Boulder County Floodplain Remapping listserv. Newsletter was posted to the Floodplain Remapping project homepage.
- b. **January 10, 2017** – Notice of the **sixth edition** of the Boulder County Floodplain Remapping Newsletter sent via email to approximately 717 email addresses comprising the Boulder County Floodplain Remapping listserv. Newsletter was posted to the Floodplain Remapping project homepage.
- c. **May 29, 2018** – Notice of the **seventh edition** of the Boulder County Floodplain Remapping Newsletter sent via email to approximately 801 email addresses comprising the Boulder County Floodplain Remapping listserv. Newsletter was posted to the Floodplain Remapping project homepage.

### **3) Interactive Web Map of Draft and Regulatory Floodplain Mapping:**

- a. Multiple dates – updated layers as available from CWCB during technical review process: approximate dates of updates are:
- b. **June 12, 2018** – updated layers for consideration by the Planning Commission were published to the web map
- c. Since it was created in December 2016, there have been over 6,000 total visits to the site (as of May 31, 2018)
- d. Since web map updates began for map amendments under Docket Z-17-0002, the website has received 1,934 total visits (as of May 31, 2018)

### **4) Public Meetings:**

- a. **May 9, 2017** – Public meeting held near Longmont for review of draft floodplain maps along the Boulder County reaches of the Little Thompson River
  - April 5, 2017 – Postcards sent to 48 addresses along stream reaches discussed at May 9 meeting
  - May 1, 2017 – Announcement for May 9 public meeting published by Boulder County on multiple listservs (approximately 4,000 recipients)
  - 4 public attendees
- b. **January 11, 2018** – Public meeting held in Fourmile Canyon for review of draft floodplain maps along Fourmile Creek and Gold Run
  - December 19, 2018 – Postcards sent to 304 addresses along stream reaches discussed at January 11 meeting
  - January 2, 2018 – Announcement for January 11 & January 25 meetings published by Boulder County on multiple listservs (approximately 4,100 recipients)
  - Approximately 22 public attendees
- c. **January 25, 2018** – Public meeting held in Pinebrook Hills for review of draft floodplain maps along Fourmile Canyon Creek
  - January 2, 2018 – Announcement for January 11 & January 25 meetings published by Boulder County on multiple listservs (approximately 4,100 recipients)

## Exhibit C: Listing of Phase II public notice and involvement

- January 3, 2018 – Postcards sent to 63 addresses along stream reaches discussed at January 25 meeting
- January 22, 2018 – Reminder email sent to Floodplain Remapping listserv (737 recipients) and Wagonwheel Gap Road project listserv (65 recipients)
- Approximately 9 public attendees
- d. **February 6, 2018** – Public meeting held in Jamestown for review of draft floodplain maps along upper Left Hand Creek (to and including Geer Canyon) and unincorporated reaches of James Creek
  - January 18, 2018 – Postcards sent to 91 addresses along stream reaches discussed at February 6 meeting
  - January 29, 2018 – Announcement for February 6 and February 20 meetings published by Boulder County on multiple listservs (4,181 recipients)
  - February 5, 2018 – Reminder email sent to Floodplain Remapping listserv for February 6 meeting (741 recipients)
  - Approximately 9 public attendees
- e. **February 20, 2018** – Public meeting held in Boulder to review draft floodplain maps along all previously reviewed Phase II reaches plus North St. Vrain Creek along Longmont Dam Road
  - January 31, 2018 – Postcards sent to 479 addresses along stream reaches discussed at February 20 meeting
  - February 16, 2018 – Reminder email sent to listserv for February 20 meeting (754 recipients)
  - Approximately 10 public attendees
- f. **April 12, 2018** – Public meeting held near Longmont to review draft floodplain maps along middle and lower Left Hand Creek (Geer Canyon to Hover Street)
  - March 15, 2018 – Postcards sent to 150 addresses along stream reaches discussed at April 12 meeting
  - March 19, 2018 – Announcement for April 12 meeting published by Boulder County on multiple listservs (4,296 recipients)
  - April 9, 2018 – Reminder email sent to Floodplain Remapping listserv for April 12 meeting (775 recipients)
  - Approximately 24 public attendees
- 5) **Public Outreach Letters:**
  - a. **May 2, 2018** – Printed letters and maps highlighting floodway analysis updates sent to property owners & stakeholders along a portion of St. Vrain Creek near Longmont (from approximately Airport Road to East County Line Road)
    - Letters mailed to 83 property owners along impacted stream reach and interested stakeholders
  - b. **May 2, 2018** – Printed letters and maps highlighting floodway analysis updates sent to property owners & stakeholders along a portion of Boulder Creek (Kenosha Road to East County Line Road)
    - Letters mailed to 42 property owners along impacted stream reach
    - 3 additional letters mailed to interested stakeholders on May 9, 2018
- 6) **Study Session:**
  - a. **May 16, 2018** – Boulder County Planning Commission Study Session in Preparation for Boulder County Phase II Floodplain Remapping Adoption Process
    - Authorization for staff to proceed with analysis into zoning map amendments was received from the Board of County Commissioners on May 31, 2017 via a formal Resolution
    - A video recording of the May 16 study session is available on:
      - the Boards & Commissions website,

