



Meeting Summary

Meeting: Colorado Water Conservation Board (CWCB) Colorado Hazard Mapping Program (CHAMP) Phase 1 – 1st Quarterly Meeting

Date & Time: 11/06/2015, 9:00-11:00 AM MST

Place: Southwest Weld County Services Complex
4209 Weld County Road 24 ½, Longmont, CO 80504

Attendees*: CWCB, Town of Estes Park, Colorado Resiliency and Recovery Office (CRRO), Big Thompson River Restoration Coalition (BTRRC), Coal Creek Canyon Watershed Partnership, City of Loveland, City of Evans, Middle South Platte River (SPR) Alliance, Town of Berthoud, Firestone, El Paso County Regional Watershed Collaboration (EPCRWC), CH2M, Town of Milliken, Boulder County, Little Thompson Watershed Restoration Coalition (LTWRC), Fourmile Watershed Coalition (WC), Estes Valley Watershed Coalition (EVWC), Baker, City of Greeley, Town of Frederick, City of Longmont, Larimer County, and AECOM

***In order of sign-in. Sign-in sheet available on request**

Discussion topics:

- **General**
 - Ms. Thuy Patton, CWCB Floodplain Mapping Coordinator opened the meeting by introducing herself and Ms. Stephanie DiBetitto, CWCB Hazard Mapping Specialist. She stated that the meeting's purpose was to provide an update on Phase 1 of the flood hazard mapping for the Colorado Hazard Mapping Project (CHAMP). She then asked all attendees to introduce themselves. Ms. DiBetitto resumed the presentation and discussed the format of the meeting to include an overview of the purpose and scope of the CHAMP. She also indicated that some follow-up was needed from the last meeting related to the Memorandums of Agreement (MOAs) on study scope and methodology that had been distributed for review and signature by community leaders. She indicated that there are several that still need signatures. Copies of the MOAs still needing signatures were available at the meeting.
- **Colorado Hazard Mapping Project Presentation**
 - Mr. Remmet deGroot, AECOM Project Manager described the scoped study streams using the four maps that were provided as handouts for the meeting.
 - Streams shown as scoped for survey in 2015 vs. 2016. These were determined from community feedback and are largely driven by the timing of reconstruction efforts.
 - Other relevant community notations are included on each map
 - Intention is to collaboratively work with other efforts in each of the watersheds and leverage data where possible.



Meeting Summary

- Resulting floodplains will eventually be included in a regulatory flood insurance map update.
- Mr. Rigel Rucker, AECOM Project Engineer, provided an overview of the project status.
 - 2015 survey is completed. AECOM is currently compiling and reviewing data.
 - Survey on “Held” streams will begin in Fall 2016
 - Topography:
 - 2014 USACE LiDAR is being used in areas where this dataset is available. Post-flood 2013 USGS LiDAR is being used in all other areas
 - Some additional community collected LiDAR data is available
 - LiDAR being collected in Loveland as part of the project
 - Field Reconnaissance:
 - Over 1,300 locations visited, 1,090 locations recommended for survey over both years of analysis.
 - Comprehensive field observations and photographs were collected. Field notes and photo logs can be shared upon request.
 - All locations have been identified on the large format map exhibits set available for review at the back of the room after the meeting. All information can be distributed once final.
 - Locations in disrepair are surveyed “as is” in year they are surveyed.
 - Survey:
 - 403 structures and 208 cross-sections were surveyed in 2015. All data is being compiled and can be distributed after quality reviews, if requested.
 - Encountered several access issues – will use recon data if available, otherwise coordinating with jurisdiction to see if additional information is available. Detailed structure information is required to conduct an enhanced study and eventually delineate a Zone AE floodplain with Base Flood Elevations.
 - Hydrology:
 - Leveraging joint CWCB/CDOT Phase I & II studies for a larger portion of the study streams.
 - In some areas additional information is needed, so models may be revised, or new models will be created to obtain the necessary hydrology information.
 - Additional coordination is still needed with some entities and the Urban Drainage and Flood Control District to determine appropriate flows/studies to use.
 - Preliminary hydrology values were displayed on large format exhibits at back of room towards the end of the meeting for coordination and discussion purposes.
 - Will await Estes Park hydrology before continuing with establishing hydraulic models at that location.
 - The 10-, 4-, 2-, 1-, 1%+, and 0.2% return periods for all studied streams will be used/estimated.



