COLORADO
Colorado Water Conservation Board
Department of Natural Resources

MEETING NOTES

Project Name:	Archuleta County Risk Mapping, Assessment, and Planning (Risk MAP) – Phase 2 Data Development
Meeting:	Archuleta County Phase 2 Kickoff Meeting
Date & Time:	May 31, 2024 – 1:00 – 2:30pm
Place:	Virtually (on Zoom)

MEETING ATTENDEES

- Terri Fead (CWCB Floodplain Mapping Coordinator)
- Doug Mahan CWCB (CWCB)
- Margaret Doherty (FEMA Region 8)
- Brian Campbell (State of Colorado – CDOT)
- Chris Pitcher (Town of Pagosa Springs / Southwest River Engineering)
- David Harris (Town of Pagosa Springs)
- Clifton Lee (Davis Engineering – Consultant to Town of Pagosa Springs)
- Jack Harper (Archuleta County)
- Michael Tanner (State of Colorado – CDOT)
- Mike Torres (Archuleta County)
- Owen O'Dell (Archuleta County)
- Pamela Flowers (Archuleta County)
- Sam Montoia (Archuleta County)
- Veronica Medina (Archuleta County)
- Tom McNamara (State of Colorado – DHSEM)
- Dani Halloran (AECOM)
- KC Robinson (AECOM)

MEETING PRESENTATION

- **Introduction**
  - Terri welcomed attendees and introductions took place.
- **Why Are We Here?**
  - Terri said that the purpose of this meeting is to kick off the Phase II analysis.
    - We are creating a new floodplain map for your community, and we want to work together.
    - Today we will focus on **finalizing the scope** for the study and how you can provide input throughout the process.
    - Identify areas where large changes have taken place, and potential opportunities for risk reduction.

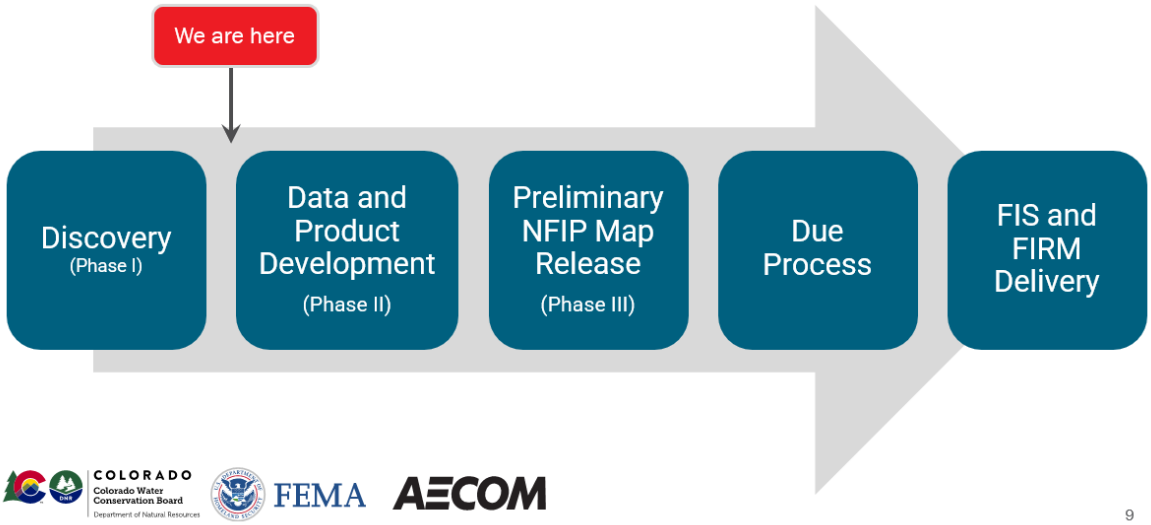
- **Expectations**
  - Terri covered the expectations of communities, stakeholders, and CWCB.
    - There is **work involved** - part of community participation in the National Flood Insurance Program (NFIP)
    - Your **agreement** is needed on process and study reaches
    - Communities will **lead outreach**, CWCB and FEMA can assist
    - Study will result in **updated flood risk**
    - There will be an **impact to property owners** when Flood Insurance Rate Maps (FIRMs) are updated (future phase)
    - **No funding** from community is necessary
    - **Data is needed now** - later may be too late. This could include ongoing LOMRs, development with plans, or recently finished construction.