## Exhibit C: Listing of Phase II public notice and involvement

- the Floodplain Remapping Project ‘Staying Informed’ webpage, and
  - the Z-17-0002 docket webpage at: <https://bit.ly/2GFWc0c>
- 7) **Public Hearing Outreach:**
  - a. **May 22, 2018** – Docket information including project background posted to the docket webpage at: <https://bit.ly/2GFWc0c>
  - b. **May 29, 2018** – Public notice via Newsletter #7 for the June 20 Boulder County Planning Commission Hearing was sent via email to 801 email addresses comprising the Boulder County Floodplain Remapping listserv. The notice indicated the opportunity for public comment to be heard at the hearing.
  - c. **June 5, 2018** – Postcards sent to 750 landowners along all stream reaches included in zoning map amendment Z-17-0002.
  - d. **June 6, 2018** – Legal notice of public hearing published by Land Use to media outlets; agenda posted to docket webpage
  - e. **Anticipated June 13, 2018** – Docket information including staff’s formal recommendation to the Planning Commission posted to the docket webpage at: <https://bit.ly/2GFWc0c>
  - f. **Anticipated June 13, 2018** – News release announcing the Planning Commission public hearing for the Floodplain Remapping Project published by Boulder County and sent via email to over 4,100 email addresses comprising the Boulder County Floodplain Remapping, Flood Recovery, and Land Use Code ListServes
  - g. **Anticipated June 20, 2018** – Public hearing before the Boulder County Planning Commission. Public testimony taken at this hearing.
  - h. **Anticipated July 9, 2018** – Legal notice of public hearing published by Boulder County staff to media outlets; agenda posted to docket webpage
  - i. **Anticipated July 16, 2018** – News release announcing the Board of County Commissioners public hearing for the Floodplain Remapping Project scheduled to be published by Boulder County and sent via email to over 4,100 email addresses comprising the Boulder County Floodplain Remapping, Flood Recovery, and Land Use Code ListServes
  - j. **Anticipated July 24, 2018** – Public hearing before the Board of County Commissioners. Public testimony will be taken at this hearing.

Count	Comment Source	Comment Date	Address/Location Referenced	Associated River Reach	Comment	Date of Response	Respondent / Method of Communication	Response
1	Phone/Email/Other	5/7/2018	5196 N 119th St	Boulder Creek	Received letter in the mail, has questions about floodplain map changes; not sure if reading map correctly	5/11/2018 5/22/18	Boulder County	Staff replied to email to explain that the map changes place the property in the floodway instead of floodplain. This results in more conservative regulation of land use and development and offered to answer more questions if they arise. Owner sent Elevation Certificate & staff saved this in records.
2	Phone/Email/Other	5/9/2018	9800 N 119th St	Boulder Creek	Received letter in the mail, has questions about floodplain map changes	5/11/2018	Boulder County	Staff called individual and explained changes in map that put property at this address in the floodway. Owner not too concerned because he does not have a mortgage and is not planning any development.
3	Phone/Email/Other	1/2/2018	?? Old Tale Rd.	Fourmile Canyon Creek	Annexed to the City of Boulder recently; any reason to review county maps?	n/a	n/a	Unable to return phone call; multiple attempts made
4	Jan 25 Public Meeting	1/25/2018	1037 Wagonwheel Gap Rd.	Fourmile Canyon Creek	Please send a blown up floodplain map of our property	2/12/2018	Boulder County	Staff provided a map to the Einerts
5	Web Map Comment	1/18/2018	1060 Lee Hill Drive	Fourmile Canyon Creek	I got the postcard in the mail, but want to confirm that there are no proposed changes that effect my property?	2/14/2018	Boulder County	Email reply to posted question; floodplain mapping does not impact this property
6	Jan 25 Public Meeting	1/25/2018	145 West Coach Rd.	Fourmile Canyon Creek	Interested to know the total cost of the Wagonwheel Gap Rd. construction efforts; Also would like to learn when the Anne U. White trail is slated to open again - would like to be able to provide public comment at or before that time; Also, would like printed maps of the area near property	2/15/2018	Boulder County	Maps were sent to the Myers along with information on the project costs and contact information for the Anne U. White trailhead work
7	Jan 25 Public Meeting	1/25/2018	157, 123 pinto Dr. and 67 Wagonwheel Gap Rd.	Fourmile Canyon Creek	"buyouts" and "GONE!" written on map at properties to identify structures that are no longer present	n/a	n/a	
8	Feb 20 Public Meeting	2/20/2018	2305 Topaz Dr.	Fourmile Canyon Creek	Looking for maps of their property	3/12/2018	Boulder County	Boulder County staff sent map PDFs of their property & also of the Phase I Twomile Canyon Creek mapping
9	Phone/Email/Other	2/2/2018	597 Wagonwheel Gap Road	Fourmile Canyon Creek	Instructions for comment layer on the website are incorrect	2/2/2018	Boulder County	Staff spoke with individual on the phone and took note of issue with instructions; fixed error
10	Web Map Comment	2/2/2018	597 Wagonwheel Gap Road	Fourmile Canyon Creek	Wagonwheel Gap needs to be cambered south here. Because it was cambered into the north side and could not return to the channel, the side-canyon flood from Carriage Hills destroyed the road from here	6/12/2018	Boulder County/Eng. Dept.	New construction has a reformed ditch on the north side, new culverts along upper WWG, and a large crossing at the intersection with Pinto which are designed to carry the flow.
11	Web Map Comment	2/2/2018	597 Wagonwheel Gap Road	Fourmile Canyon Creek	The bridge here will pass the 100-year. This needs remapping to reflect channel changes since 2013.	6/12/2018	Boulder County/Eng. Dept.	The new bridge at Bow Mountain and construction features will be reflected in the asbuilt survey.
12	Web Map Comment	2/2/2018	597 Wagonwheel Gap Road	Fourmile Canyon Creek	The floodways are based on obsolete 2013 lidar. The whole reach has been modified by landowners to much greater capacity both in cross section and lowered Manning number, and needs resurvey.	6/12/2018	Boulder County/Eng. Dept.	Stream modifications are captured by the asbuilt survey, but the stream was not modified by our project on the property in this location and therefore new survey was not done.
13	Jan 25 Public Meeting	1/25/2018	754 Wagonwheel Gap Rd.	Fourmile Canyon Creek	Belives the Anne U. White trail area should become a water retention project and is interested to learn of the County's willingness to consider such a change in use	2/14/2018	Boulder County	Concern/request for consideration of retention basin was shared with relevant staff members
14	Web Map Comment	2/6/2018	778 Wagonwheel Gap Road	Fourmile Canyon Creek	Mr Perry is correct that map is based on obsolete Lidar. Both the county and homeowners have engineered the floodplain significantly.	6/11/2018	Boulder County	Thank you for your comment on the Boulder County draft floodplain web map. Your comment has been shared with CHAMP and the Boulder County Transportation Department's Engineering Division and will be included in the official record presented to the Boulder County Planning Commission.  The draft floodplain map will be updated by Wednesday of this week with the final draft being submitted to FEMA, so please take a look again at that time and let us know if you have any questions. You will have an opportunity to review these changes and submit any technical data for an appeal when the Preliminary Flood Insurance Rate Maps are produced, which we anticipate in mid 2019.
15	Jan 11 Public Meeting	1/11/2018	0 Melvina Hill Rd. / 448 Rim Rd.	Fourmile Creek	Does the county need any info on escape routes?	n/a	n/a	Discussed at public meeting, put individual in contact with Flood Recovery staff

