

Public Hearing for
Z-17-0001: Zoning Map Amendments to the
Floodplain Overlay District &
DC-17-0001: Land Use Code text amendments to the
Floodplain regulations

Board of County Commissioners

May 16, 2017

Erin Cooper, Floodplain Specialist

Varda Blum, Floodplain Program Manager

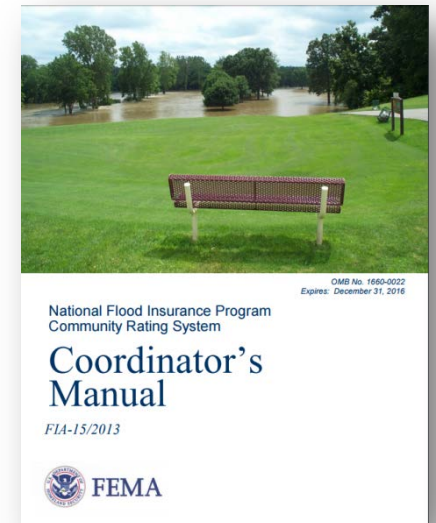


September 2013 Flood Changed Physical Floodplains

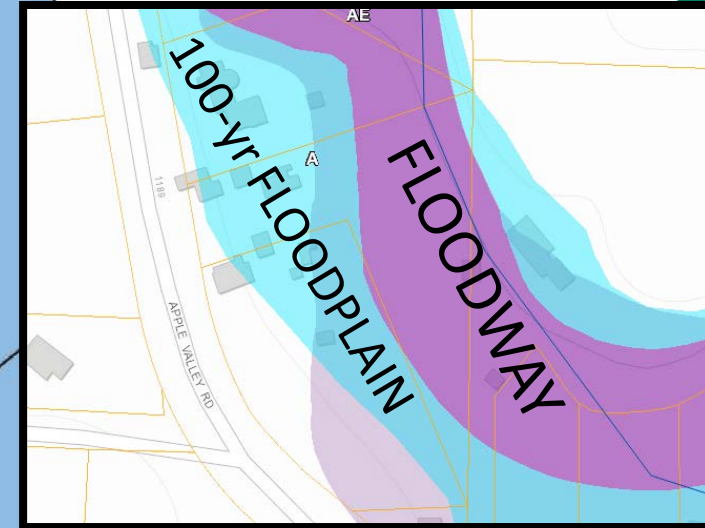
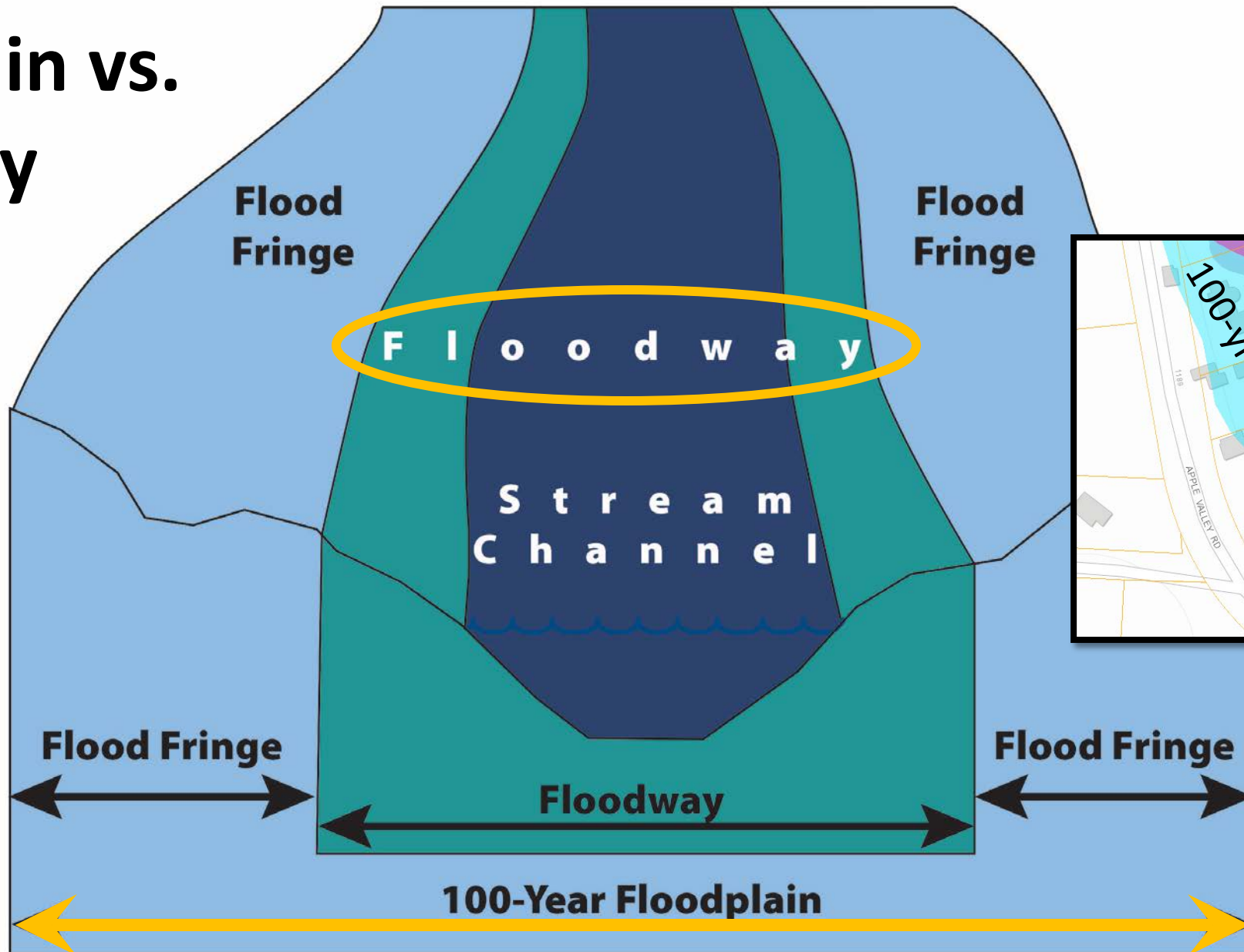
- Hazard areas changed
- Rebuilding relied heavily on predictive floodplain mapping
- Current floodplain map delineations not as accurate as desirable

National Flood Insurance Program Participation

- Boulder County's participation in FEMA NFIP program:
 - Since 1979
 - Residents are guaranteed the opportunity to purchase flood insurance
 - Federal government provides assistance after flooding
 - Unincorporated Boulder County public assistance for infrastructure could reach \$97 million
 - \$35 million to residents throughout Boulder County for individual assistance
- NFIP program requires:
 - Local floodplain maps of predicted extent of 100-year floodplain – to predict hazard and to determine zone for applicability of floodplain regulations
 - Local floodplain regulations – to promote resilience
 - Local floodplain permitting – to review projects for compliance with requirements for development



Floodplain vs. Floodway



'Boulder County Floodplain' (DC-15-0004)

September 2016 – Land Use Code floodplain regulations (4-400) amended to include a regulatory '**Boulder County Floodplain**' which:

- Created a process for adoption of best available data into the Boulder County Floodplain predicted extent of 100-year floodplain
- Eliminated the need for the county to wait for FEMA to produce Flood Insurance Rate Maps (FIRMs) before updating the Boulder County Floodplain with better data
- Furthered the county's ability to protect health, safety, & welfare of residents and visitors

Flood insurance rate changes not affected by local floodplain map adoption.

