December 5, 2023

AGENDA ITEM SUMMARY
City Council

STAFF

Jason Graham, Director, Water Utilities
Ken Sampley, Director, Stormwater Engineering and Development Review
Eric Potyondy, Assistant City Attorney

SUBJECT

Resolution 2023-105 Authorizing the City Manager to Enter Into an Agreement Between the City of Fort Collins and Numerous Stakeholders Regarding Operation and Maintenance of Boxelder Creek Watershed Dams (B Dams B-2, B-3, and B-4).

EXECUTIVE SUMMARY

The purpose of this item is to authorize the City Manager to execute an intergovernmental agreement (IGA) between the City of Fort Collins and numerous stakeholders regarding the operation and maintenance of the Boxelder Creek Watershed Dams (B Dams B-2, B-3, and B-4). These flood control dams were built in the 1970s and 1980s to protect agricultural lands and rural properties from flooding and erosion damage. In 2014, the Colorado State Engineer's Office (SEO) elevated their hazard classification for the dams from "moderate" to "high" due to the increased urban and suburban development and resulting flood risk to properties and citizens downstream of the facilities.

Initial costs to design and construct improvements to the B Dams were in the range of $70 million to meet dam safety requirements. Municipal stakeholders joined together to pursue a new approach that utilized a Risk and Consequence Analysis to demonstrate that the risk will be greatly mitigated if adequate warning of flooding could be provided for the dams in lieu of the costly improvements. The IGA allocates respective costs to fund the flood warning system as well as the operations and maintenance of the B Dams.

The IGA also establishes a Management Committee to provide technical and other recommendations related to the agreement. Each party will designate one person to represent and act on the party's behalf. When possible, appointees should have applicable technical knowledge and skills.

STAFF RECOMMENDATION

Staff recommends adoption of the Resolution.

BACKGROUND / DISCUSSION

A series of flood control dams were built in the 1970s and 1980s to protect agricultural lands from flooding and erosion damage. These dams only detain floodwaters and do not create water supply reservoirs. Boxelder Creek flows from its headwaters in northern Larimer County generally to the south and southeast, through farmlands and along the developed and developing Interstate 25 corridor through various political boundaries towards its confluence with the Cache la Poudre River in eastern Fort Collins. This includes

lands in Fort Collins and the Growth Management Area (GMA). At the time, the North Poudre Irrigation Company (NPIC) acted as the local partner with the Soil Conservation Service (SCS), now the Natural Resources Conservation Service (NRCS), and with the United States Department of Agricultural (USDA) to build the dams. NPIC currently operates and maintains the dams.

In 2014, the SEO completed a routine review of the dams for certification. The land use changes downstream of Dams B-2, B-3 and B-4 from agricultural use to suburban and urban development required a change in the dam classification from “moderate” to “high hazard.” This change in classification of the dams could require expensive rehabilitation and/or reconstruction of the dam emergency spillways and embankments. NPIC and NRCS initiated “Supplemental Watershed Plan and Environmental Assessments” (SWPEAs) for Dams B-2 and B-3 in 2015 to evaluate alternatives to bring the facilities into compliance with current SEO dam safety standards. B-4 was not included due to funding limitations.

In accordance with SEO criteria at that time, if improvements are not made and the dams are decertified, there would be a dramatic change to the downstream floodplain impacting over 1,000 residences and businesses in Wellington, Larimer County, Fort Collins, and Timnath. These dams need to be in place and functional to provide 100-year flood protection for downstream properties and to work in conjunction with the recently completed Boxelder Basin Regional Stormwater Authority (BBRSA) improvements. The Draft B-2 and B-3 SWPEAs were completed in 2017 and 2018. The assessments identified a range of potential improvements to each of the dams that included spillway modifications, overtopping protection installed on the dam embankments, or decommissioning. Conceptual alternative cost estimates varied widely from $3 to $25 Million (depending on the dam under review).

In mid-2018, representatives from Fort Collins and Larimer County approached other local governments to form a stakeholder group to further evaluate the Boxelder Creek Watershed Dams and to determine actions and responsibilities to appropriately address flood protection efforts. Pursuant to Resolution 2019-079, an IGA was established in April 2019 by the City and stakeholders to review and refine the potential improvements and to develop potential cost-share approaches to capital and operations and maintenance costs. The consultant Short Elliott Hendrickson, Inc. (SEH) reviewed the draft SWPEAs and provided comments that resulted in revisions to the hydrologic modeling, updated alternative evaluations, and updates to the conceptual estimated costs.