Meeting Summary

- The 1%+ return period is a new FEMA standard to illustrate the upper bound of the 1% annual chance flood event for flood risk purposes. The flow value is taken as the upper 84th percentile of the bell curve representing the statistical uncertainty of the 1% annual chance flood estimate, similar to a factor of safety. The value is not mapped, but will be available for use.
- Hydraulics
 - Started cross section placement and assigning Manning's values for channel and overbank areas
 - Hydraulic analysis on "Held" streams to begin late 2016/early 2017
 - Correcting LiDAR derived channel cross sections with survey data
- Ms. Patton then discussed project communication and outreach
 - CHAMP is a State funded project being produced in compliance with FEMA's standards for flood hazard mapping. The end goal is to submit to FEMA for regulatory approval and to establish an updated Flood Insurance Study for NFIP management purposes.
 - Ongoing communication between project team and communities will continue via meetings, newsletters, phone calls, website, etc.
 - The preferred method for coordinating community reviews is through the local Floodplain Administrators, consistent with the typical Risk MAP study process. This will provide for comments to be collected through single points of contact for each community.
 - Some additional, individual meetings will be held to facilitate selecting the appropriate hydrology values.
 - There are a number of other ongoing efforts/projects that could be coordinated with the CHAMP project. Residents and others have mentioned ongoing efforts by NRCS and others. **All attendees were asked to provide information if aware of ongoing concurrent efforts.**
 - Flood Risk Review meetings will occur in Fall 2016. Work maps will be presented with draft flood hazard data. Incorporation of the revised flood hazard mapping into future Flood Insurance Rate Map (FIRM) updates is not currently funded. However, it is anticipated that another project will be funded later to incorporate the new flood hazard data on new FIRMs.
 - There is no formal public appeal period or review for this Phase 1 project because regulatory FIRM maps are not being produced during this phase.
 - CWCB can still assist with public outreach by equipping communities with information, and any tools that they may request.
 - Communication outreach strategies need to be community-led, as it is more effective than federal or state representatives presenting directly to homeowners. CWCB can work with communities if messaging, documents, or other information is needed.



Meeting Summary

- The next in-person quarterly update meeting is tentatively scheduled for February 10 or 11, 2016.
- Ms. DiBettito then described the website which will be used to disseminate information. She highlighted:
 - Website is located at www.ColoradoHazardMapping.com
 - Phase 1 link will have the information for this project
 - The home page has a news feed of new information on the site.
 - The map can be clicked to see additional layers and information that can be toggled.
 - The events tab has information on upcoming and previous meetings
 - There are also “Contact Us” and “Feedback” tabs that can be used to find project contact information and submit questions or feedback.
 - Meeting materials for this meeting will be posted in the coming weeks.
- **Q&A at End of Presentation**

The meeting was subsequently opened up for questions of general interest to all parties. The project team answered questions.