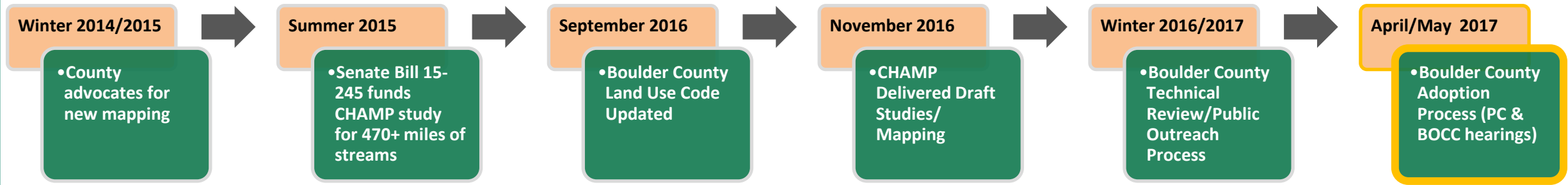
The Floodplain Overlay (“FO”) District

**Boulder County “FO District” =
FEMA Floodplain + Boulder County Floodplain**

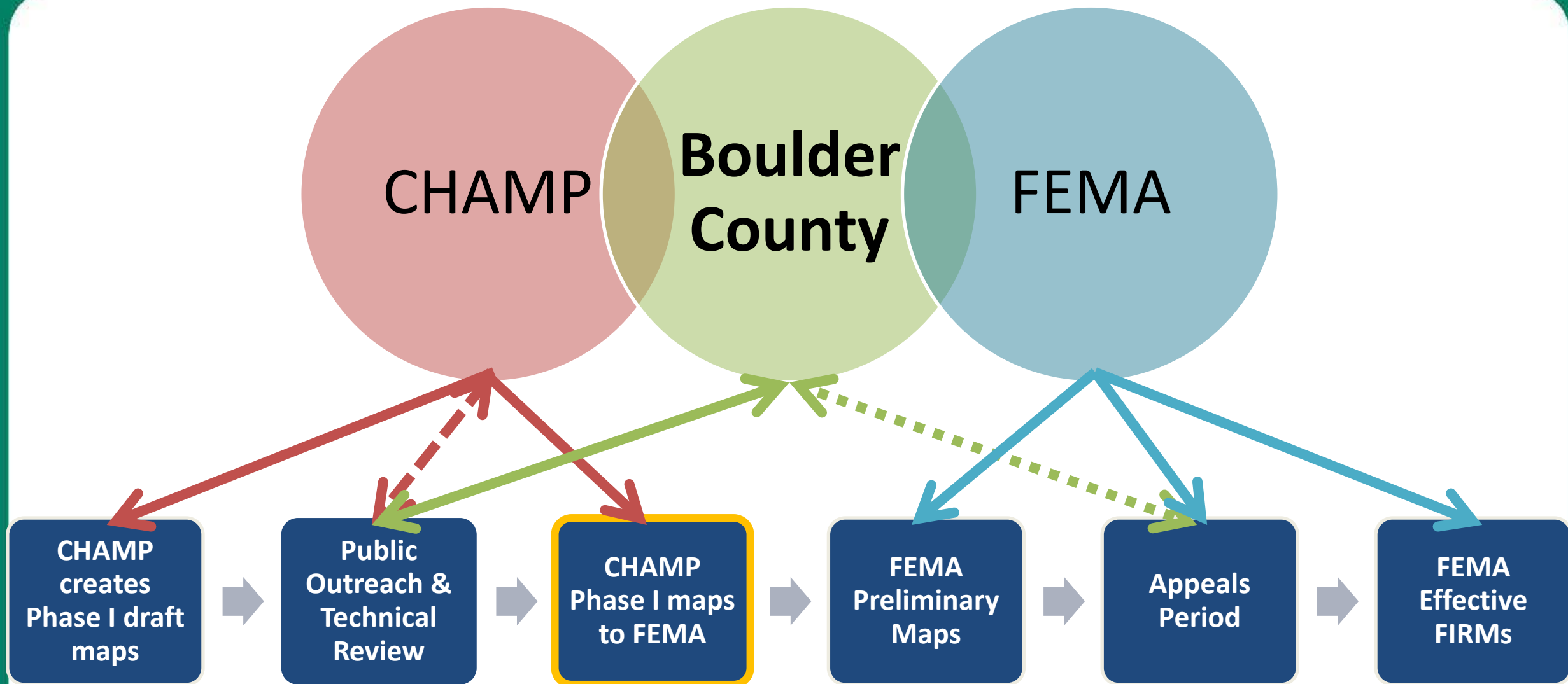
The purpose of adopting a Boulder County Floodplain is to facilitate use of the best available data for the County to establish floodplain boundaries... (4-403 FO District Defined; Official Map)

Updating the Floodplain Maps

The proposed zoning map amendments are based on the floodplain mapping of the Colorado Water Conservation Board's (CWCB) Colorado Hazard Mapping Program ("CHAMP")



Phase II will follow a similar process & timeline



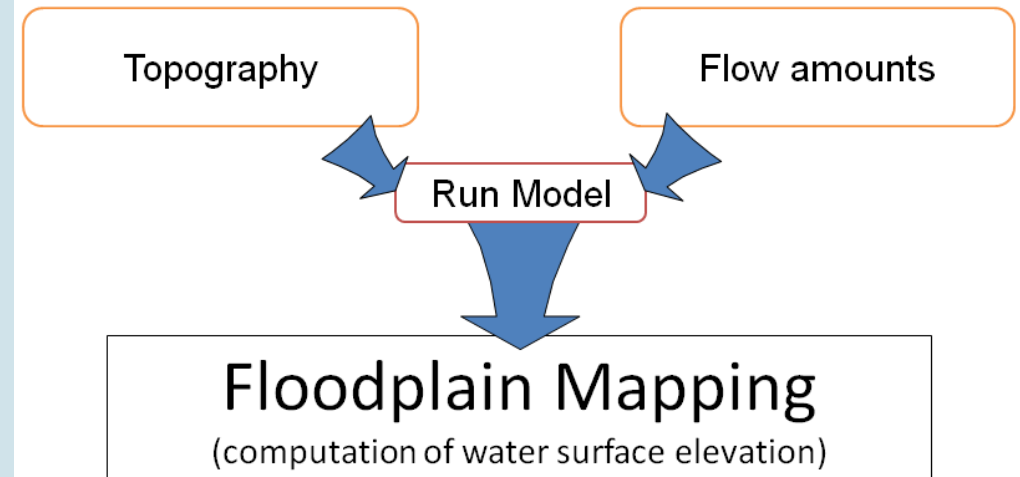
All steps will repeat for CHAMP Phase II draft mapping

Frequent Property Owner Question

“How are these new maps being developed?”

The CHAMP flood studies conducted to identify flood risk included:

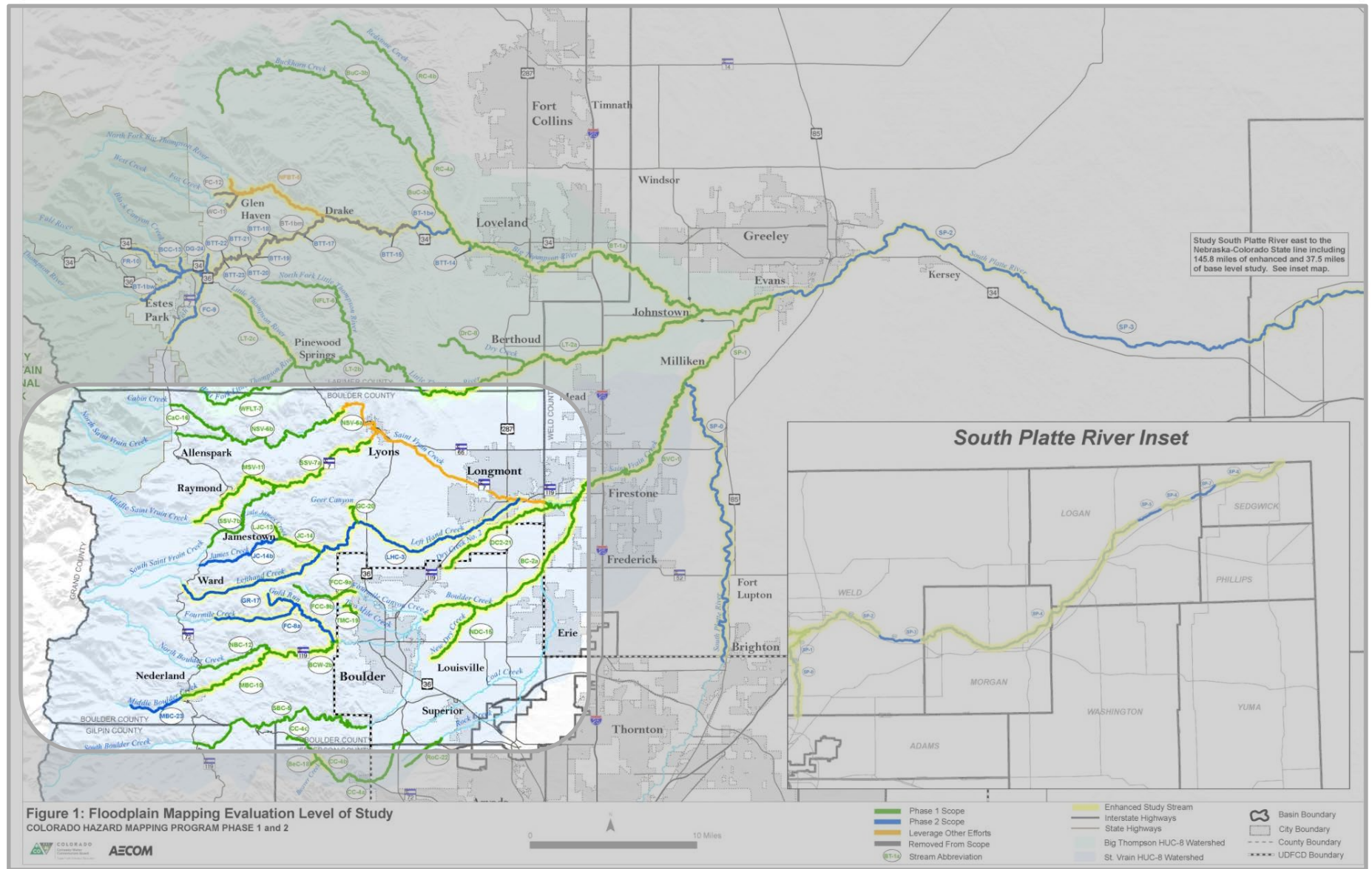
- Post flood topographic surveys;
- Statistical analysis of rainfall, stream flow, and storm frequency data including information collected during the 2013 Flood to predict 100-year and other flood flow amounts; and
- Modeling analyses of the flow movement over the topography predicts water surface elevations.