Count	Comment Source	Comment Date	Address/Location Referenced	Associated River Reach	Comment	Date of Response	Respondent / Method of Communication	Response
16	Web Map Comment	2/16/2018	1177 Fourmile Canyon Drive	Fourmile Creek	the topology represented on this map does not match the actual site. The home is elevated above the creek bed.	3/5/2018	CHAMP	According to available information, this home is sitting on ground with an elevation of approximately 5907.5 feet on the north side. The 100 year base flood elevation is approximately 5909 feet, and the 500 year is approximately 5912.5 feet. If additional survey data is available, please provide it and AECOM will reevaluate the area.
17	Phone/Email/Other	6/6/2018	1177 Fourmile Canyon Drive	Fourmile Creek	Web comment re: Z-17-0002; Expressed concern with floodplain mapping information available online and with extents of flood zones; Explained that the extents do not match local topography and that having the flood zones extend on to the property and the house puts him in a regulatory bind.	6/8/2018	Erin Cooper	Email reply provided explanations of each map layer on the interactive webmap, specifically the "Proposed Regulatory Flood Risk Zones" and "Draft CHAMP Flood Risk Zones" layers; The Proposed Flood Risk Zones layer, which extends furthest on to the Rose property is the current FEMA floodplain and will not be changing with the adoption of the CHAMP mapping. Staff thanked individual for his input and also provided feedback from CHAMP on a previous comment that individual submitted via the webmap.
18	Jan 11 Public Meeting	1/11/2018	19 Switzerland Trail	Fourmile Creek	Submitted a letter regarding the flooding that occurred at his property in 2013, along with a detailed cross section drawing of the channel at his property; Review of the new mapping convinces him that the revised mapping is a more accurate representation of the flood potential at his property; Also is seeking to speak with the Assessor's Office about a 1937 plot of his property that shows more accurate parcel lines	3/5/2018	CHAMP	According to Esri Arial imagery, the 500yr flood event from the CHAMP study does not reach the structure's foundation. The house does appear in the effective 100yr floodplain. Factors that may have contributed to changes in the floodplain mapping include detail of study, updated hydrology, and differences in terrain data.  If the homeowners are still concerned about the mapping, an elevation certificate can be obtained after FEMA approval.
19	Jan 11 Public Meeting	1/11/2018	43 Crisman	Fourmile Creek	"Gone? Buyout 43 Crisman"	n/a	n/a	
20	Web Map Comment	12/27/2017	486 Fourmile Canyon Dr	Fourmile Creek	Based on actual 2013 flood waters, the CHAMP risk zones are much more accurate on both sides of the creek than the proposed 100 year floodplain. Is the creek reconstruction considered in this mapping?	2/14/2018	Boulder County	Email reply to posted question; floodplain mapping is incorporating stream restoration projet data as it is available
21	Jan 11 Public Meeting	1/11/2018	6060 Fourmile Canyon Drive	Fourmile Creek	"it would help to put mile markers on the maps"	n/a	Boulder County	Multiple separate in-person conversations were held with Ms. Cole & Mr. Estep after this comment was submitted
22	Phone/Email/Other	2/20/2018	6148 Fourmile Canyon Dr	Fourmile Creek	Wants to provide comments but it not sure how or who to contact	2/22/18 3/1/18	Boulder County	Staff replied to voicemail offering help, but had to leave individual a voicemail (2/22); Staff replied via email to indicate process for submitting a comment, individual planned to submit a comment the following weekend  Conversation with Fourmile Creek Watershed Coalition staff indicated that this individual has concerns about LiDAR and the representation of certain rock outcroppings as well as project incorporation into new models
23	Phone/Email/Other	3/4/2018	6148 Fourmile Canyon Dr	Fourmile Creek	1. Position of subject home to property lines is not correct; subject home is positioned further north and fully within property lines. View shown makes it appear subject home sits within the county ROW.  <i>1 of 6 comments from Draft Floodmap Comments (M Whited).pdf</i>	3/22/2018	Boulder County	The property lines on the Boulder County Assessor's GIS layer are not perfectly accurate and in the Fourmile/Gold Run area of the county are extremely inaccurate. We apologize that this is an issue in this area, but we have decided to leave parcel lines on our maps because in some locations they serve as useful reference lines.