 - Question about outreach: It is understood that the State will make information available to community leaders, but will public have an opportunity to review the results?
 - While this floodplain study type of project is typically FEMA led; CHAMP is a State-funded project.
 - Under FEMA’s typical process, public reviews don’t usually occur until preliminary maps are released by FEMA
 - CWCB works with communities beforehand, but the public is not involved in those reviews. Each community could work with the public to view information as desired and CWCB can provide information to help inform this coordination.
 - The public and communities will have another opportunity to review data when maps enter the official FIRM update process. After preliminary maps have been developed, two public notices will be issued initiating a 90-day appeal process; an appeal is considered only if it is supported by technical data (e.g., survey data or topography or engineering analysis).
 - Typically there are no other public review opportunities during floodplain study projects. However, some communities have initiated and successfully hosted public open houses with support from the State and/or FEMA.
 - Ms. Varda Blum, Boulder County Floodplain Program Manager, asked for more information about the St. Vrain Risk MAP project, as she has received several telephone inquiries from the public regarding that area.
 - The project is FEMA-funded through completion of floodplain work maps. A follow-on task to update the FIRMs is expected at some future time, but is not currently funded.
 - Timing and process should be similar to CHAMP and models will tie-in
 - The current plan is to use the results for both studies to complete a single FIRM update for Boulder County, rather than separate updates.
 - Mr. Dave Lindsay, Town Engineer for the City of Firestone stated that a development project in Firestone along St. Vrain Creek is under construction. The developer submitted a CLOMR



Meeting Summary

- in 2007 and is planning to submit a LOMR in 2016. Mr. Lindsay requested that the flow rates selected for use on St. Vrain Creek be provided to Firestone so that the LOMR model will include new flows.
- Once finalized, the selected flow rates, along with associated spatial data can be provided. The preliminary 1% annual chance flows are shown on the exhibits at the back of the room. Additionally, the CDOT hydrology study for the St. Vrain Creek that is being used is available from CWCB's website.
 - Mr. Jerry Cordova from the El Paso County Regional Watershed Coalition asked about contours being spaced 2,000 to 3,000 feet where no structures are present. It was clarified that it was surveyed cross sections that were being spaced at that interval. Cross sections were placed at hydraulic structures crossing the streams being studied. If the structures were over 2,000 to 3,000 feet apart, an attempt was made to get additional cross sections surveyed. Additional topo cross sections were also being placed with a target spacing of 500 feet. Topo being used is high accuracy LiDAR.
 - What LiDAR datasets will be available or used that are more recent than the USACE 2014 data?
 - Some small areas provided by communities are being used. **AECOM will add the extents of the additional LiDAR subsets to the interactive map on the CHAMP website.**
 - Ms. Tina Kurtz from the Town of Estes Park stated that the downtown area is at huge risk. The Town is currently working on mitigation/recovery efforts. Will there be time to incorporate some of those projects in the study?
 - We are waiting until Fall 2016 to do survey in Estes Park. The project team can coordinate with the Town in Summer 2016 to determine what can be included.
 - The Fall 2014 LiDAR is being used, so data outside of the surveyed area will still reflect that topography. If additional survey or topographic information is available, the community should coordinate with the project team to see if it can be incorporated.
 - Estes Park would like to hold the study as long as possible to wait for additional projects to be completed.
 - Mr. Chad Reischl from the City of Evans asked about another study that is underway on the South Platte River downstream of Evans. They heard about another effort and were wondering if there was overlap.
 - Mr. Kevin Houck, CWCB Section Chief, clarified that hydrology is being evaluated along that reach of the South Platte River; similar to what has already been completed in the Phase 1 area. There will likely be a follow-up study similar to or as part of Phase 1 in that location to evaluate hydraulics and floodplain extents.
 - How can changes to streams/structures be incorporated post-survey?
 - The project team would like to receive any information communities may have on projects on the initial streams by early 2016. Additional information such as survey is helpful to develop an improved model resulting in a more realistic floodplain.
 - The Project Team cannot wait until all recovery projects are finished because it will take a few years and part of the impetus behind conducting the floodplain mapping

project is so communities have a baseline for floodplain management and rebuilding decisions. There is a balance between waiting until enough projects are complete that the floodplain is accurate; and not waiting until all projects are completed which could make it so that studies are never available for use in a timely manner.