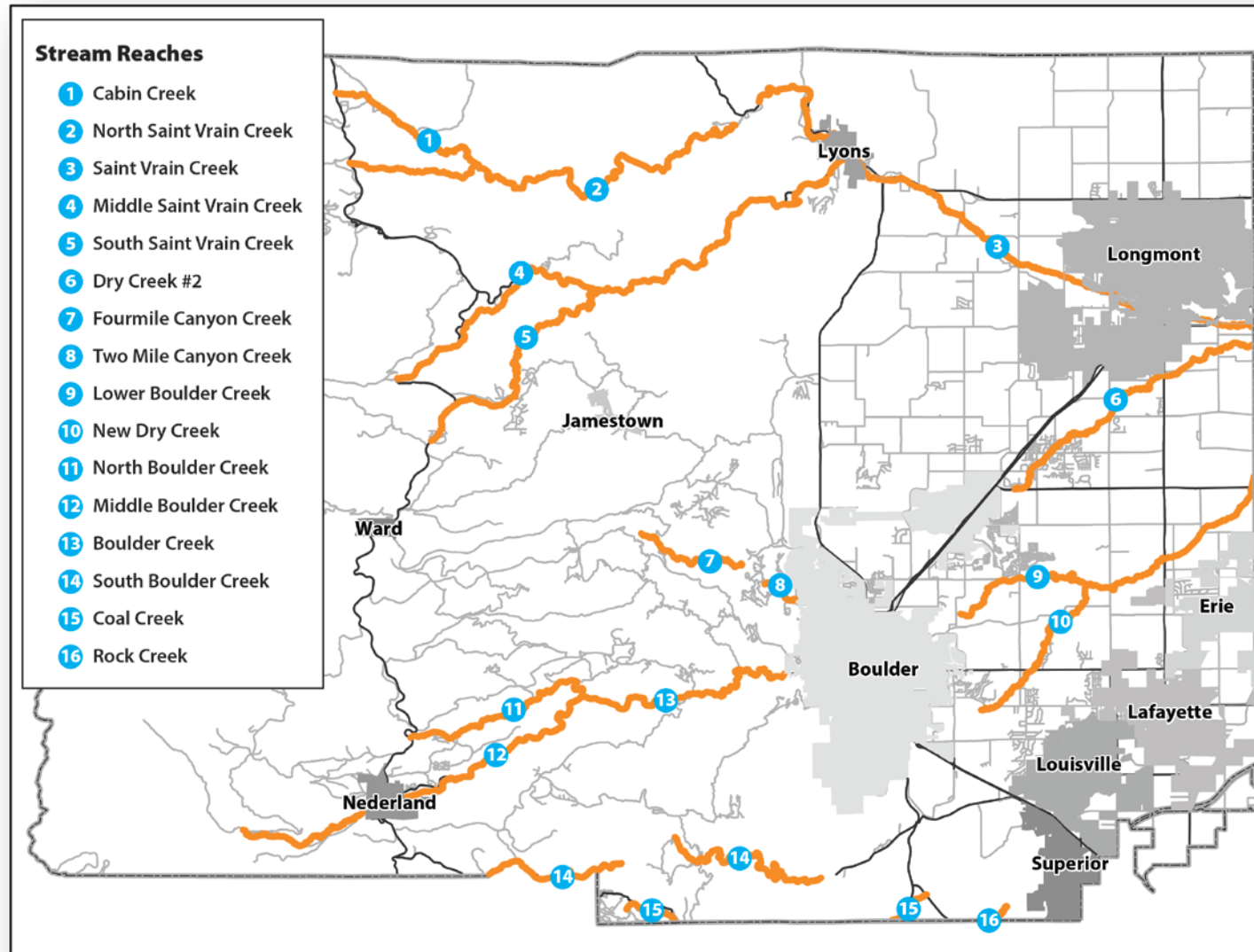
Summary of Proposed Floodplain Overlay District Zoning Map Amendments (Z-17-0001)

- Proposed zoning map amendments include updates to the Boulder County Floodplain & Floodway
- Amendments come after extensive technical review, interagency coordination, and public outreach activities