National Flood Insurance Program (NFIP) and Risk Mapping, Assessment and Planning (Risk MAP) Refresher

- **What is the NFIP?**
  - Terri provided a refresher of the NFIP program. She referred to umbrella figure shown here and mentioned the overarching goals were to protect life and property which is typically done by mitigating risk.
    - The NFIP enables property owners in participating communities to buy insurance to protect themselves from losses associated with flooding.
    - Taking part in the NFIP is voluntary. This is based on an agreement between a community and the federal government: if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction, the federal government will make flood insurance available to anyone within the community. The community can also tap into additional funding/grants.

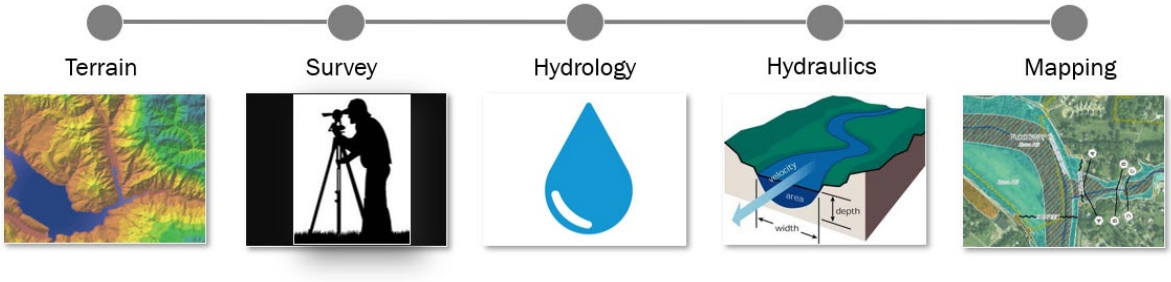
- **Risk MAP Overview**
  - Terri overviewed Risk Mapping, Assessment, and Planning (Risk MAP) and the goal to (1) Identify Risk, (2) Assess Risk, (3) Communicate Risk, and (4) Mitigate Risk
  - Risk MAP
    - Mapping – flood hazard identification
    - Assessment – risk assessment tools and products
    - Planning – community mitigation plans and actions
  - You can use Risk MAP tools and data to:
    - Communicate about flood risk to citizens.
    - Find mitigation opportunities.
    - Make informed decisions about development and ordinances.
    - Use both regulatory and non-regulatory data to reduce flood risk.

- **Risk MAP Timeline**
  - Terri went over the Risk MAP timeline and described that we are between Discovery (Phase I) and Data and Product Development (Phase II)



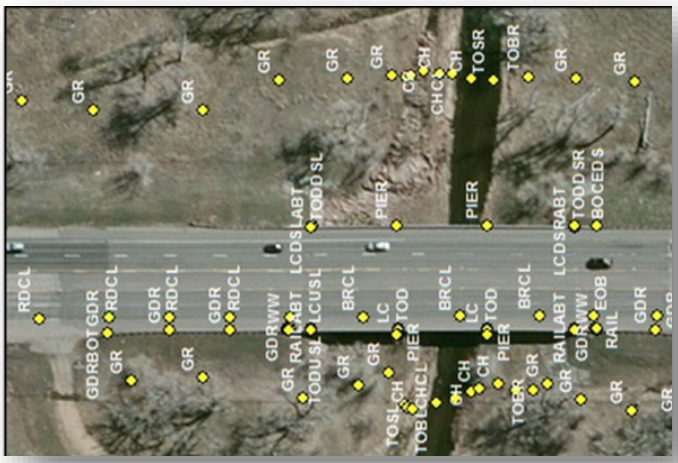
Phase 2 Scope

- **Detailed Study Methodology**
  - KC stated the five parts to the methodology:



- **Terrain**
  - KC described topographic data.
    - Virtual land surface created from Light Detection and Ranging (LiDAR) data
    - Represents a fixed point in time
    - Updated terrain data meets FEMA requirements
    - Collected in Oct 2018 to Sep 2019, published in Dec 2020
    - Additional data provided by communities can be included