Count	Comment Source	Comment Date	Address/Location Referenced	Associated River Reach	Comment	Date of Response	Respondent / Method of Communication	Response
24	Phone/Email/Other	3/4/2018	6148 Fourmile Canyon Dr	Fourmile Creek	2. There is a steep rock cliff/outcrop immediately west of the home that extends all the way to the north edge of the paved county road. This steep rock feature of the hillside would create a conveyance shadow for the home should flood waters ever crest over the paved county road.  <i>2 of 6 comments from Draft Floodmap Comments (M Whited).pdf</i>	3/22/2018	Boulder County	A review of the mapping indicates that this rock outcrop is not within the draft floodplain mapping area. It is, however, in the current FEMA effective flood fringe (100-year floodplain). We must regulate to FEMA mapping when it is more restrictive than other data that is available, such as CHAMP revisions, until FEMA adopts revisions to their mapping.
25	Phone/Email/Other	3/4/2018	6148 Fourmile Canyon Dr	Fourmile Creek	3. There is an embankment that transitions to a vertical rock wall that parallels the paved county road (on the south side of the paved road). This embankment is over 6 feet high at the west end of the property and gradually tapers to a 3+ foot high rock wall at the east end of the property. Flood waters would more easily flow toward the floodplain to the south of the creek (which is at a much lower elevation than the subject home) than breach/crest over this embankment and rock wall. Also, the embankment/rock wall are over 50 feet to the edge of the creek embankment.  <i>3 of 6 comments from Draft Floodmap Comments (M Whited).pdf</i>	3/22/2018	Boulder County, CHAMP	<p>This embankment should have been indicated by the LIDAR used to inform the hydraulic model. If flows indicated overtopping in the hydraulic model, then the mapping is intended to indicate that level of inundation. The 2013 event in this area of Fourmile Creek only experienced between a 25 &amp; 50-year flood event, so flood levels at the 100-year event extreme would be expected to act differently than what was experienced in 2013. If you do not believe the map indicates accurate topography at your property, you may submit data from a professional survey to provide more accurate measurements at your property.</p> <p>CHAMP response: Lidar data in this area did not capture the rock wall or embankment in this area. The culvert crossing across from the property was incorporated based on survey data and field recon. Water surface elevations may be higher than expected due to the backwater caused by the culvert crossing. The crossing reduces conveyance and causes a 100 year wsel of approximately 6827 ft. Flooding does not overtop Fourmile Canyon Drive in the 100 year but does in the 500 year event.</p> <p>If additional data is provided from the Watershed Coalition stream restoration project that widened the channel to over 20 feet, the area could be reevaluated. The rock wall and embankment cannot be considered unless it was designed to withstand floodwaters.</p>
26	Phone/Email/Other	3/4/2018	6148 Fourmile Canyon Dr	Fourmile Creek	4. The back of the home is built into the steep hillside on the north side of the subject home. Floodwaters would have to be 15 to 20 feet high to reach the points indicated on the Draft Map behind the subject home.  <i>4 of 6 comments from Draft Floodmap Comments (M Whited).pdf</i>	3/22/2018	Boulder County	See repsonse to #2; The map area that extends to this hillside is the current FEMA mapping that will eventually be replaced with the more accurate mapping in development through the current remapping project.
27	Phone/Email/Other	3/4/2018	6148 Fourmile Canyon Dr	Fourmile Creek	5. The Watershed Coalition performed stream restoration along the stream running parallel with my property. This restoration included widening the stream channel to over 20 feet in width and stabilizing the embankment with large boulders.  <i>5 of 6 comments from Draft Floodmap Comments (M Whited).pdf</i>	3/22/2018	Boulder County	We are working closely with the watershed coalition to incorporate all stream restoration work that has been completed through their projects into the CHAMP mapping. If the stream work has not yet been incorporated into the modeling/mapping at this time, we are working with the various project staff and consultants to have it incorporated in the near future.