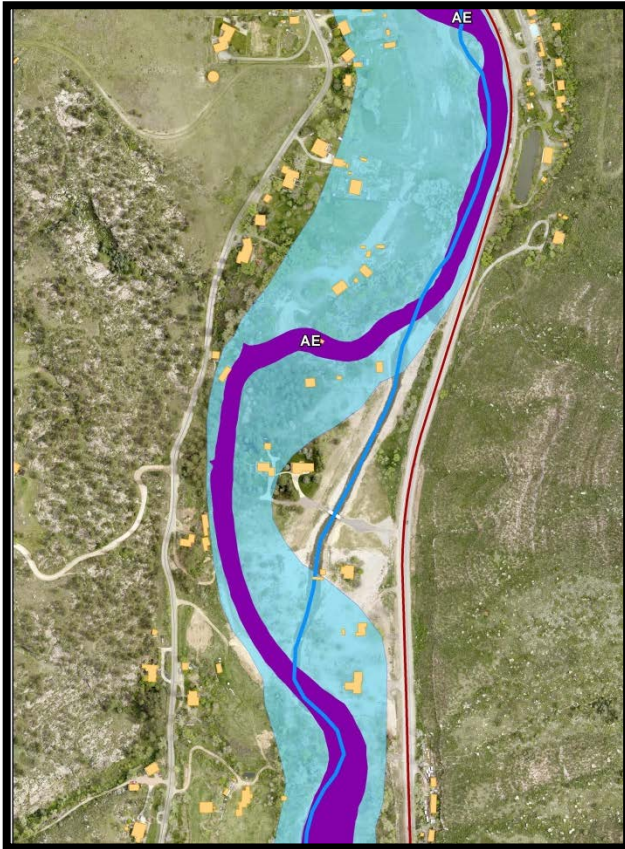
CHAMP Study Reaches



CHAMP Phase I Reaches in Boulder County



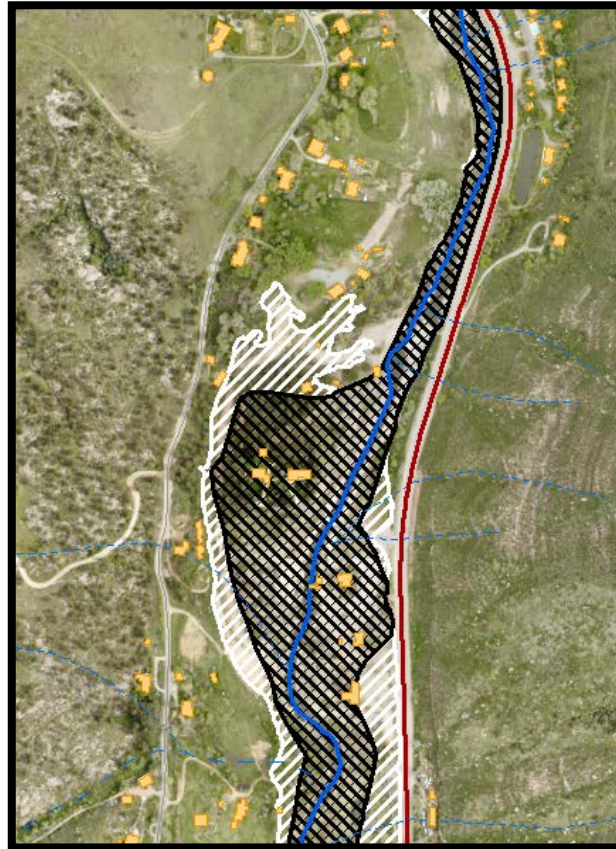
Current Regulatory Floodplain



- FEMA Floodplain
- BoCo Floodway



Proposed Boulder County Floodplain



- CHAMP Floodplain
- CHAMP Floodway

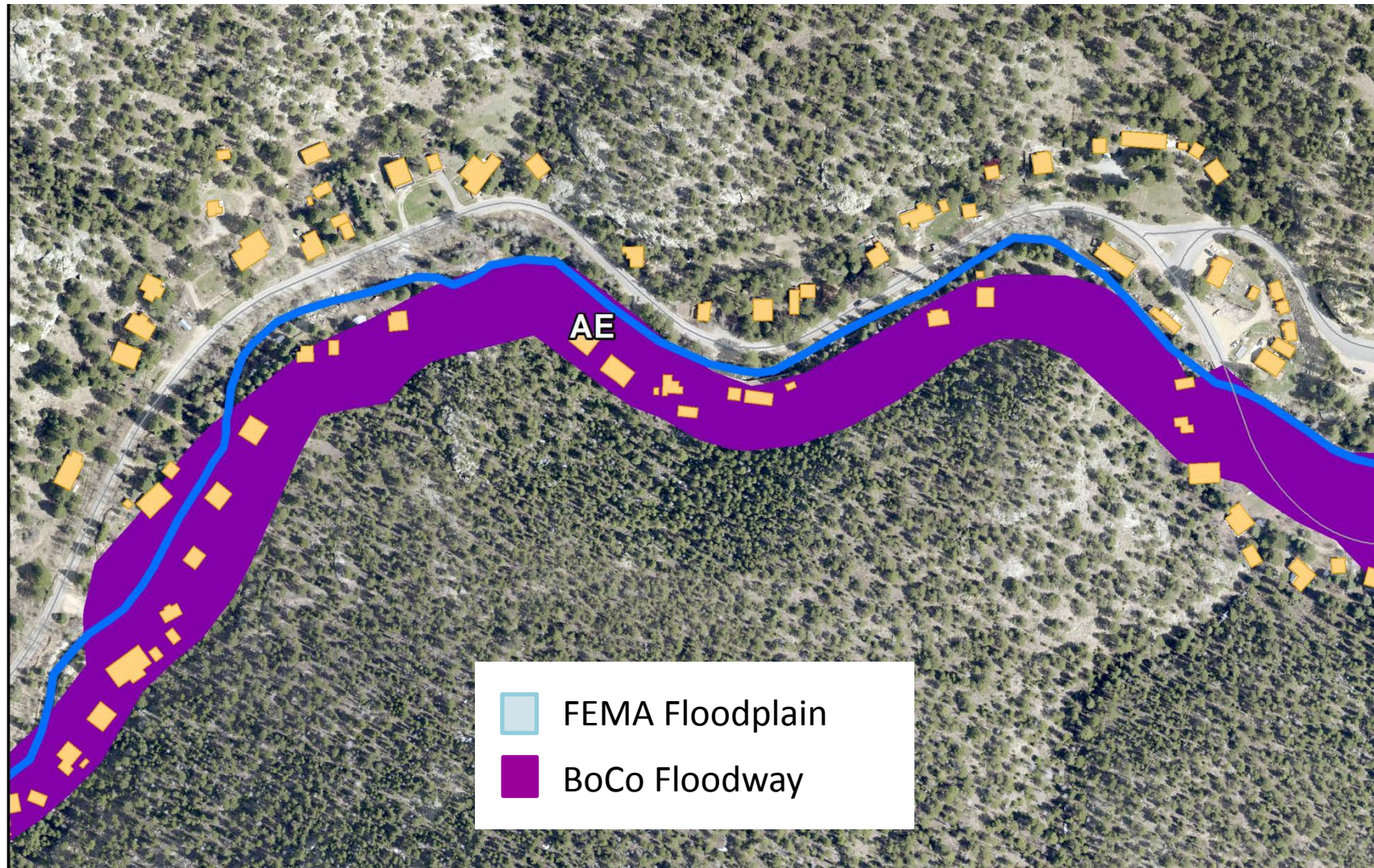


Proposed Floodplain Overlay District

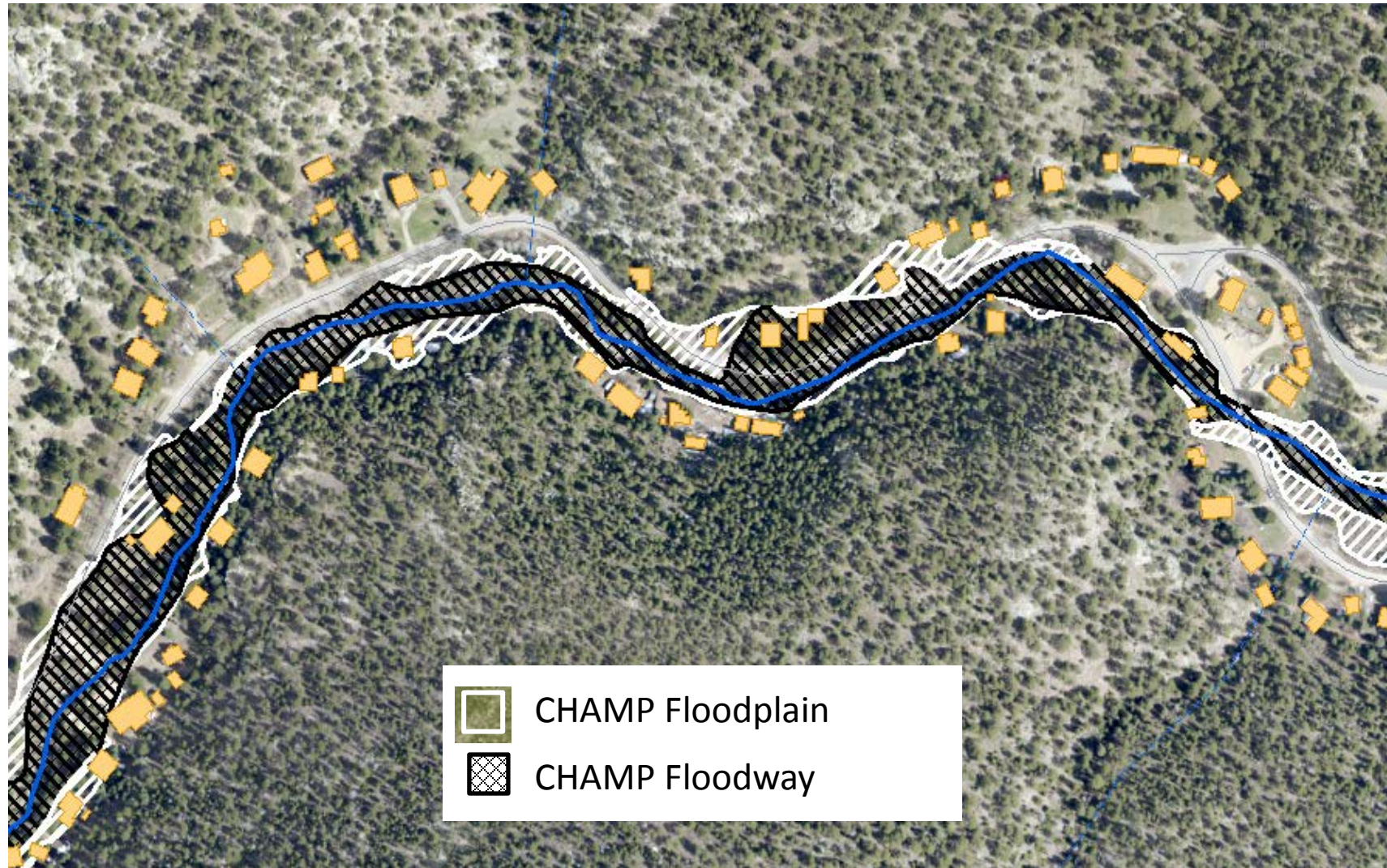


- Composite Floodplain
- Composite Floodway

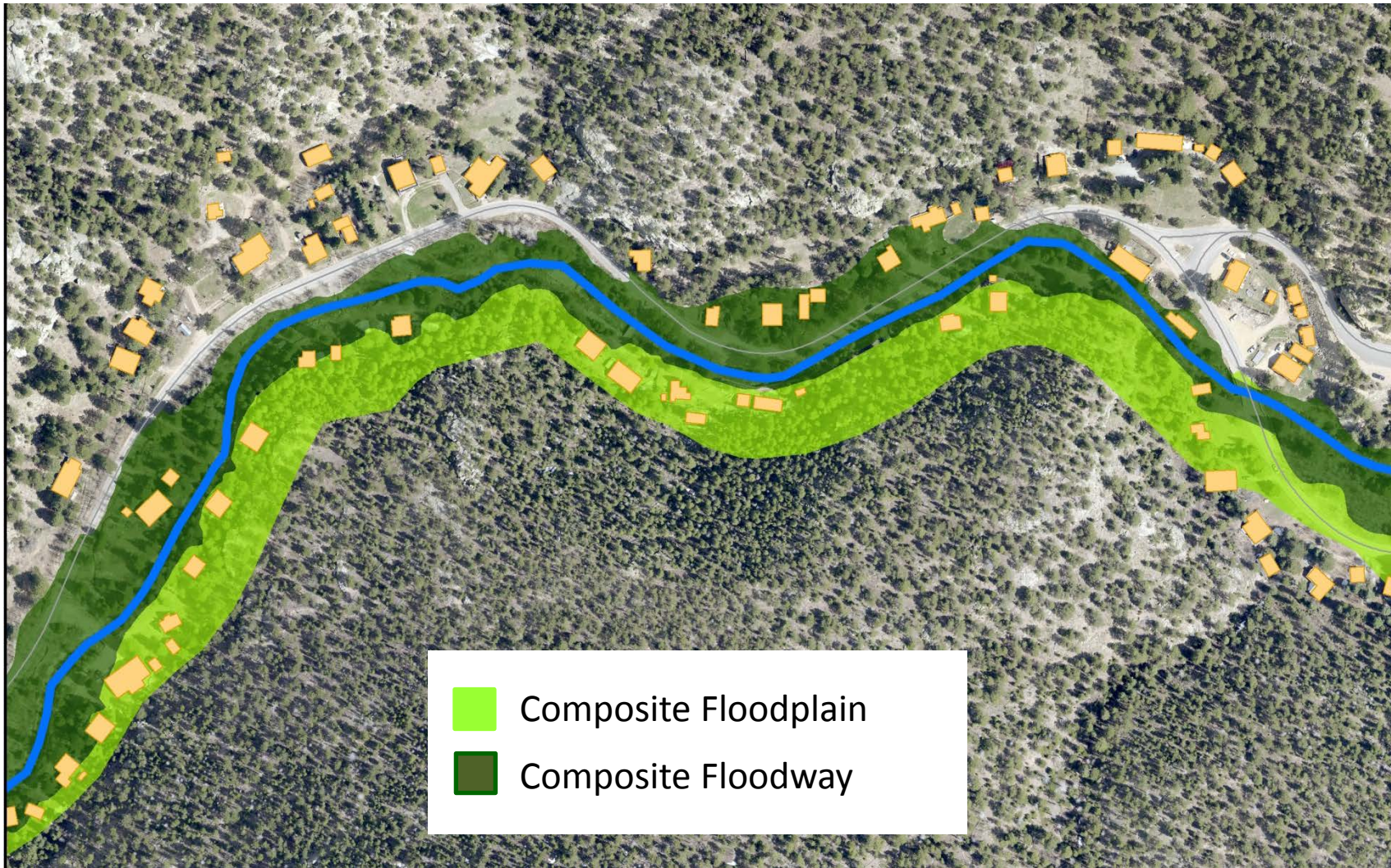
Current Regulatory Floodplain



Proposed Boulder County Floodplain

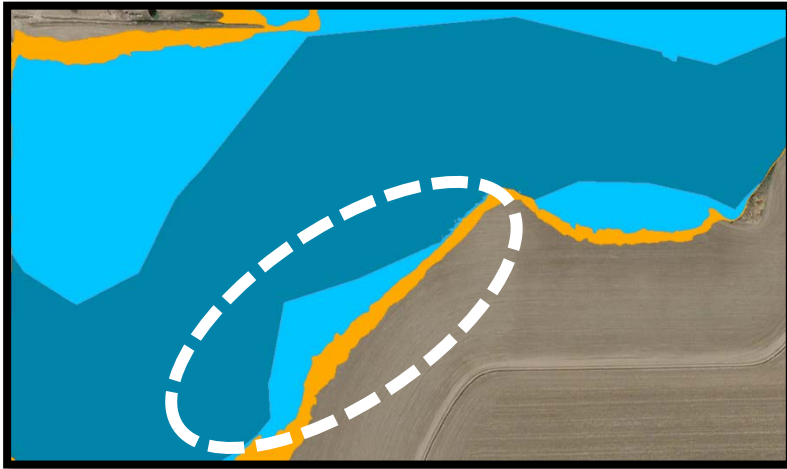


Proposed Floodplain Overlay District



Line Smoothing

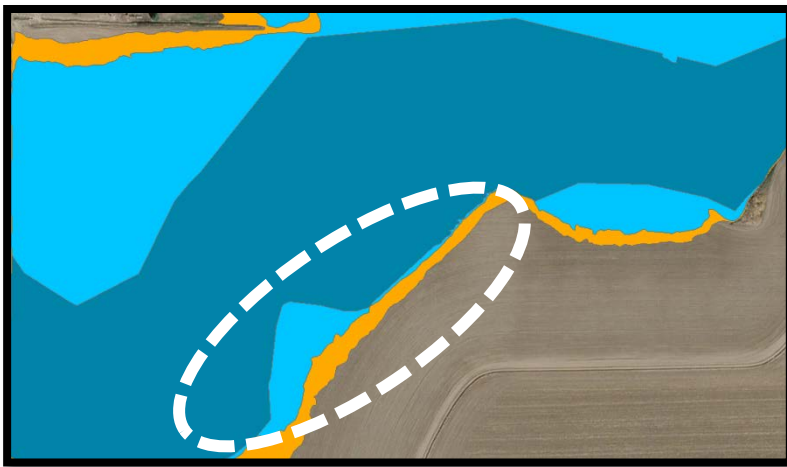
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w/o
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with
revision



with
revision,
zoomed out



Frequent Property Owner Question

“Why is my property being mapped into the floodplain? It didn’t flood here in 2013.”