- **Survey**
  - KC went over field reconnaissance and survey:
    - Field reconnaissance by engineers – single day in project area to visually assess conditions
    - Detailed survey by Professional Land Surveyor
      - All crossing structures in Zone AE reaches
      - Cross sections every ~2,500 feet in Zone AE reaches
      - Cross sections in Zone A reaches where needed



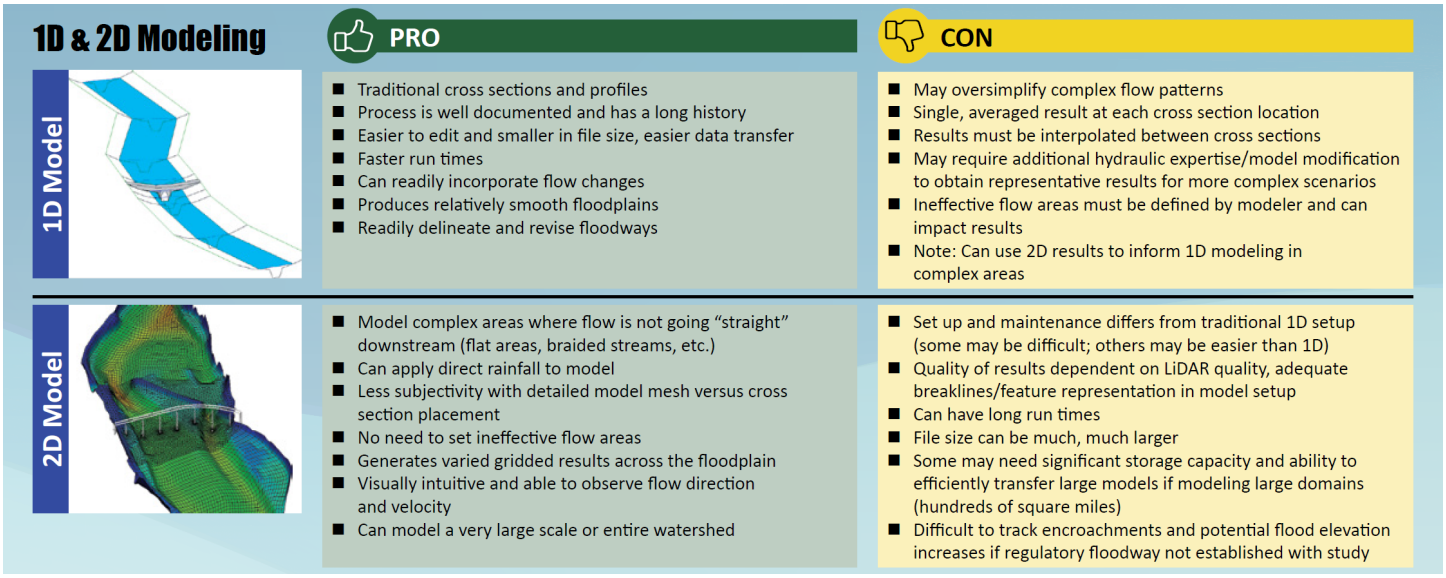
- **Survey Access**
  - KC described how surveyors will carry letters with them when in the field.
    - Access notification letters will be sent to impacted homeowners requesting contact information.
    - Surveyors attempt to call homeowner prior to visit and carry a project information letter with them.
    - Community officials are notified of survey effort. Public outreach is encouraged

- **Hydrology**
  - KC touched on the hydrology portion of the methodology. Gages, regression, and rainfall runoff rain on mesh studies would be used. These will be used to calculate multiple recurrence intervals.
    - Determine how much water flows in stream during a storm event.
    - Model calibrated to real events if possible.
    - Develop discharges for 10%, 4%, 2%, 1%, 0.2%, and 1%+ storm events.
    - Gage analysis where applicable; rainfall run-off or regression analysis elsewhere.