Count	Comment Source	Comment Date	Address/Location Referenced	Associated River Reach	Comment	Date of Response	Respondent / Method of Communication	Response
28	Phone/Email/Other	3/4/2018	6148 Fourmile Canyon Dr	Fourmile Creek	6. If lidar was used to create these floodplain maps it clearly shows the inaccuracies of the mapping tool. While lidar may be able to provide 1-foot contour accuracy in coastal floodplains it is not suitable for accurate mapping in Fourmile Canyon.  <i>6 of 6 comments from Draft Floodmap Comments (M Whited).pdf</i>	3/22/2018	Boulder County	We appreciate your concern with the map and model development. The LiDAR used for the draft mapping that you see in the gray hatch layers was used in conjunction with local surveys. In between the on-the-ground surveys, elevations and contours were interpreted to develop the mapping. If you have detailed survey to provide at your property that can refine the mapping along this reach of Fourmile, we can provide that to the engineering team to inform the floodplain model and improve the map.
29	Phone/Email/Other	2/2/2018	6229 Fourmile Canyon	Fourmile Creek	"My residence at 6229 Four Mile is shown in the proposed regulatory floodplain (100-year) although it is shown to be outside of the 100-year floodplain/floodway and even outside of the 500-year floodplain."	2/2/2018	Boulder County	Explained differences between Draft CHAMP Flood Risk Zones, Proposed Flood Risk Zones, and local adoption/regulatory processes ; explained that regulations must be to more conservative data and cannot disregard current FEMA effective Flood Risk Zones, which is why this property shows a 100-year Floodplain extent that is greater than another study's 500-year Floodplain extent
30	Web Map Comment	3/22/2018	887 Fourmile Canyon Drive	Fourmile Creek	Based on the topography I don't believe any part of my house or garage should be in the 100 year floodplain	3/22/2018	Boulder County	Explained CHAMP vs. mapping at the property in question; provided information about Elevation Certificates & LOMAs in case owner is interested in submitting a LOMA request
31	Phone/Email/Other	1/3/2018	Fourmile Canyon	Fourmile Creek	Question regarding the postcard and listserv information that she received about upcoming public meetings - is the meeting on Jan. 11 for Fourmile Creek or Fourmile Canyon Creek?	1/3/2018	Boulder County	Phone; returned call and explained that the Jan 11 meeting is for Fourmile Creek and the Jan 25 meeting is for Fourmile Canyon Creek
32	Jan 11 Public Meeting	1/11/2018	near Melvina Hill Rd	Fourmile Creek	"Need mile marker #s"	n/a	n/a	
33	Jan 11 Public Meeting	1/11/2018	near Wallstreet & Melvina Hill Rd	Fourmile Creek	"Whited property is done properly"	n/a	n/a	
34	Jan 11 Public Meeting	1/11/2018	not given	Fourmile Creek	Glacier Lake concerns; would like to know whether the earthen dam at this lake is a concern for the engineering team or if it has been taken into consideration for future flood hazards	3/5/2018	CHAMP	The hydraulic study of Fourmile creek begins two miles downstream of Glacier Lake Dam. The hydrology for Fourmile Creek takes the contributing basin surrounding the reservoir into account. It does not appear that the lake was modeled as a flood control structure in the hydrologic model. Also, no dam break analysis was conducted as part of this effort.
35	Jan 11 Public Meeting	1/11/2018	not given	Fourmile Creek	Concerned that willow trees are being planted too densely; there were not as many trees before the flood as there are now; Wall built along Poorman Rd. now redirects drainage in unsafe way and goes straight into pond across street from fire station	n/a	n/a	
36	Feb 20 Public Meeting	2/20/2018	217 Gold Run Rd.	Gold Run	"The 500-year just misses the corner of our garage. Please confirm that it misses. Thanks."	3/12/2018	Boulder County	Boulder County will respond that the barn is near the 500-year according to the mapping and current aerial imagery; it may be a good idea to consider flood insurance; Boulder County also encouraged resident to stay in touch and review the FEMA FIRMs when they are produced
37	Feb 20 Public Meeting	2/20/2018	219 Gold Run Rd.	Gold Run	SEMA restoration project, concerned that the work will not be reflected in mapping; also: - culverts located at map bulges - timeline of project? - notification process for LOMRs?	discussed at meeting	Boulder County	Staff explained LOMR process and that mapping is updated upon approval by FEMA; FEMA staff explained that LOMR notifications are either newspaper or individual property owner notifications (up to community to decide which to do)
38	Jan 11 Public Meeting	1/11/2018	637 Gold Run Rd.	Gold Run	"Is corner of house in floodplain? Elevation? 6 inches Add dirt outside"	3/5/2018	CHAMP	In Figure 1, the home to the north is in-between cross sections and the 100yr barely touches the home. The home to the south end of the figure is in the 100yr floodplain at a depth of about 3 ft.