- The proposed floodplain map updates are not intended to reproduce the 2013 Flood, but instead are informed by data from the 2013 Flood, and are a predictive tool for future flood events.
- Floodplain maps cannot model random events that might have occurred during the 2013 Flood and impacted flooding (e.g. house or tree fell into stream, changed flow direction and flooding distribution)
- According to stream flow data collected during the 2013 flood, many areas throughout Boulder County, especially at higher elevations, experienced less than a 100-year flood event. Some areas experienced greater than 100-year flood events.
- Topography reflected in proposed floodplain map updates is existing topography, not what existed before or during the 2013 flooding.

Criteria Review (Z-17-0001)

1) A public need exists for the map amendment	Outdated mapping; inaccurate portrayal of flood risk; need for more effective floodplain management Proposed mapping will enable more effective floodplain management	✓
2) The amendment is consistent with and in furtherance of the stated intent and purposes of this Code	Section 4-401, Purpose, ' <i>...to protect life, property, and health; to ensure the best available data is used in making development decisions; ...</i> '	✓
3) The amendment is in accordance with the Boulder County Comprehensive Plan	<p>Natural Hazard Goal L.1: '<i>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</i>'</p> <p>Natural Hazards Policy NH1.02: '<i>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 the environment...</i>'</p> <p>Natural Hazards Policy NH4.01: '<i>The county should strongly discourage and strictly control land use development from locating in designated floodplains, as identified in the Boulder County Zoning Maps</i>'</p> <p>The Comprehensive Plan encourages reduction of inappropriate development in known flood risk areas</p>	✓

Criteria Review (Z-17-0001)*

4) The subject property is an appropriate site for the map amendment, and is a reasonable unit of land for such reclassification	County technical review and CHAMP quality assurance checks have prepared data suitable for submittal to FEMA Confidence exists that it is the best available flood risk data for these reaches	✓
5) The map amendment would not have a material adverse effect on the surrounding area	Appropriate regulation of development within identified flood hazard areas will benefit surrounding areas	✓
7) The map amendment will not have a material adverse effect on community capital improvement programs	Appropriate regulation of development within identified flood hazard areas will benefit community capital improvement programs	✓
8) The map amendment will not require a level of community facilities and services greater than that which is available	Map adoption informs residents and visitors of known flood hazards, resulting in a more resilient community & better use of resources	✓
13) The map amendment will not otherwise be detrimental to the health, safety, or welfare of the present or future inhabitants of Boulder County	Adopting best available data benefits health, safety, and welfare by improving long-term planning and resiliency efforts	✓

* Criteria 6, 9, 10, 11, 12 found not applicable

Summary of Proposed Text Amendments (DC-17-0001)

- Proposed changes focus on clarifying existing processes for adopting floodplain data
- Additional changes to Article 4-400 were made to best protect residents and visitors in the event of a future flood event

Change Number	Code Major Section No.	Minor Section No.	Description of Change	Explain why this change is necessary
1	4-402	(F)(2)	Last sentence should read "...or the County Engineer has determined that a FDP is NOT required."	The unintentional omission of the word 'not' from the October 2016 code adoption changed the meaning of this subsection.
2	4-403	(A)(2)(c)	Removed initial from 'The following reports, maps...constitutes the initial location...'. Also, added language on periodic adoption of new flood hazard information. Removed mention of Love, 1992 study of the North and Main St Vrain as defining the Boulder County Floodplain. Removed (ii) 'Any area included in the definition of Floodway per Section 4-414.'	These changes are necessary to allow for updates to the FO District through zoning map adoption to occur without the need for a code text amendment. Also reflects the proposed changes to the Section 4-414 Floodway definition whereby the definition is considerably shorter than previously and does not on its own define areas as Boulder County Floodway.
3	4-403	(A)(2)(d)	Removed ', as well as any areas described in the Floodway definition.'	To reflect the proposed changes to the Section 4-414 Floodway definition whereby the definition does not on its own define areas as Boulder County Floodway.
4	4-403	(C)(1)	Removed previously from 'The County Engineer shall determine which uses, parcels, structures, or other facilities are located in an previously adopted FEMA Floodplain or a Boulder County Floodplain ...'	Clarification.
5	4-403	(C)(5)	Changed 'boundary lies' to 'boundaries lie', clarified 'Engineer' means 'County Engineer'	The first change clarifies that interpretation can apply to all boundaries within the FO District (including Floodway); not just the FO District boundary itself. The second change was to correct an omission of the word County in 'County Engineer'.
6	4-403	(D)(3)	This section deleted.	This section repeats information already contained within Boulder County Land Use Code Section 4-1100 and 44CFR70.3.
7	4-403	(D)(5)(a)	Added relocated language on revision/amendment of existing Floodway delineations from the existing Floodway definition in Section 4-414.	The addition of this language is necessary to refer people that wish to revise the FO District where a Floodway exists to the modeling section 4-404.2(E) and to the appropriate Floodway surcharge criteria, as-applicable. This language has same effect as similar currently existing language in 4-414 Definitions.
8	4-404	(A)	Language added to clarify that A only applies to development projects that are allowed in the floodway.	Existing language was misleading.
9	4-404	(B)	Insert portion of Floodway definition here. Also, 'The following activities and uses are prohibited within all mapped floodways'	Distribution of portions of the Floodway definition throughout the code (in this case, to 404 where it describes the Floodway). Also, removed the word 'mapped' because floodway may be delineated by definition.
10	4-404	(B)(15)	Added 'above-ground oil and gas operations as defined in Article 12-1400' to list of prohibited uses in the Floodway.	The prohibition is already included in Article 12 but should also be included where people will look for it in Article 4-400 floodway prohibitions.
11	4-404	(C)(2)	Add reference '...that the proposed encroachment is in compliance with the provisions of 4-404.2(E).'	Reference made to modeling section. Also previously existing language describing need for CLOMR, LOMR, and local floodway review has been relocated from this section to 4-404.2(E)(4).
12	4-404	(C)(3)	Add language concerning development within areas of ineffective flow in Floodway areas above 6,000 feet.	This language is necessary to direct applicants that wish to propose a use or development within the Floodway above 6,000 feet that they may only do so if they are able to demonstrate that areas of ineffective flow (low velocity and therefore not likely a Floodway-type hazard) exist.
13	4-404.1	(A)	Replace floodplain with FO district as follows: '...certain limited uses and activities in the floodplain FO District without the need for...'	Clarification to differentiate 'Floodplain' from 'FO District'. Article 4-400 governs the FO District.
14	4-404.1	(F)	Removal of words '...to the owner'	Removal of reference 'to the owner' since there could be an agent applying on behalf of an owner, etc.
15	4-404.2	(B)(1)(d)	Moved 'adequate evidence of either direct ownership ...' from end of Section 4-404.2(B) to earlier in the Section.	It is a requirement for all individual FDPs
16	4-404.2	(B)(2)	Moved 'For projects in the floodway' up higher in Section. Removed depth x velocity procedure for delineating floodway in Plains that was not acceptable to FEMA.	Requirements for ALL floodway projects needed to be higher in the section. Per FEMA, depth x velocity procedure did not address encroachments sufficiently.
17	4-404.2	(B)(3)(g)	Add reference to a floodway analysis that is required for projects below 6,000 feet that involve proposed buildings. From existing Floodway definition.	This language is necessary to align with floodway definition and Boulder County policy, to ensure all new buildings are outside of the floodway, that any new buildings proposed in FO District areas without a floodway must first establish a floodway boundary.
18	4-404.2	(B)(3)(h)	Relocate existing language listing requirements for new development of 5 acres or 50 lots or greater from 4-404(C)(2) to section on submittal requirements for New Construction/buildings.	This item does not fit in it's current location; a better fit exists in 4-404.2(B)(3)
19	4-404.2	(B)(4)(c)	Change to 'Documentation, including hydraulic modeling, that addresses scour...'	Change is necessary to emphasize that, per Boulder County Storm Drainage Criteria Manual, hydraulic modeling is required in order to properly size and design water crossings.
20	4-404.2	(E)	Changed 'procedures for modeling development in the floodway' to 'procedures for modeling development within the FO District'.	This section also talks about modeling requirements for projects that do not have a floodway.
21	4-404.2	(E)(1)	Edited introductory language - about modeling procedures - for clarification. Intent unchanged.	Language change clarifies that this section on modeling applies to floodway areas as well as areas that may not have a floodway identified.
22	4-404.2	(E)(2)(b)	In 4-404.2(E)(2)(b), add language on updating flood discharges (taken from existing 4-404.2(E)(2)(e) and re-worded).	This change provides clarification on the application of updated flood discharges to new modeling for a proposed project.
23	4-404.2	(E)(2)(b)	Remove language '...by measuring from the effective FIRM...'	Remove reference to the effective FIRM as there may be times where the Boulder County flood hazard information is used, or another study. This is a FEMA standard language remnant
24	4-404.2	(E)(2)(d)	These results must demonstrate no impact to the 100-year water surface elevations...	Removed from this section and redistributed as 4-404.2(E)(4) in order to provide clarity on procedures
25	4-404.2	(E)(3)	Insert reworded portion of Floodway definition here.	This language has been removed from the current Floodway definition and moved to a more pertinent location, where Floodway modeling is discussed.
26	4-404.2	(E)(4)	Portions of existing subsection 4-404(C)(2) - relocate to 4-404.2(E) and redistribute in other sections as well. Also, reworded to describe more simply when CLOMRs, LOMRs, and local floodway reviews are required.	This language has been moved to a more proper location (the modeling section) and the logic statements have been simplified for the user. No updates to requirements have been made.
27	4-404.2	(E)(4)(d)	Reworded and added language to 'In all instances, no increases in water surface elevation will be allowed that impact an insurable building' to become 'Any increase in water surface elevations that are a direct result of a man-made development project and that impact an insurable building will not be allowed.'	Reworded this item and moved from 4-404(C)(2)(g). Language added to clarify that natural changes within the watershed may cause increases on insurable structures and this would be acceptable.
28	4-404.2	(E)(5)	Added from 4-404(C)(2).	Language moved to a more proper location. Same as above.
29	4-405	(A)(1)	In areas depicted as Zone AE and AH in the FO District...	Language updated to include all possible A zones.
30	4-405	(A)(2)(c)(i)	For buildings, the FPE will be 3 feet above the highest grade within the proposed building footprint, or the highest grade adjacent to the exterior of the existing building, unless the applicant supplies information sufficient to determine a BFE and subsequent FPE for the building, including data submitted as a part of identifying the Floodway boundary pursuant to the Floodway definition in 4-414.	Revised because distribution of Floodway definition makes the stricken clause unnecessary.
31	4-405	(G)(2)(a)	Reworded to clarify less strict regulation of OWTS in flood fringe/other floodplain areas.	Provide clarity to strict prohibition of OWTS in the Floodway and less-strict in the flood fringe.
32	4-405	(G)(3)(b)(i)	Edited to remove clause : Tanks that are installed within the Boulder County or FEMA 500-year floodplain should be anchored to protect against uplift from high groundwater. Where the 500-year floodplain is not shown, the anchoring requirement will apply if the lowest elevation of the tank is at or below the 100-year base flood elevation adjacent to the tank location.	Clause applied to area outside the FO district. Removed because this requirement applied to areas outside FO district.
33	4-405	(G)(4)(b)(ii)(b)	Added 'or below-', 'Whether there is room for an at or below-grade recirculating sand filter...'	To clarify that below grade is acceptable in addition to at grade.
34	4-413	(B)(3)	Added FPE : "...results in a higher BFE/FPE such that..."	It's necessary to add FPE because in some instances, a Base Flood Elevation will not be used but a flood depth will (Zone AO), which has an associated FPE.
35	4-414	Definitions	Existing floodway definition distributed throughout code rather than left in definitions.	Floodway definition has been updated to simply definition and to redistribute additional Floodway criteria throughout pertinent sections of 4-400.