- Subsequent projects and studies that may alter the floodplain that cannot be incorporated in the CHAMP will need to be submitted to FEMA via the LOMR process.
- CDOT is looking at sediment transport near US-34; does FEMA require that analysis?
 - FEMA does consider sediment transport on occasion, but does not require as part of a regulatory floodplain study process.
 - Some of the CHAMP field recon data (and soon survey data) can be provided to CDOT for the sediment transport analyses
 - Lots of changes in BFEs and floodplains are the result of geomorphologic changes along the stream. Will the CHAMP study evaluate this?
 - FEMA's criteria for floodplain modeling assumes constant channel properties and clear water flow (no debris) due to modeling constraints and the need to have consistent analysis across many types of riverine systems. In reality, we know that streams will change with time especially during a flood.
 - CWCB is currently looking at the potential for erosion zone and debris flow mapping
 - Ms. Jamie Prochno, CWCB Community Assistance Program Coordinator explained that erosion is a related hazard but a separate process to analyze. CWCB is currently establishing standards and a process that can be used.
 - A few pilot studies will be commencing soon if any communities are interested in participating.
 - There is also a plan to post draft standards for erosion hazard and debris flow mapping on www.coloradohazardmapping.com in the next few weeks
 - The debris flow mapping project will be managed by Matt Morgan from the Colorado Geologic Survey.
 - Ms. Prochno indicated that she does not anticipate that there to be a resulting state mandate requiring erosion hazard or debris flow analysis. The State will provide guidance to communities on how they can adopt a program. There are no plans for it to be regulatory.

- **Individual Discussions with Communities**

The project team indicated that they would be available for additional discussions. Exhibits showing preliminary hydrology and survey results were also available for review. Below is a summary of documented discussion items.

- Mr. Dave Lindsay, Town Engineer for the City of Firestone followed-up with more information on the development project along St. Vrain Creek. A LOMR is expected, and the community would like to use the updated flood flows shown on the exhibits to see what effect it has on models. **Firestone will also provide a copy of the model to the project team.**



Meeting Summary

- CH2M has an Existing Conditions model along St. Vrain Creek from the upstream end of Longmont to the confluence with Boulder Creek. The community is replacing crossings at Main Street, Sunset Street, South Platte Parkway, and performing channel work near the railroad. **CH2M will provide the model to the project team to include newly acquired topo in the area.** It will be submitted to FEMA as an Existing Conditions CLOMR. **Any revisions based on FEMA's review should also be coordinated with the project team.**
- There is a pre-flood LOMR for Left Hand Creek within Longmont. This model has been revised after the flood. **Longmont will provide the model to the project team for review.**
- **Boulder County requested that Reach SV-14b (James Creek) be added back to the study scope as base level until the upstream extent of private lands. The County also requested that Reach SV-8b be removed and Reach SV-8a be extended upstream slightly until the extent of private lands.** The County is also interested in running post flood Atkins models with new hydrology along Middle St. Vrain and South St. Vrain Creeks. **The County would like to obtain a shapefile of all the structures/locations visited during field recon, and the associated recon notes and photos for all of Boulder County. They are also interested in obtaining a table comparing the flows by segment. Finally, Ms. Blum indicated that she has a list of comments and questions to provide to the project team and that she would like the coordination memo revised to incorporate the comments in the list before it can be signed.**
- **Larimer County indicated they can provide recent LiDAR flown by helicopter in Glen Haven.** They also recently completed \$16M of roadwork along Buckhorn Creek and **may be able to provide as-builts for us to incorporate at the base-level study. Similarly, they are reconstructing/designing crossings for Redstone Creek and can provide hydraulic info.**
- City of Loveland prefers to use hydrology values from 2002 Dry Creek study instead of CDOT/CWCB hydrology based on history.
- There is a new project on Railroad Avenue with construction beginning in Fall 2016 that will construct an additional bridge along the Big Thompson just west of Highway 287. This will be coordinated in the SRH2D model from Loveland.
- It is still anticipated that the SRH2D model will be on FEMA's approved models list by the end of the year.
- **Meeting adjourned at 11:00 AM**
- **Action items are included in bold in this document**

These notes are an interpretation of discussions held. Please provide any additions or corrections to the originator within 5 days of the date signed; otherwise they will be assumed correct as written.