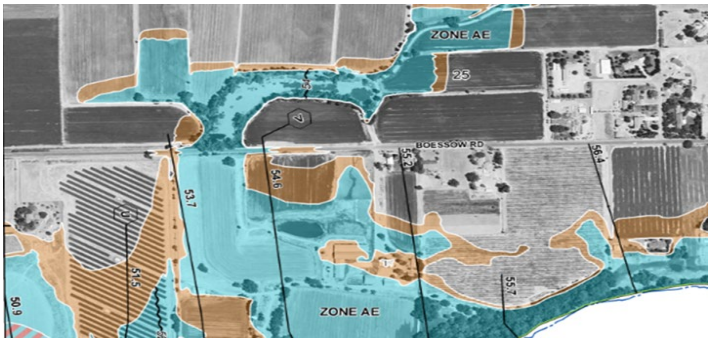
- **Hydraulics**
  - KC discussed the hydraulic approach.
    - AECOM has provided our opinion on hydraulic method

- Utilizes terrain data, survey information, and hydrologic analysis results to calculate water surface elevations.
- Detailed models (Zone AE) with Base Flood Elevations (BFEs) and floodway analysis
- Approximate models (Zone A) with advisory BFEs

  - Terri expressed that CWCB wants the products to be useful for communities and we can also provide 2D-informed 1D models.



- **Floodplain Mapping**
  - KC went over floodplain mapping process and notes that this is what will show up on the FIRMs.
    - Provides visual for hydraulic modeling results
    - 1% and 0.2% annual chance floodplains
    - Floodway for Zone AE streams recommended
    - Not yet regulatory at this point
    - Use FEMA specifications and compliant Quality Check procedures