Exhibit E1

Select Proposed Code Changes

4-414 Definitions - Floodway	Floodway. Those portions of the FO District required for the passage or conveyance of the base flood <u>1% annual-chance (100-year) flood</u> in which waters will flow at significant depths or with significant velocities, including the channel of a river or other watercourse and any adjacent floodplain areas that must be kept free of development and other encroachments <u>in order to protect the health and safety of the residents of and visitors to Boulder County, and to discharge the base-100-year flood without cumulatively increasing the water surface elevation more than a designated height (also called 'surcharge' and described in Section 4-404.2(E)(3)).</u>
Floodway above 6,000 ft; 4-404(C)(3)	<u>3. For Floodway areas above 6,000 feet in elevation, uses other than those described in 4-404(C)(1) above may be allowed at the discretion of the County Engineer if the proposed use or development will occur within an area of ineffective flow,</u>
Floodway above 6,000 ft; 4-404.2(E)(3)(b)	<u>3. For Floodway modeling, the following surcharge criteria apply:</u> <u>b. In the foothill canyons and mountain areas above 6,000 feet in elevation, as a result of steep channel slopes, high flow velocities, and erosive forces, and to reserve areas of active flow such that those areas are free of development and other encroachments, a 0.00-foot surcharge shall be applied to all reaches studied by detailed and approximate methods (Zone AE and Zone A).</u>

Criteria Review (DC-17-0001)

1) The existing text is in need of amendment	Text changes needed to facilitate adoption of best available floodplain mapping data which better protects the health, safety, and welfare of residents and visitors	✓
2) The amendment is not contrary to the intent and purpose of this Code	Section 4-401, Purpose, <i>'...to protect life, property, and health; to ensure the best available data is used in making development decisions; ...'</i>	✓
3) The amendment is in accordance with the Boulder County Comprehensive Plan	Natural Hazard Goal L.1: <i>'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'</i> Natural Hazards Policy NH4.01: <i>'The county should strongly discourage and strictly control land use development from locating in designated floodplains, as identified in the Boulder County Zoning Maps'</i> The Comp. Plan encourages using best available data to reduce inappropriate development in the floodplain	✓

Public Notice & Public Outreach

Z-17-0001 & DC-17-0001

Public Meeting Notices	≈200 attendees at 5 meetings 1,634 total addresses notified
Listserv Notices	3,377+ email addresses contacted
Newsletters	4 editions published 1,000+ email addresses contacted
County Website	2,700+ unique visitors to site
Interactive Web Map	4,800+ total visitors to site
Public Comments	123 compiled comments



Referral, Public Notice, & Involvement

- **County Technical Review**
- Staff provided comments received from the public to the CHAMP team
- Responses were received from CHAMP on those comments from the public that were technical in nature
- Docket-related feedback

Boulder County Response	CHAMP Response
Staff discussed the property and related questions over the phone; There is no mortgage on the structure, so he is not worried about his mapping situation	This high ground was surrounded by flooding on either sides. The 100yr storm reaches an elevation of 7758.89 ft upstream of the area and 7757.82 ft downstream of the area. According to topo, the area of concern is at an elevation of about 7758 ft. This highground would be inundated by the surrounding floodplain. There may be an opportunity for a mapping certificate once mapping is finalized.

Water surface elevation at the upstream and downstream cross sections are 7791.17 ft and 7786.22 ft, respectively. The 100yr storm does not flood the roadway in this location. The 500yr storm is at an elevation of about 7792 ft in this location. It is possible that there would be shallower flooding on the roadway in the event of a 500yr storm. The roadway is not mapped within the floodplain.

All engineering calculations are done within standard practice. 1%+ profile is a calculation of the standard deviation for the 100yr storm. This error calculation can be seen on the stream profiles.

Frequent Property Owner Question

“I don’t agree with the maps. How can I request a change?”

Boulder County Floodplain:

Zoning Map Amendment

- Property owner may request to amend the Boulder County Floodplain portion of the Floodplain Overlay District only
- Process is the same as this zoning map amendment as laid out in Article 4-1100 of the Land Use Code

FEMA Floodplain:

FEMA process to amend or revise FEMA FIRMs

- Appeals process: after preliminary FIRM is released and before FIRM is effective addressing preliminary FIRM
- Letter of Map Change (LOMC)
application to FEMA: after FIRM map is effective and includes both Letter of Map Amendment (LOMA) and Letter of Map Revision (LOMR) processes

Addressing PC Feedback

- The remapping process is complicated, confusing for property owners
- Online content should be broken down for improved comprehension

Solution:

FAQ page and content updates in progress
for June 1 effective date

Partner Support

Matthew Buddie

FEMA Region VIII Flood Insurance &
Mitigation Specialist



FEMA

Request for Authorization (Z-17-0002)

- Second phase of CHAMP study & related studies
- Authorization to analyze flood study projects for future zoning map amendments to the FO District

1. STAFF RECOMMENDS THAT THE BOARD OF COUNTY COMMISSIONERS APPROVE:

- **Docket Z-17-0001: Zoning Map Amendments to the Floodplain Overlay District and**
- **Docket DC-17-0001: Land Use Code text amendments to the floodplain regulations.**
 - Staff recommends an effective date of the new zoning map amendments and regulations of June 1, 2017

2. STAFF RECOMMENDS THAT THE BOARD OF COUNTY COMMISSIONERS AUTHORIZE STAFF TO PROCEED WITH:

- **Docket Z-17-0002: Zoning Map Amendments for CHAMP Phase II Mapping** in which the second phase of CHAMP and related flood study projects can be analyzed for proposed zoning map amendments to the Floodplain Overlay District

Boulder County Floodplain Information

Map and Code Amendments Docket Webpage:

<http://www.bouldercounty.org/property/build/pages/lucodeupdatedc170001.aspx>

Boulder County Floodplain Remapping information:

www.bocofloodplainremapping.com

Boulder County Floodplain Management Website:

www.bouldercounty.org/property/flood/pages/default.aspx

Email: floodplainmapscomment@bouldercounty.org

List includes some structures that may be gone, or will be bought out.

The structures could be garages or out-buildings, not necessarily residential structures

Grouped vs. not Grouped:

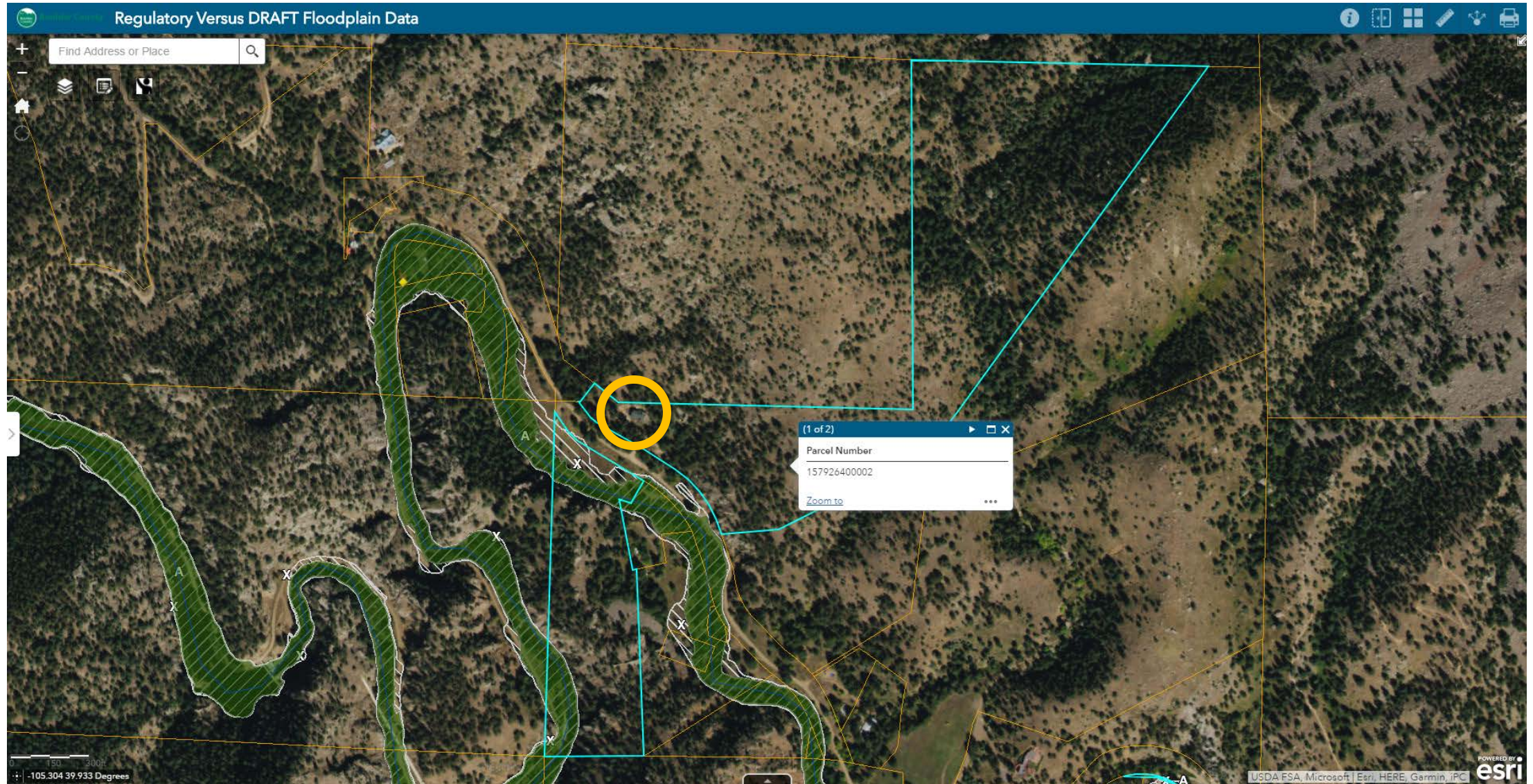
To identify locations where there were multiple structures on a single property. If, for example, there were 4 structures on a single property, the 'added' column counts that as 4 structures and the 'added grouped' column counts that as 1 structure.

Flooding Source	Added	Added Grouped	Removed	Removed Grouped
Little Thompson	13	8	0	0
West Fork Little Thompson	1	1	0	0
St. Vrain Creek	69	16	63	29
North St. Vrain Creek	19	12	25	14
Cabin Creek	1	1	0	0
Middle St. Vrain Creek	14	12	64	51
South St. Vrain Creek	17	10	10	5
Dry Creek No. 2	11	9	6	5
Boulder Creek (downstream)	47	18	25	13
Two Mile Canyon Creek	1	1	3	3
Fourmile Canyon Creek	2	1	0	0
New Dry Creek	0	0	4	4
Boulder Creek (upstream)	1	1	25	19
North Boulder Creek	20	17	0	0
Middle Boulder Creek	9	9	0	0
South Boulder Creek	11	9	0	0
Coal Creek	1	1	0	0
Rock Creek	0	0	0	0
Total	237	126	225	143

FEMA Appeals Period - explanation

- Input becomes categorized as an appeal or a comment by FEMA.
- Appeals will get an acknowledgement letter back;
- FEMA will review appeal and ask for additional information if they feel it is needed. Then will send a letter explaining whether the appeal was accepted or denied.
- Appellant will then be given information on how to go to a scientific resolution panel. The county would need to agree that this panel should happen.
- County can also weigh in on whether a community can/should request a scientific resolution panel.

850 Kneale Rd.



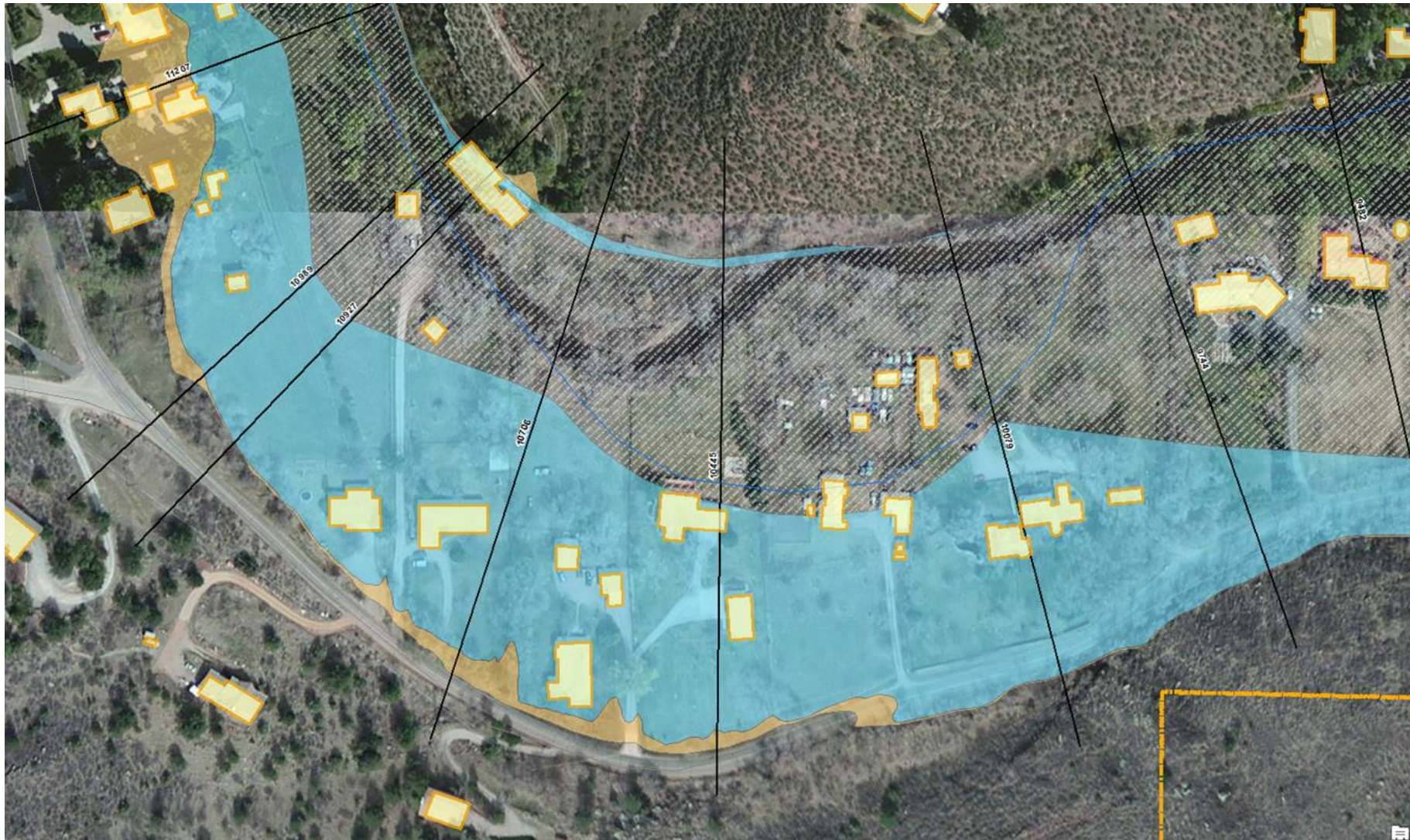
850 Kneale Rd.

- **Postcard notices sent to PO Box 235, Eldorado Springs, CO 80025:**
 - Jan. 31 public meeting: *mailed Jan. 24 (received by Jan. 28)*
 - Planning Commission hearing: *mailed April 10 (received by April 14)*
- **Attendance at public meeting(s):**
 - Margaret Blank attended Jan. 31 public meeting
- **Data has been available online since mid-January**
- **Legal requirements of public notification met with Land Use notices**

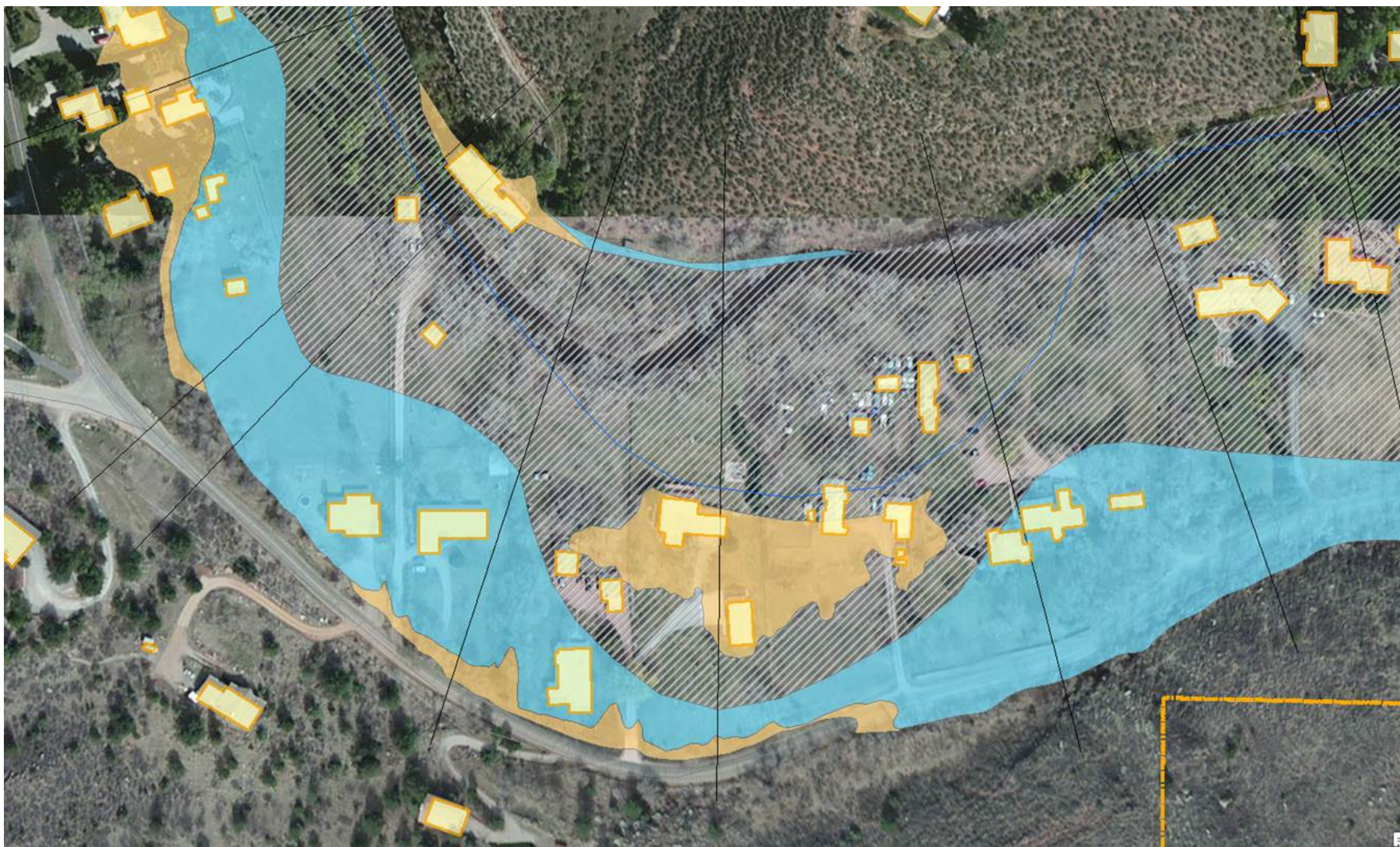
Boulder Creek upstream of Eben G. Fine. Comparison of the effective FEMA 100-yr floodplain (red/pink) and the CHAMP 100-yr floodplain & floodway (cross hatched)



