

STATE OF COLORADO

Colorado Water Conservation Board Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Kevin Houck, Section Chief
Watershed & Flood Protection Section

DATE: May 6, 2014

SUBJECT: **Consent Agenda Item 3**
May 21-22, 2014 Board Meeting
Watershed & Flood Protection Section – Floodplain Designations

John W. Hickenlooper
Governor

Mike King
DNR Executive Director

James Eklund
CWCB Director

Background

Consent Agenda Item 3 includes 2 new floodplain studies that are proposed for CWCB action. Staff is requesting Board designation and approval for these items. A brief summary of the studies 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 approvals greatly assist local communities in meeting the statutory requirements of the State and the regulatory requirements of the National Flood Insurance Program.

Additional supporting information for these items is attached.

Staff Recommendation

Staff recommends that the Board: 1) designate and approve the 100-year detailed and approximate floodplain information contained in said studies and 2) authorize staff to prepare floodplain resolutions to be signed by the Director reflecting the official designation and approval actions. This action is recommended in order to meet statutory requirements.

Attachment - Supporting Information

Consent Agenda Item 3 – Floodplain Designations May 2014

Summary

Consent Agenda Item 3 includes 2 floodplain studies/maps that are proposed for CWCB action. Staff is requesting Board designation and approval for these items. A brief summary of the studies 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 (community-wide 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 14-648

Affected communities: City and County of Denver, City of Glendale, Arapahoe County

Name of study to be formally acted on: “Flood Hazard Area Delineation, Cherry Creek (Cherry Creek Dam to South Platte River)”, by Matrix Design Group, Inc., dated November 2013

Studied streams: This report includes detailed 100-year floodplain information for Cherry Creek from Cherry Creek dam to the South Platte River. The studied streams are in the South Platte River watershed.

Technical Issues: This report was authorized by the Urban Drainage & Flood Control District (UDFCD) under joint sponsorship with the City of Denver, Arapahoe County, and the Southeast Metro Stormwater Authority (SEMSWA). The purpose of this report is to develop detailed flood hazard data for Cherry Creek from the outlet of Cherry Creek Reservoir to the confluence with the South Platte River. Goldsmith Gulch, the primary tributary to Cherry Creek through this reach, was analyzed for its hydrologic contribution to Cherry Creek; however, no detailed flood information was developed for Goldsmith Gulch. Cherry Creek has a total contributing drainage area of 410 square miles and is greatly affected by the operations of Cherry Creek Reservoir. The total study area of the lower watershed includes approximately 26.4 square miles of drainage area downstream of Cherry Creek Reservoir. Hydrologic values for this reach are complex due to the operation of Cherry Creek Reservoir. Regulatory design flows between Cherry Creek Reservoir and the confluence with Goldsmith Gulch have been set at 5,000 cfs, the maximum design release for Cherry Creek Reservoir. Downstream of Goldsmith Gulch, the hydrology is controlled by rainfall-runoff processes, rather than reservoir outflows, and ranges from 6,000 cfs at Goldsmith Gulch to 7,460 cfs at the confluence with the South Platte River. Hydraulic analyses were carried out using the U.S. Army Corps of Engineers River Analysis System (HEC-RAS v. 4.1.0) based on steady flow conditions. Floodways were computed assuming 0.5’ rise criteria, which is consistent with both CWCB and local regulations.

Community response: UDFCD transmitted a letter to the CWCB dated January 13, 2014 requesting CWCB designation and approval of the subject report. In addition, Arapahoe County transmitted a letter to the CWCB dated March 4, 2014 requesting CWCB designation and approval of the subject report. No request letters were received from the other affected local governments, but conversations with their staff and with UDFCD indicate their desire for designation.

Staff findings: CWCB staff has determined that the subject 100-year detailed floodplain information for the studied stream reaches is conformance with the CWCB’s rules and regulations for floodplain designation and approval. The CWCB staff has relied on the technical competence of Matrix Design Group, Inc., who produced the study, but also performed an independent technical review of the report. CWCB staff therefore endorses this study as containing the most current floodplain mapping available and urges the affected communities to adopt said study for land use regulation purposes pursuant to statutory authority.