Count	Comment Source	Comment Date	Address/Location Referenced	Associated River Reach	Comment	Date of Response	Respondent / Method of Communication	Response
39	Phone/Email/Other	5/24/2018	1126 James Canyon Drive	James Creek	Email chain with questions regarding Floodplain and Land Use requirements/changes on property; In Land Use HMR process, so following up on decisions on development allowances/restrictions	5/24/18 6/11/18	Erin Cooper	Held meeting on 5/24 to discuss possibilities, lay out different scenarios depending on regulatory requirements  Email reply from staff regarding historic designation of structures (not landmarked) and floodplain mapping timelines
40	Web Map Comment	2/24/2018	1126 James Canyon Drive; Boulder, CO 80302	James Creek	At the recent review meeting in Jamestown, we confirmed with County reps that this location was just outside of the proposed floodway; however, this map indicates otherwise. Can we discuss? Thanks!	3/15/2018	Boulder County	sent map to clarify the mapping - effective and draft - in the area
41	Feb 6 Public Meeting	2/6/2018	190, 194 Nugget Hill Rd., 7294 Lefthand Canyon Dr.	Left Hand Creek	"Gulch culvert" at 190/194 Nugget Hill Rd. "runoff high during summer rain events" at 7294 Lefthand Canyon Dr	n/a	n/a	
42	Phone/Email/Other	5/12/2018	3348 Plateau Rd.	Left Hand Creek	Multiple emails with questions on the inundation layer and LOMA on property (LOMA 04-08-0368A); also concerned about letter from insurance agency that required a response by 6/1	5/22/2018	Erin Cooper, Matt Buddie	Replied about various concerns and provided guidance on letter response with help from FEMA Region 8; encouraged Owner to submit LOMA documentation (which I gathered & sent him) to insurance agent for their records
43	Web Map Comment	4/15/2018	5938 Heather Way	Left Hand Creek	Expanded floodway/ floodplain incorrect, during 2013 flood, waters followed the floodway and did not reach any higher. My property should not be in floodway or 100 yr floodplain, review elevations.	6/11/2018	Boulder County	Thank you for your comment on the Boulder County Draft Flood Risk Zones interactive web map. We have incorporated your feedback into our review and will include your comment in our official records with the Boulder County Planning Commission.  The draft floodplain map will be updated by Wednesday of this week with the final draft being submitted to FEMA, so please take a look again at that time and let us know if you have any questions.
44	Phone/Email/Other	4/6/2018	6185 Brigadoon Court	Left Hand Creek	Interested in learning what a revised BFE would be at his property with the new CHAMP mapping	4/10/2018	Boulder County / CHAMP	Multiple emails were sent to discuss the changes, his interest in the revisions, and finally to share detailed maps of local topography. Although a new FIS has not been published to be able to determine an official BFE at the property, an estimated value was calculated to give owner an idea of the elevation. Suggested determining if an Elevation Certificate and LOMA would be beneficial once CHAMP maps were further along.
45	Web Map Comment	4/1/2018	6205 Misty Way	Left Hand Creek	The line of this structure is the edge of a sidewalk and attached garage and is a higher point of elevation on the property. Ground level here slopes west.	6/11/2018	Boulder County	Thank you for your comment on the Boulder County Draft Flood Risk Zones interactive web map. We have incorporated your feedback into our review and will include your comment in our official records with the Boulder County Planning Commission.

Count	Comment Source	Comment Date	Address/Location Referenced	Associated River Reach	Comment	Date of Response	Respondent / Method of Communication	Response
46	Phone/Email/Other	4/16/2018 6/5/18	6400 Modena Lane	Left Hand Creek	<p>Would like explanation of the revised maps - showing house in shaded X as an island surrounded by Floodway; how is it possible for floodway to come direct next to 500-year? If house is within 500-year, is the map accurately showing that part of the house is in Floodway instead? Would like house to not be in the Floodway as a result of map inaccuracy.</p> <p><i>In response to Boulder County email on 4/19:</i> "Please let me know what the CHAMP team determines re: portions of our home being in the floodway, and let me know what my recourse and deadlines are if the map is not revised. I would be terribly disappointed if our house, which was not previously in the floodway and which was not affected by the 2013 high water event, would now be reported to be in the floodway, especially after several million dollars of stream re-alignment and mitigation have been completed."</p> <p>Individual contacted Boulder County again on 6/5 with additional questions about LiDAR methodologies and concerns that the flood zones do not match the ground topography.</p>	4/19/2018 5/3/18 5/11/18 6/7/18	Boulder County / CHAMP	<p>Boulder County replied with some imagery of the LiDAR in the area, contours, and a comparison of each of these with the mapping; clearly there is an island at the structure. More clarification from CHAMP is desired.</p> <p>CHAMP response, sent to individual on 5/11: "The 500-yr and floodway can be adjacent when the full extent of the 100-yr is a floodway or when there is a raised "island" within the 100-year that is then 500-year. Your house is in the 500-year. Your recourse would be a LOMA based on an elevation certificate."</p> <p>Boulder County responded to individual's 6/5 inquiry with additional explanations of LiDAR mapping and how the topographyis interpolated at certain locations beneath structure footprints. Additional explanations were also given for floodplain mapping and how similar interpolation methods are used for developing the map between cross sections.</p>
47	Phone/Email/Other	6/5/2018	6472 Robin Drive	Left Hand Creek	Email chain sent to staff concerning Base Flood Elevations (BFEs) at property and questions about the BFE at cross sections versus at the structure of concern; Plans are in SPR for home elevation and Mr. Fay's concern is whether the plans reflect the correct elevation requirement	6/8/2018	Erin Cooper	Staff replied via email that the plans reflect a different BFE than shown at the cross section because the structure is a different location than that at which the cross section elevation is taken. Email also explained that the web map that Owner had reviewed was showing outdated information; link included to correct web map managed by Boulder County with updated information.
48	Web Map Comment	5/30/2018	7141 Strath St	Left Hand Creek	Storage shed currently exists at this location	6/11/2018	Boulder County	Thank you for your comments on the CHAMP Phase II floodplain mapping being proposed for adoption by Boulder County. Your comments have been sent to the CHAMP team and will be included in the official records presented to the Boulder County Planning Commission.
49	Web Map Comment	3/30/2018	7141 Strath St., Longmont, CO 80503	Left Hand Creek	The structure marked was a pool but no longer exists.	6/11/2018	Boulder County	Thank you for your comments on the CHAMP Phase II floodplain mapping being proposed for adoption by Boulder County. Your comments have been sent to the CHAMP team and will be included in the official records presented to the Boulder County Planning Commission.
50	Web Map Comment	4/24/2018	7257 N. 63rd Street	Left Hand Creek	The existing FEMA 100-Year floodplain is closer to the 2013 flood than the proposed floodplain. In addition, this proposed floodplain does not appear to take into account the LWOG improvements.	6/11/2018	Boulder County	<p>Thank you for your comment on the Boulder County Draft Flood Risk Zones interactive web map. We have incorporated your feedback into our review and will include your comment in our official records with the Boulder County Planning Commission.</p> <p>The draft floodplain map will be updated by Wednesday of this week with the final draft being submitted to FEMA. Due to project schedules, the final LWOG work in this area will be incorporated into the revised mapping later in the process. You will have an opportunity to review these changes and submit any technical data for an appeal when the Preliminary Flood Insurance Rate Maps are produced, which we anticipate in mid 2019.</p>
51	Phone/Email/Other	4/13/2018	7329 N 63rd St	Left Hand Creek	Will there be any amendments to building codes as a result of the remapping process?	4/13/2018	Boulder County	Explained that building codes are not changing with the map amendments, sent link to Land Use Code