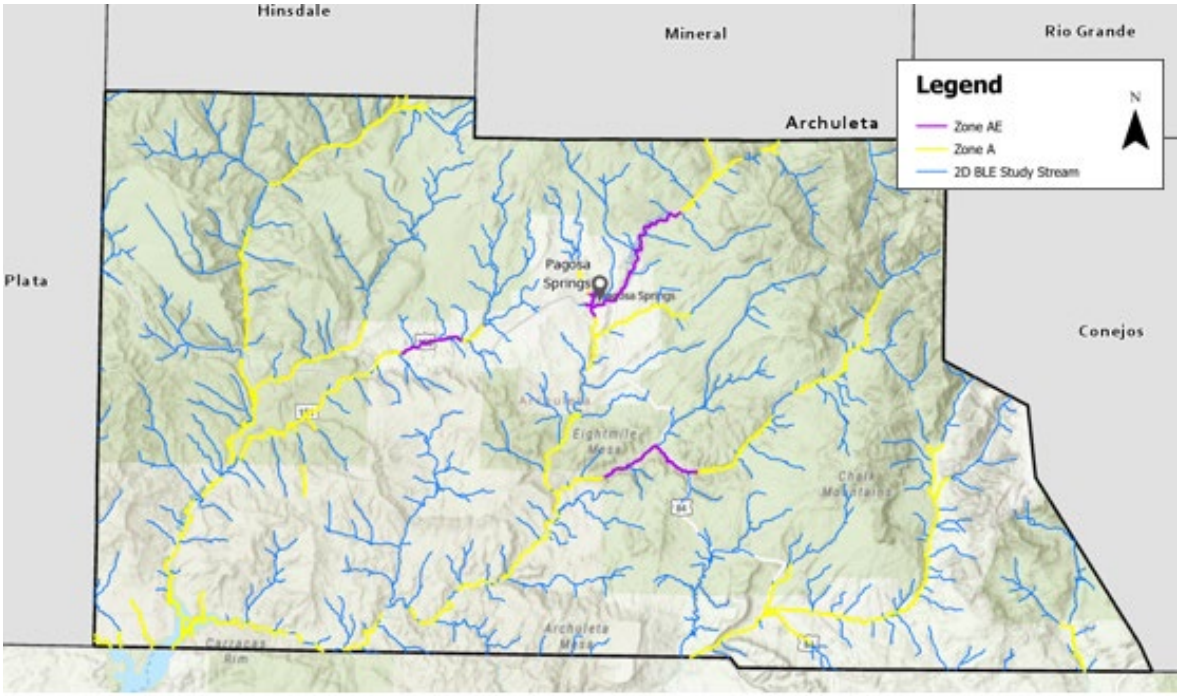


  - Sam Montoia stated the County has produced building footprints and asked if AECOM/CWCB were interested. KC responded that yes building footprints would be very helpful. Sam said that he would send a link to ArcGIS online or email separately.
  - Sam Montoia then asked if Pagosa Springs was going to be covered or is this different then the Phase I that occurred during Discovery. KC said that this was similar but different. The 2D modeling that was done for Discovery was approximate, did not include structures, is meant to be a base level analysis, and identify a lot of floodplains at a large scale. So, if anything was cut off or not fully mapped, that is why. At the time that the communities was the BLE floodplains, they were draft and not fully complete. The 2009 FIRM maps may be different than the BLE. The BLE are not regulatory and will not override anything Zone AE but can be adopted as best available. Sam says that this answers his question. KC reiterated that we aren't going to re-due all streams, we are going to select streams to analyze with enhanced methods. Terri stated that this is the information that we want to confirm today, that we are picking up the areas you want to be restudied.

- **Archuleta County Mapping Status**
  - Dani went over the effective status

- Current FIRM dated September 2009 or October 2023
- 233 miles of Zone A
- 27 miles of Zone AE

- **Base Level Engineering (BLE) Results Summary**
  - 1,235 miles of Zone A-ready floodplains were produced from the BLE process
  - Which of these should be included on FIRM as regulatory floodplains (Zone A)? i.e. convert blue streams to yellow streams?
  - Which streams require a more detailed study (Zone AE)? I.e. convert yellow streams to purple streams
  - KC then stated that the BLE streams shows are Zone A ready and do not include any surveyed structures. It is up to the communities and the county to coordinate with FEMA and CWCB if they would like anything blue converted to yellow Zone A. This meeting is to decide what streams we want studied as Zone AE.



- **Your Data Helps Make a Better Product**
  - Active or imminent construction projects
  - Map revision studies, such as a Letter of Map Revision or Conditional Letter of Map Revision (LOMRs, CLOMRs)
  - Significant terrain modification after the LiDAR acquisition date
  - Active or imminent land development
  - Elevation certificates – where a surveyor has surveyed the first floor and lowest adjacent grade.
  - Any other relevant information
  - Parcel information, political boundaries, and other GIS data.

Next Steps and Resources

- **Roles and Responsibilities**
  - Terri went over the responsibilities of Community Officials, CWCB, FEMA and Private Stakeholders. She emphasized that we want to work together to make this study worthwhile for everyone.

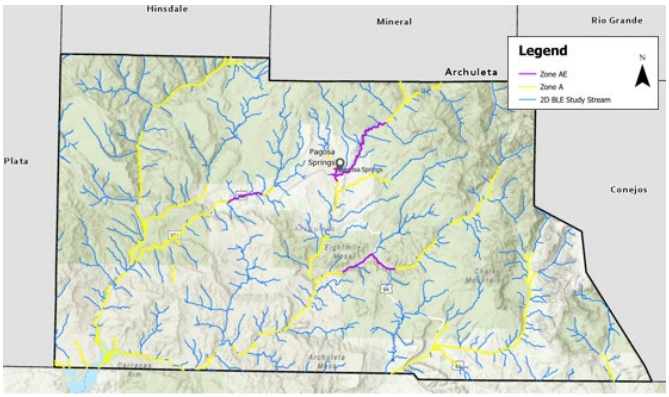
Community Officials	CWCB	FEMA	Private Stakeholders
Verify stakeholders Administer NFIP Communicate risk to community Work with State/FEMA on map study	Analyze risk Communicate project updates Communicate results Assist with outreach (optional)	Review analyses for compliance with FEMA specifications Administer the NFIP Assist with outreach (optional)	Work with community officials as needed Assist with providing relevant data

- **Meetings to Have on Your Radar**
  - Terri went through the previous and coming meetings related to this study.
    - BLE Kickoff Meeting (complete) – May 5, 2022
    - Discovery Meeting (complete) – May 27, 2022
    - Phase 2 Kickoff Meeting – today May 31, 2024
    - Upcoming Meetings
      - Flood Risk Review Meeting - spring 2025
      - Resilience Meeting – summer/fall 2025
      - Consultation Coordination Officers (CCO) and Public Meetings – summer/fall 2026

