



COLORADO

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Conservation Board**

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TO: Colorado Water Conservation Board Members

FROM: Kevin Houck, P.E., Chief
Watershed and Flood Protection Section

DATE: March 8, 2017

AGENDA ITEM: Agenda Item 9, Floodplain Designation

Background: Agenda Item 9 includes one new floodplain study that is proposed for CWCB action. Staff is requesting Board designation and approval for this item. A brief summary of the study and additional supporting information is presented in the attached document.

CWCB staff performs technical reviews of floodplain information to assure the Board that the information is in compliance with the requirements of the CWCB's "Rules and Regulations for Regulatory Floodplains in Colorado," 2 CCR 408-1. A further discussion of legislative authority and responsibilities delegated to the CWCB is provided in the attached document. The CWCB's designation and approval process greatly assists local communities in meeting the statutory requirements of the State and the regulatory requirements of the National Flood Insurance Program.

Ultimately, the goal of the updated study relates to flood damage prevention and reduction of vulnerability to property damages and loss of life through accurate conveyance of flood risk information. As with all designation requests, and in conformance with statutes, this is solely a scientific study for public health, safety, and welfare considerations and does not account for political or economic factors.

Please note that traditionally, floodplain designations are presented to the board on the consent agenda. However, because this item is much more visible and potentially more controversial than usual, staff has decided to present this as an agenda item.

Requested Action for Floodplain Resolution 17-668: Staff recommends that the Board: 1) designate and approve the 100-year and 500-year hydrologic information contained in said report for Fall River, Big Thompson River, Black Canyon Creek, and Dry Gulch within the Town of Estes Park and Larimer County, and 2) authorize staff to prepare a floodplain resolution to be signed by the Director and transmitted to the Town of Estes Park, Larimer County, and FEMA. This action is recommended in order to meet statutory requirements.



Attachment - Supporting Information

Agenda Item 9 - Floodplain Designation March 2017

Summary

Agenda Item 9 includes one floodplain study/map that is proposed for CWCB action. Staff is requesting Board designation and approval for this item. A brief summary of the study is presented below.

CWCB staff performs technical reviews of floodplain information to assure the Board that the information is in compliance with the requirements of the CWCB's "Rules and Regulations for Regulatory Floodplains in Colorado," 2 CCR 408-1. Furthermore, Sections 31-23-301 and 30-28-111, Colorado Revised Statutes, state that legislative bodies of local jurisdictions may provide zoning regulations for land uses on or along any storm or floodwater runoff channel or basin only after designation and approval by the CWCB. In addition, Section 37-60-106(1)(c), Colorado Revised Statutes, directs the CWCB to designate and approve storm or floodwater runoff channels or basins and to make such designations available to legislative bodies of local jurisdictions.

The CWCB's designation and approvals greatly assist local communities in meeting the statutory requirements of the State and the regulatory requirements of the National Flood Insurance Program. Floodplain information is broadly categorized as detailed or approximate using the following definitions. Detailed floodplain information means floodplain information prepared using topographic base maps, hydrologic analyses, and hydraulic calculations to arrive at precise water surface profiles and floodplain delineations suitable for making land use decisions under statutorily authorized zoning powers. Approximate floodplain information means floodplain information prepared using a significantly reduced level of detail to arrive at floodplain (hazard delineation) without water surface profiles.

CWCB staff performs technical reviews on the following types of reports and maps for approval and designation by the Board:

- ☐ "Flood Insurance Study" (FIS), which is produced by the Federal Emergency Management Agency (FEMA) and used for floodplain management, regulation, and insurance purposes.
- ☐ "Flood Insurance Rate Map" (FIRM), which is produced by FEMA and used for floodplain management, regulation, and insurance purposes. A FIRM may be published with or without an associated hydrologic and hydraulic report.
- ☐ "Flood Hazard Boundary Map" (FHBM), which was produced by the Federal Insurance Administration and are used for floodplain management, regulation, and insurance purposes. An FHBM usually depicts approximate floodplain boundaries only, and does not have an accompanying report. Note: For all FHBM designations, the CWCB staff will perform (in-house or by contract with a consultant) hydrologic analyses.
- ☐ "Floodplain Information Report", which is produced by local governments, state and federal agencies, special districts, or the private sector, and are used for floodplain



management purposes and sometimes adopted by FEMA for use in Flood Insurance Rate Map revisions.

☐ Various hydrology studies and related floodplain studies (communitywide or site specific) that depict 100-year floodplain information that is useful for floodplain management purposes.

☐ "Floodplain Information" is a generic term used to describe any of the above types of reports and/or maps in the CWCB's "rules and regulations..."

☐ "Floodplain Resolution" is a formal document prepared by CWCB staff describing the Floodplain Information that is to be designated and approved by the Board.