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52	Web Map Comment	4/13/2018	7337 N 63rd St	Left Hand Creek	At FEMA Cross Section Elev 5171 the 2013 Flood (7000 CFS per BoCo) more closely followed the previous Flood Plain Map than the proposed DRAFT map which shows 100 yr flood plain at 6000 CFS,	6/11/2018	Boulder County	In response to your comment regarding the discharges experienced during the 2013 event and modeled in the draft CHAMP mapping, I'd like to share data to support the discrepancy that you see. The experienced flood in 2013 was above a 1% chance flood event (100-year event), even as modeled by the effective FEMA study:  Experienced in 2013 at 63rd: approx. 7,000 cfs CDOT 1% annual chance event: 5,994 cfs Effective FEMA 1% annual chance event: 6,330 cfs
53	Phone/Email/Other	4/26/2018	7926 N 73rd St	Left Hand Creek	What are the floodplain and floodway restrictions on my property?	4/27/18 5/4/18 5/11/18	Boulder County	Spoke on 5/11 about floodplain map and explained 100-year floodplain regulations (generally); owners looking to sell property, so we discussed mortgage requirement for SFHA and staff offered to speak with any potential buyers if they have questions about the regulations
54	Phone/Email/Other	4/13/2018	7955 Oxford Rd	Left Hand Creek	I reviewed the Draft floodplain map for Left Hand Creek where it passes through our property and have the following comments.  1. It appears the floodway has greatly expanded into our property and others. Based on my understanding of the floodway (as opposed to the flood plain), this is the region of high velocity flows within the creek corridor. However, during the 2013 flood, we did not see high velocity flows in the new floodway areas shown on the draft floodplain maps. Why was the either the velocity lowered to include areas not before part of the floodway? Or,  2. was the floodway redefined to include areas of lower velocity?  3. As I mentioned, we did not see high velocities in the expanded floodway areas show on the draft floodplain maps. Why was the floodway so drastically expanded? If the engineering models show high velocities in these areas, then they are in error.  The end result of the expanded floodway is that the use of our property will be even more restricted according to the Boulder County Land Use code. Therefore, I'm intensely opposed to expanding the floodway as show on the draft floodplain maps. There is no evidence for such an expansion and it would impose significant additional restrictions and hardship on property owners.	4/19/2018 4/27/18	Boulder County / CHAMP	Boulder County explained in email reply: "The existing floodway on your property and throughout much of Left Hand Creek was developed in 1981. Since then, technology and state-adopted floodway modeling standards have changed to result in a wider floodway being developed by the new Colorado Hazard Mapping Program (CHAMP) study. You are correct in that the floodway represents the highest risk and often highest velocity zone during a flood event. The updated state standard uses a finer-grain approach for modeling the floodway that, in this location, results in a wider floodway based on the local topography."  Additional follow-up by Boulder County on 4/27 clarified responses with a detailed email and a PDF of the Modeled & Estimated Flows Chart for Left Hand Creek.  CHAMP response: "A floodway generally has higher velocities than the rest of the floodplain, but not always, nor does it always have high velocities. There is no effective floodway on this property. The new floodway is large based on topo and 0.5-ft requirements."
55	Phone/Email/Other	4/20/2018	8450 N Foothills Hwy	Left Hand Creek	downed tree caused a dam during 2013 flood, increased water on the eastern portion of his property downstream to Crocker Ditch as a result; would like to see older study to understand changes & would like to know if the Hwy 36 bridge will improve his situation downstream	4/23/2018 5/11/18	Boulder County	Spoke briefly, Boulder County provided some comparisons and preliminary analysis on anticipated Hwy 36 bridge impacts via email on 5/11
56	Phone/Email/Other	5/24/2018	8450 N Foothills Hwy	Left Hand Creek	Interested in purchasing property, looking for more information to do proper research	5/25/2018	Erin Cooper	Sent link to BoCo floodplain management resources, LU Code, and FloodSmart.gov online resources
57	Apr 12 Public Meeting	4/12/2018	8725 Streamcrest Dr.	Left Hand Creek	Per conversation with AECOM engineer: Please review section between 71192 & 7175 on LHC Streamcrest; the low spot at 71419 is odd, as the same elevation exists here as at 71578 & 71318 - should be a connected island and not have a 100-year flow path. There is a 2 foot difference between LiDAR & survey in left overbank.	5/21/2018	Boulder County / CHAMP	Boulder County is coordinating with CHAMP and the project engineer to address this concern and will be in contact with a resolution.