- **Resources for You**
  - Terri went through the project resources noting that we're constantly updating our outreach materials linked below.
    - CWCB Quarterly Newsletter – sent via email
    - Project Website – https://coloradohazardmapping.com/story?county=0d58eeb7-b77c-4f94-a0ae-8208fec80fd5
    - General Resources, Videos, etc. – www.coloradohazardmapping.com/generalinformation

Review of Scoped Reaches

- **Effective Stream Reaches**
  - KC refreshed our knowledge of the effective reaches
    - Yellow: Current effective Zone A streams in FEMA database – will be updated (Zone A or AE)
    - Purple: Current effective Zone AE streams in FEMA database – will be updated (Zone AE)
    - Blue: Streams *not* in FEMA database – can be mapped (Zone A or AE)



- **Detailed Reach Overview**
  - KC went over the figure/table and noted that detailed reaches were suggested based on information from communities, discovery, FEMA, and CNMS.

Recommended Reach	Mileage	Hydrologic Method	Hydraulic Method	Effective Zone
Hersch Ditch	4.2	Rainfall-Runoff/Regression	2D Unsteady	Unmapped
Martinez Creek	6.8	Rainfall-Runoff/Regression	1D Steady	A
McCabe Creek	2.6	Rainfall-Runoff/Regression	1D Steady	A
Mill Creek	7.5	Rainfall-Runoff/Regression	1D Steady	A
San Juan River	7.8	Gage Analysis	1D Steady	A
West Fork McCabe Creek	0.7	Rainfall-Runoff/Regression	1D Steady	AE
West Fork San Juan River	2.4	Rainfall-Runoff/Regression	1D Steady	A
Total	**32.0**			

- Hersch Ditch
  - No Effective Floodplain
  - 4.2 Miles
  - Runs through the Town of Pagosa Springs, an NFIP Participant
  - Series of ponds and heavily populated
  - Clifton Lee asked if the hydrology will it be based on dam failure, hydrologic event, or both. KC responded that we could potentially just have it be a hydrological event, but if there is more hazard and more risk associated with dam failure, we could have discussions with FEMA and CWCB about including this information. FEMA has specific criteria about dams and regulatory maps. Typically dam inundation is not included, so there would need to be more discussion.
  - Sam Montoia then asked how we know where the structures are. KC responded that we pick them using topography and google earth, which is a cursory analysis. During the field reconnaissance we verify and then have a surveyor go out.
  - Brian Cambell noted that on Martinez Creek there were dams that were looked at. Pagosa Area Water and Sanitation District (PAWSD) has gages that are not public and have extensive record. Brian noted that we might be able to use the data if we reach out. Reservoir release included. Many of these reservoirs are chained together. Terri asked for contact information.

- Martinez Creek
  - Effective Zone A
  - 6.8 Miles
  - Runs through the Town of Pagosa Springs, an NFIP Participant
  - Heavily populated
  - KC noted that AECOM will send either GIS shapefile or KMZ google file so people can look at these reaches and add comment

- McCabe Creek
  - Effective Zone A
  - 2.6 Miles
  - Runs through the Town of Pagosa Springs, an NFIP Participant
  - KC stated that Brian had noted this section. This is upstream of the effective Zone AE area. Brian responded yes, there is a LOMR that is still in the process in this area. The LOMR used the effective hydrology. The study found that the hydrology that was used was lower than the effective, so this structure might be undersized. KC noted that AECOM will check that we have the latest hydrology and reach out.
  - Chris Pitcher asked if the reach below this will be updated. KC noted that it is not slated to be studied right now and is assuming that the downstream portion is accurate enough to tie into. Discussion was then had regarding the hydrology and the tie in, and if that would work. KC responded that if the community would prefer to have one hydrology model and one hydraulic model, we can restudy in this effort, so they are uniform. KC mentioned that in some cases, we are limited by funds and priority. In this case, he thought that we could add it and asked communities to please let us know if they would like this reach to be included in the study.