North St. Vrain Creek – Apple Valley. Original CHAMP floodplain Mapping



North St. Vrain Creek – Apple Valley. Revised CHAMP floodplain Mapping



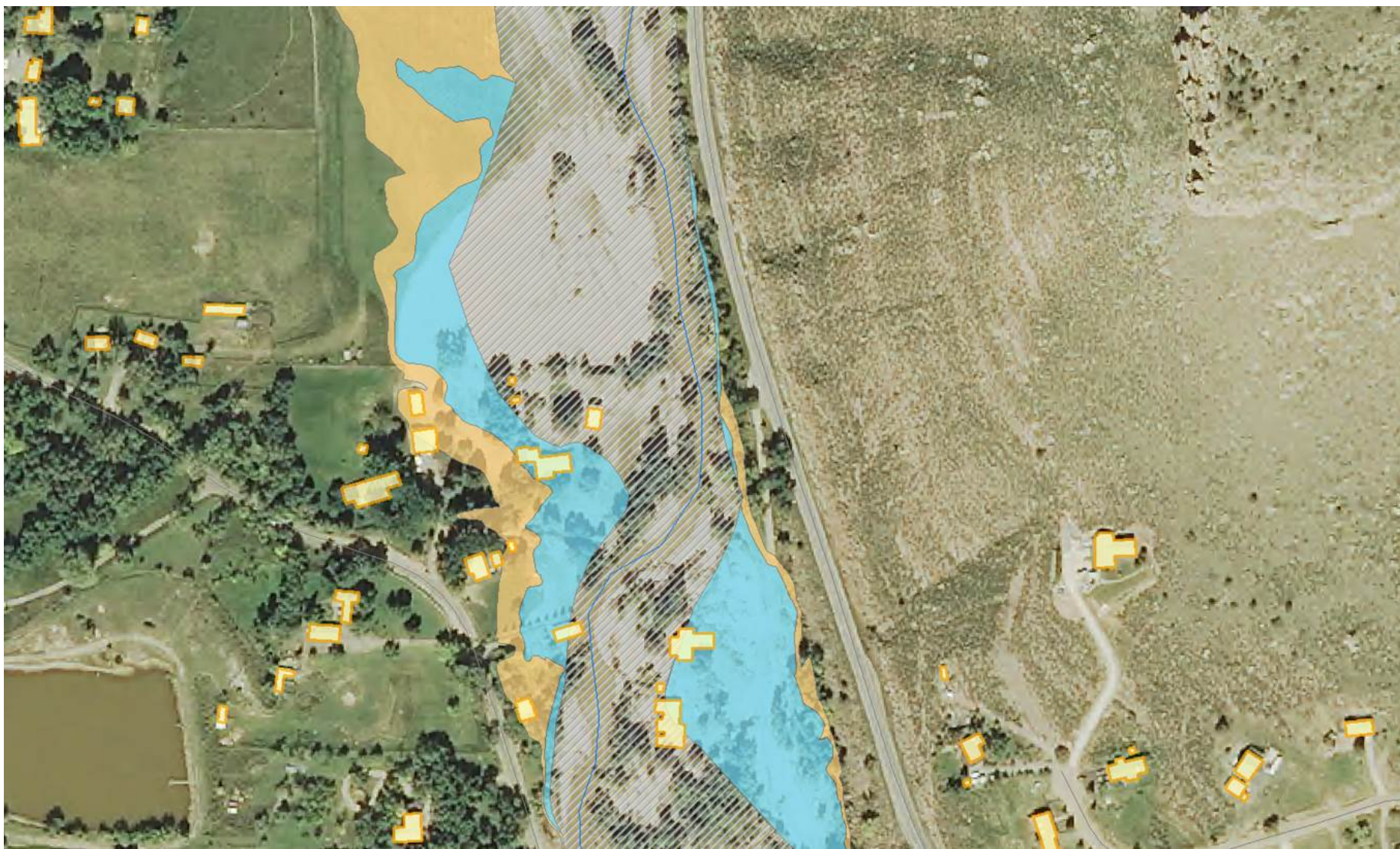
North St. Vrain – Apple Valley. Post Flood Aerial Photo



North St. Vrain Creek – Apple Valley. Original CHAMP floodplain Mapping

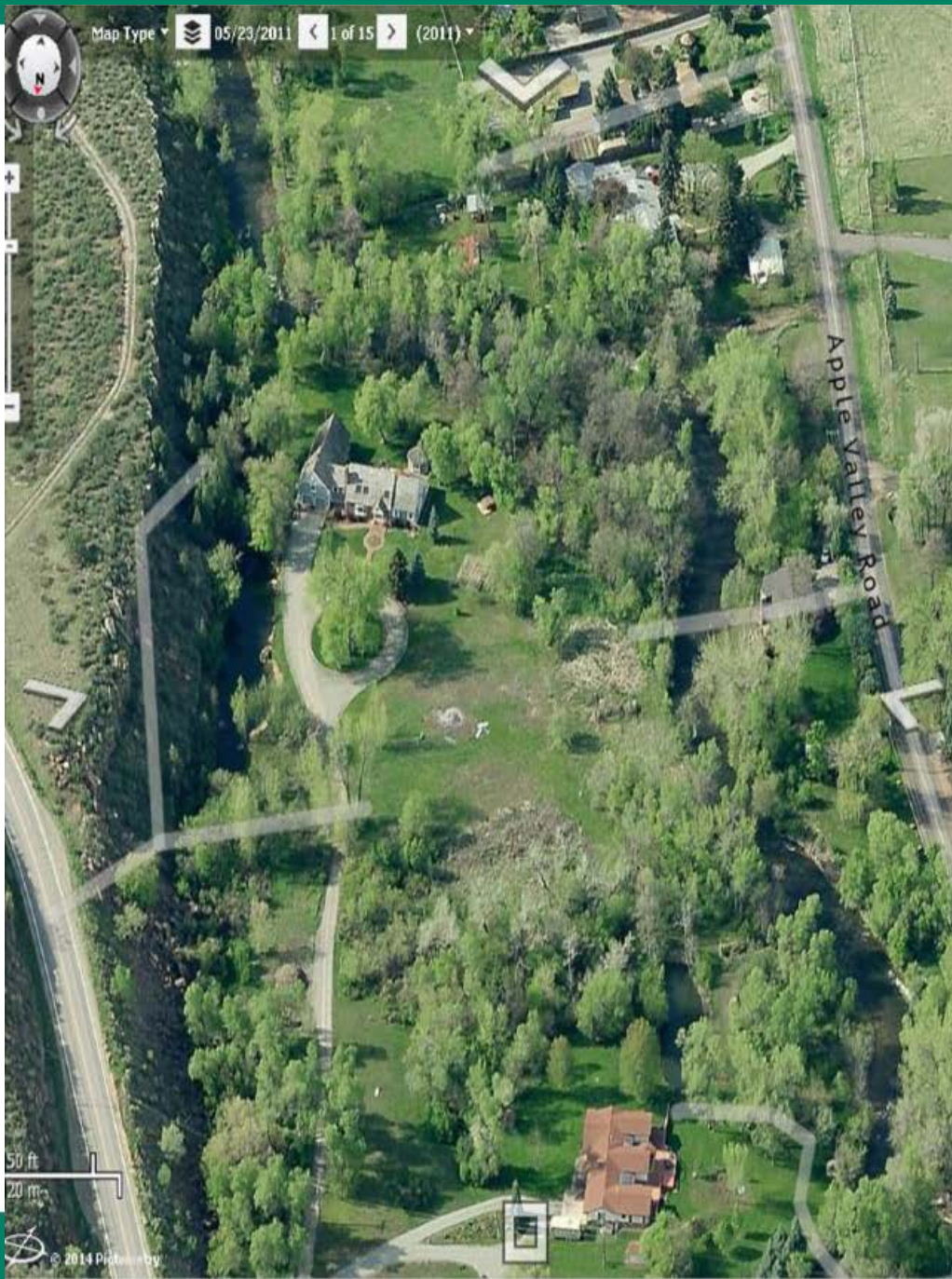


North St. Vrain Creek – Apple Valley. Revised CHAMP floodplain Mapping



Structure located in a conveyance shadow because of a ridge of high ground immediately upstream of the structure.





Anticipated Questions

- What happens when FEMA maps are effective but are narrower than current FO District?
 - Adoption of Boulder County Floodplain that is wider adds that wider area to the FO district.