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58	Phone/Email/Other	4/13/2018	Heather Way / Strath Rd. area	Left Hand Creek	Who contacts mortgage lenders when maps change?	4/18/2018	Boulder County	Boulder County called individual back and explained response from FEMA NFIP rep: "There is no change in premium if they move into the floodway. The lender does annual flood zone determinations (at least the big lenders) to find out about any flood zone changes. They are only required to check when someone makes, renews, extends or changes their loan. "
59	Phone/Email/Other	3/23/2018	Left Hand Creek near 39th St, wetlands	Left Hand Creek	Changes to mapping near 8277 & 8283 N 39th St.?	4/3/2018	Boulder County	Boulder County sent map print-out from web map to individual and explained the draft vs. proposed regulatory layers. Staff also explained the use of best available information during the interim period until new FEMA maps are effective
60	May 9 2017 Public Meeting	5/9/2017	15555 N 83rd St	Little Thompson River	Whose responsibility is the river after the 3 year O&M period for the EWP project?	5/19/2017	Boulder County	Staff replied to comment with a phone call explaining EWP O&M planning for post-project maintenance
61	May 9 2017 Public Meeting	5/9/2017	15720 Parrish Rd	Little Thompson River	1) Septic can't be placed out of floodplain with new maps; Wants a better survey to be done because the floodway is too wide in this area  2) Look at floodway near XS 144908 on LTR_2A; structures are included that were not before	5/19/2017	Boulder County, CHAMP	Staff explained septic requirements, offered some possible solutions/alternatives to individual;  CHAMP reviewed cross section data and was able to make adjustments to refine the floodway near referenced cross section
62	Comment Form	5/10/2017	15720 Parrish Rd	Little Thompson River	At the meeting we were told that the projected 100yr floodplain volumes had increased 161% based on data points. I've looked carefully at the data from the Colo Div of Water Resources "LTCANYCO" meter which is located on the upstream side of our land. The available data from 1962 until 2012 (destroyed in 2013 flood) does not indicate a rise in stream flow from the historical past but rather it shows a decrease. The post 2013 flood channel capacity is 3 to 5 times width and just as deep as pre flood. It moved 280' to the south. How could the 100yr floodplain now expand both north and south? At no time since we came here in 1958 has the river been even close to our barn until the 2013 flood. I can share the data/graphs when you need them.	5/10/2017 5/15/17	Boulder County, CHAMP	Staff shared individual's comment with CHAMP, learned that the CHAMP team would research individual's questions;  CHAMP replied with a detailed email summarizing the data sources, validation for the data used, and a summary of why the revised data seems much higher yet is in fact more accurate than previous data.
63	Feb 20 Public Meeting	2/20/2018	16072 Longmont Dam Rd.	North St. Vrain	"Runoff from road"; runoff flows along Hwy 36 across 16064 Longmont Dam Rd. and drains into 16072 property to reach the river	n/a	n/a	
64	Phone/Email/Other	2/15/2018	3 parcels along Longmont Dam Rd	North St. Vrain	Lives in Texas and owns 3 parcels along Longmont Dam Rd. (120100000030, 120115001001, 120110005001); called with questions about the revised mapping and explained that she is currently having surveyors complete a survey of the parcels. Will send survey information when survey is completed for potential CHAMP/Phase I Prelims incorporation	2/15/18 2/21/18	Boulder County	Explained the revisions to the mapping on these properties; Also explained that the data can be sent to the Floodplain Mgmt. Team for review before incorporating into the map revisions
65	Phone/Email/Other	2/9/2018	512 Longmont Dam Rd	North St. Vrain	Aware of remapping and called to understand current floodplain mapping extents on the property	2/12/2018	Boulder County	Sent a map of the current and draft floodplain mapping to help designer and property owners understand mapping and the proposed changes
66	Phone/Email/Other	2/5/2018	416 Apple Valley Rd	North St. Vrain (Phase I)	Submitted an email question regarding the reaches to be shown at the Feb 20th public meeting - will Apple Valley North & South be shown?	2/6/2018	Boulder County	Replied that no, Apple Valley North & South will not be shown, but if she has questions she can look at the Official Map or schedule a meeting with the Floodplain Mgmt. Team

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Figure 1. Refers to comment #38 regarding 637 Gold Run Rd.



Figure 2. Refers to comments #10-12 at 597 Wagonwheel Gap Road