Summary of Designation Actions

Floodplain resolution number: FPR 17-668

Affected communities: Town of Estes Park, Larimer County

Name of study to be formally acted on: "Hydrologic Analysis of Fall River, Upper Big Thompson River, Black Canyon Creek & Dry Gulch, Estes Park, Colorado", by Wright Water Engineers, Inc., dated January 2017

Studied streams: This report includes 100-year and 500-year hydrologic information for Fall River, Big Thompson River, Black Canyon Creek, and Dry Gulch. The studied streams are in the South Platte River watershed.

Technical Issues: Many of the rivers affected by the September 2013 flood experienced significant geomorphological change resulting in topographic conditions that varied greatly from those prior to the flood. Restudies involving a significant amount of work have already begun for many of the affected reaches due to the legislative directive associated with SB 15-245. Because the regulatory hydrology for many of the flood impacted areas is over thirty years old, and because large-scale floodplain mapping changes are desired and anticipated, it was determined that an appropriate approach to restudy regulatory flood hydrology should be at a watershed level in order to accurately reflect the post-flood conditions and benefit as many communities as possible in the flood impacted reaches.

This report was authorized by the Town of Estes Park under a Community Development Block Grant - Disaster Recovery (CDBG-DR) grant administered by the Colorado Department of Local Affairs. The purpose of this report is to develop detailed hydrologic data for Fall River, the Big Thompson River to the inlet of Lake Estes, Black Canyon Creek, and Dry Gulch.

Because sufficient streamgauge data representative of the period of record was not available for Fall River, Black Canyon Creek, and Dry Gulch, a rainfall-runoff model was prepared based on watershed characteristics publically available through GIS databases. The model for each watershed was carefully calibrated to the event experienced during the 2013 flood, for which a rich source of data was available for this flood event. For the Big Thompson River, a sufficient streamgauge database exists, so a statistical analysis of the streamgauge data was used for the study. The study results for this watershed were compared to a rainfall-runoff model to verify reasonable results.

This analysis represents only a restudy of the hydrology for the watershed, although the hydrology results are anticipated to be used in upcoming floodplain map updates for the watershed through the work of the Colorado Hazard Mapping Program as directed by SB15-245.



Community Response: This study was prepared by the Town of Estes Park and administered by Town staff. The results of the study were presented to the Town Board and the citizens of Estes Park in consecutive meetings held on February 27, 2017. These were informational meetings and Town staff did not ask for action by the Town Board. The item was further discussed during a Town board meeting held on February 28, 2017. At this meeting, five of the seven board members favored moving forward with the study and focusing on next steps for mitigation. However, two board members, including the Town Mayor, indicated their desire to pursue a competing study with an alternate firm.

CWCB staff is pursuing designation of this study so that it can move forward with its obligations associated with the directive of SB 15-245.

Staff Findings: CWCB staff has determined that the subject 100-year and 500-year hydrologic information for the studied stream reaches is in conformance with the CWCB's rules and regulations for floodplain designation and approval. CWCB staff served as advisors to the Town throughout the process and performed an independent technical review of the report.

The methods used during this study are consistent with methods used for all other hydrologic update studies in the areas affected by the 2013 floods and already designated by the CWCB Board during previous board meetings. Unit discharges for the watersheds in this study are on the low end when comparing to nearby watersheds, but are still within an acceptable range.

This study has been unusually controversial and has undergone an extremely rigorous peer review effort. A total of 16 individuals (including CWCB staff) contributed as advisors, peer reviewers, and commenters. This peer group included individuals from FEMA, who reviewed the report for conformance with FEMA technical standards (FEMA will ultimately accept the data when official floodplain maps are updated, and therefore, FEMA's review and concurrence is crucial). Other reviewers included, but were not limited to, the Estes Valley Watershed Coalition, the University of Colorado at Denver, retired USGS personnel, and the Colorado Department of Transportation. All comments from reviewers, including CWCB staff and FEMA, were addressed and responses are available in an appendix to the report. Because CWCB and FEMA reviews have already taken place, it is already known that the report will meet all technical standards when it is used as the basis for floodplain map updates in the future; an additional review of the hydrology is no longer necessary.

CWCB staff therefore endorses this study as containing the most current and best available hydrologic information and urges the affected communities to adopt this study for land use regulation purposes pursuant to statutory authority.

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STAFF RECOMMENDATION SUMMARY

Requested Action for Floodplain Resolution 17-668: Staff recommends that the Board: 1) designate and approve the 100-year and 500-year hydrologic information contained in said report for Fall River, Big Thompson River, Black Canyon Creek, and Dry Gulch within the Town of Estes Park and Larimer County, and 2) authorize staff to prepare a floodplain resolution to be signed by the Director and transmitted to the Town of Estes Park, Larimer County, and FEMA. This action is recommended in order to meet statutory requirements.