- Mill Creek
  - Effective Zone A
  - 7.5 Miles

        - Current model is outdated, and this area is a high wildfire risk
        - KC noted that in the graphic we can see the BLE model extents are different then the effective Zone A study. This tells us that this area has seen changes.

    - San Juan River
        - Effective Zone A
        - 7.8 Miles
        - Current model is outdated
        - KC noted this was a requested reach to be updated with better data and methodologies

    - West Fork of McCabe Creek
        - Effective Zone AE with Floodway
        - 0.7 miles
        - Runs through Town of Pagosa Springs, a NFIP Participant
        - Streamline is not easily identifiable
        - Location of CDOT project
        - KC asked the group if this area had a LOMR. Brian responded no not this portion. This is a tributary to McCabe Creek, and the hydrology study noted previously (see McCabe Creek) includes this.
        - KC then noted that this does include an area with effective Zone AO and has AE, and the concern was that the mapping was not accurate.
        - Brain also noted that he found the FEMA published hydrology is not reproduceable and it has been found to be much lower. That is the main reason why it was requested for restudy. There are many culvert lining projects going on around this area.

    - West Fork of San Juan River
        - Effective Zone A
        - 2.4 miles
        - Current model is outdated, and this area is a high wildfire risk. There are areas of previous wildfire damage

- **Your Next Steps**
    - Sign Memorandum of Agreement for detailed study scope.
    - Provide data.
    - Review deliverables and respond within 30 days.
    - Confirm if draft data can be displayed on the website.
    - Terri noted that this MOA doesn't necessarily mean that you agree with the results of this analysis. The purpose of this is meeting is to agree upon which reaches will be studied and the methodology. Terri then stated that this data will be provided and that communities should feel free to red line and add streams. She said that it can't hurt to ask for more study. The worst CWCB can say is that this is an identified need, and it will be studied next time.

- **General Discussion**
    - Brain stated that when the data is sent out that CDOT will work with the communities and counties. CDOT has additional areas that they do want to be added to the study as there are unrealistic depths and mapping where the BLE was completed. KC asked if Brain has a number of areas. Brian responded a half dozen. Brian asked if the enhanced Zone AE analysis connect to the existing floodplains (EX. Stillstimer Creek) or if the areas are isolated. Do these studies just tie in? KC answered that we could add structures to the BLE model at 1 or 2 crossing and we can review the impacts and where the spots tie in. Terri added that if a Zone A model is updated with structures, it then needs to become regulatory.
    - KC noted to be on the lookout for out data as we package and send out. That will come from CWCB, and the 30 day date will start when that is sent. Please give us comments before that 30 days so that we can discuss.

- **Contact Information**

Title	Name	Email	Phone
CWCB Flood Mapping Program Manager	Terri Fead, PE, CFM	terri.fead@state.co.us	(303) 866-3441 x3230 (303) 495-0153 (cell)
CWCB Flood Mapping Program Assistant	Marta Blanco Castaño, GISP, CFM	marta.blancocastano@state.co.us	(719) 464-1199 (cell)
CWCB Community Assistance Program Coordinator	Doug Mahan, CFM	doug.mahan@state.co.us	(303) 866-3441 x3221 (303) 656-0136 (cell)
FEMA Region 8 Civil Engineer	Jamie Prochno, PE	Jamie.prochno@fema.dhs.gov	(202) 924-0516
FEMA Region 8 Senior Floodplain Specialist	Laura Stahnke, PE	laura.stahnke@fema.dhs.gov	(720) 327-9703
Consultant Project Manager	KC Robinson, PE, CFM	KC.Robinson@aecom.com	(301) 787-0151
Consultant Study Leads	Griffin Cullen, PE, CFM Dani Halloran	griffin.cullen@aecom.com dani.halloran@aecom.com	(505) 670-8682 (602) 762-1149

Meeting adjourned at approximately 2:15 PM.

These notes are an interpretation of discussions held. They intend to capture primary takeaways from the meeting, but not to thoroughly document everything discussed. Please provide any additions or corrections to the originator within 30 days; otherwise, they will be assumed correct as written.