Requested action for Floodplain Resolution 14-648: Staff recommends that the Board: 1) designate and approve the 100-year and 500-year detailed floodplain information contained in said

report for Cherry within the City and County of Denver, the City of Glendale, and Arapahoe County, and 2) authorize staff to prepare a floodplain resolution to be signed by the Director and transmitted to UDFCD, the City and County of Denver, the City of Glendale, Arapahoe County, SEMSWA, and FEMA. This action is recommended in order to meet statutory requirements.

Floodplain resolution number: FPR 14-649

Affected communities: City of Aurora

Name of study to be formally acted on: “Flood Hazard Area Delineation, Toll Gate Creek and East Toll Gate Creek (Downstream of Hampden)”, by J3 Engineering Consultants, dated November 2013

Studied streams: This report includes detailed 100-year and 500-year floodplain information for Toll Gate Creek and East Toll Gate Creek. The studied stream is in the South Platte River watershed.

Technical Issues: This report was authorized by the Urban Drainage & Flood Control District (UDFCD) under joint sponsorship with the the City of Aurora and Buckley Air Force Base. The purpose of this report is to develop detailed flood hazard data for Toll Gate Creek and East Toll Gate Creek between Hampden Avenue and the confluence with Sand Creek. The total study area includes approximately 16.22 square miles of drainage area. Hydrologic analyses were performed using UDFCD’s Colorado Urban Hydrograph Procedure (CUHP, v. 1.3.3) and the EPA’s Stormwater Management Model (SWMM, v. 5.0). Reserved flood storage in various detention ponds throughout the watershed was considered during the hydrologic modeling process. Hydraulic analyses were carried out using the U.S. Army Corps of Engineers River Analysis System (HEC-RAS v. 4.1.0) based on steady flow conditions. Floodways were computed assuming 0.5’ rise criteria, which is consistent with both CWCB and local regulations.

Community response: UDFCD transmitted a letter to the CWCB dated January 13, 2014 requesting CWCB designation and approval of the subject report. No request letters were received from the affected local governments, but conversations with their staff and with UDFCD indicate their desire for designation.

Staff findings: CWCB staff has determined that the subject 100-year and 500-year detailed floodplain information for the studied stream reaches is conformance with the CWCB’s rules and regulations for floodplain designation and approval. The CWCB staff has relied on the technical competence of J3 Engineering Consultants, who produced the study, but also performed an independent technical review of the report. CWCB staff therefore endorses this study as containing the most current floodplain mapping available and urges the affected communities to adopt said study for land use regulation purposes pursuant to statutory authority.

Requested action for Floodplain Resolution 14-649: Staff recommends that the Board: 1) designate and approve the 100-year and 500-year detailed floodplain information contained in said report for Toll Gate Creek and East Toll Gate Creek within the City of Aurora, and 2) authorize staff to prepare a floodplain resolution to be signed by the Director and transmitted to UDFCD, the City of Aurora, and FEMA. This action is recommended in order to meet statutory requirements.

STAFF RECOMMENDATION SUMMARY

Requested action for Floodplain Resolution 14-648: Staff recommends that the Board: 1) designate and approve the 100-year and 500-year detailed floodplain information contained in said report for Cherry within the City and County of Denver, the City of Glendale, and Arapahoe County, and 2) authorize staff to prepare a floodplain resolution to be signed by the Director and transmitted to UDFCD, the City and County of Denver, the City of Glendale, Arapahoe County, SEMSWA, and FEMA. This action is recommended in order to meet statutory requirements.

Requested action for Floodplain Resolution 14-649: Staff recommends that the Board: 1) designate and approve the 100-year and 500-year detailed floodplain information contained in said report for Toll Gate Creek and East Toll Gate Creek within the City of Aurora, and 2) authorize staff to prepare a floodplain resolution to be signed by the Director and transmitted to UDFCD, the City of Aurora, and FEMA. This action is recommended in order to meet statutory requirements.