Boxelder Creek Watershed Dams Risk and Consequence Analysis

The SEO Dam Safety Division is the agency responsible for ensuring all dams within Colorado meet standards to protect the general public. The Division updated its Rules and Regulations for Dam Safety and Dam Construction on January 1, 2020 (Colorado Rules). As a result, a new approach to assess dam safety has been incorporated into the rules. The Comprehensive Dam Safety Evaluation (CDSE) tools and process include the completion of a Potential Failure Mode Analysis (PFMA) to evaluate and reduce dam safety risk. This process enables the determination of "potential failure modes" and then characterizes the "likelihood" of the failure mode within a risk context.

The PFMA process was used to evaluate Dams B-2, B-3 and B-4 (Dams B-5 and B-6 were not included since they currently meet SEO regulatory requirements). SEH’s risk analysis indicates that the risks associated with the dams would be greatly mitigated if the Emergency Action Plans (EAPs) for Dams B-2, B-3 and B-4 were updated and water level monitoring and warning systems were to be installed at B Dams B-2, B-3 and B-4.

The SEH report entitled “Executive Summary for Project Development for Boxelder Watershed Dam Rehabilitation - Hydrologic Analyses of Boxelder Watershed Dams B-2, B-3, B-4, B-5, and B-6” gives a good synopsis of the hydrologic modeling and results as well as the PFMA results and is available for review in the Stormwater Engineering and Development Review Division office. Figure 1 on the next page is a Risk Summary Chart for Boxelder Creek Watershed Dams B2, B3 and B4. For the combination of a Low Likelihood of failure and a Level 3 Consequence, the notations from the State Engineer’s Office

indicate that with the provision of an adequate warning system, all 3 dams will meet the acceptable (green) hydrologic adequacy requirement.

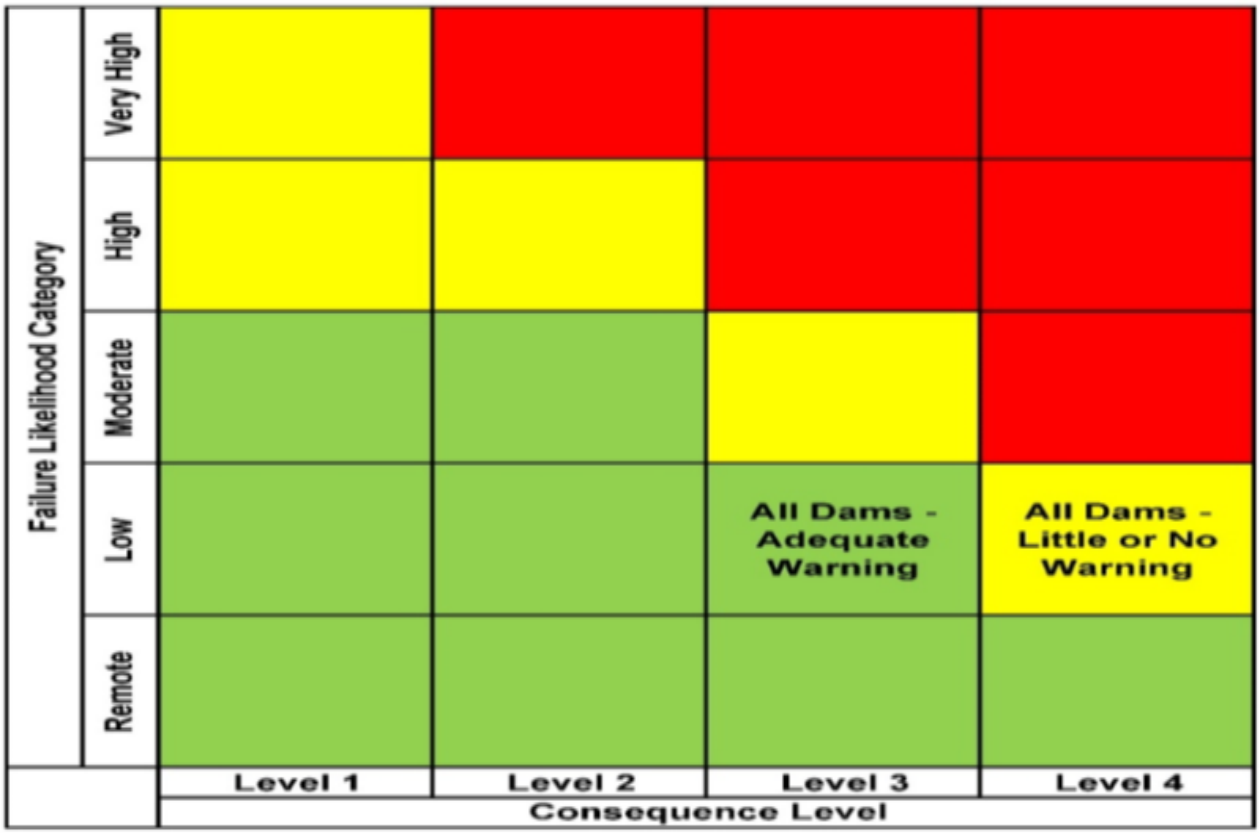

Figure 1 – Risk Summary Chart – Dams B-2, B-3, and B-4

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On October 10, 2023, the SEO provided Risk Informed Hydrologic Adequacy Acknowledgment letters for B Dams B-2, B-3 and B-4 stating the hydrologic risk for each dam was acceptably low and satisfactory at this time if the following conditions are met:

1. Install and maintain the early warning systems at the dams, connect them to Larimer County's Emergency Flood Warning System. Provide formal notification to the SEO when the installation is completed and the system is operational;
2. Update and distribute the Emergency Action Plans annually. Include inundation maps for both extreme spillway release in addition to those associated with dam failures; and
3. Finalize and execute the Operations and Maintenance IGA for the B Dams that clearly designate ownership, responsibility and decision-making authority. Provide the final executed IGA to the SEO.

Management Committee

To facilitate the implementation of and manage the IGA and to provide technical and other recommendations, a Management Committee is to be created with each party appointing one person with

applicable technical knowledge and skills. Appointees shall be entitled to bring staff or consultants with applicable technical knowledge and skills to meetings.

The Management Committee shall:

- Adopt bylaws to facilitate its conduct of business;
- Meet at least annually;
- Shall provide advice and recommendations to the Parties, including to their staff and governing boards, regarding matters under this Agreement;
- Shall complete tasks delegated to it under this Agreement including:
  - Provide direction and recommendations to the Fiscal Manager;
  - Establish budgets; and
  - Review and update the Cost Allocation Model a minimum of once every five years.
- The committee shall operate by consensus.

CITY FINANCIAL IMPACTS

The initial SWPEAs for B Dams B2 and B3 had estimated construction costs in the range of $28 Million and $13 Million, respectively. B Dam B4 did not have a cost estimate yet but it was thought to be in the range of $8 to $15 Million. Adding those together gave a total of approximately $56 Million. That would be a very high cost for the municipal stakeholders to absorb.

In consideration of the SEO's B Dam hydrologic adequacy acknowledgment letters, the financial impacts have been significantly reduced. The IGA specifies the cost allocations for the following items:

1. Initial procurement and installation of the Early Flood Warning System;
2. First five years of annual estimated operations and maintenance costs; and
3. A 5 Year Plan to fund the Operations and Maintenance Fund.

The cost for Item 1 above is specified in the IGA to be $20,000 for each of the B Dam partners. However, in the last 2 months, Larimer County has secured a Pre-Disaster Mitigation (PDM) grant in a total amount of $1,000,000. The grant is 90% Federal Funding and 10% Local Funding. As a result, Fort Collins' share of the initial costs for the Flood Warning system will be $2,000.

The costs for Items 2 and 3 are based on the established Cost Allocation Model (also outlined in the IGA) which assigns responsibility percentages to each of the Parties. Fort Collins' percentage is 20.7%. Accordingly, the annual cost to Fort Collins for Item 2 is $7,659 and for Item 3 it is $50,103. Council previously approved $90,000 in both 2023 and 2024 for the Boxelder Creek Watershed Dams. As a result, no additional funding will be needed until the 2025-2026 Budget.

BOARD / COMMISSION / COMMITTEE RECOMMENDATION

At its November 16, 2023, meeting, the Water Commission recommended that Council adopt the Resolution authorizing the City Manager to enter into an Agreement between the City of Fort Collins and Numerous Stakeholders regarding the Operation and Maintenance of Boxelder Creek Watershed Dams (B Dams B-2, B-3, AND B-4). An excerpt of the draft minutes is attached.

PUBLIC OUTREACH

On July 6, 2019, Council approved Resolution 2019-079. The Resolution, in conjunction with relevant authorizations by the other Parties, funded a joint study of the B Dams ("Study) in order to, among other things, gather the data, facts, and analyses necessary to fully evaluate the B Dams and issues related to flood risks along Boxelder Creek. This funding was used for the consultant that prepared the Potential Failure Mode Analysis (PFMA) to evaluate and reduce dam safety risk.

ATTACHMENTS

1. Resolution for Consideration
2. Exhibit A to Resolution
3. Adequacy Letter – B Dam B2, October 10, 2023
4. Adequacy Letter – B Dam B3, October 10, 2023
5. Adequacy Letter – B Dam B4, October 10, 2023
6. Water Commission Meeting Minutes, November 16, 2023 (excerpt)
7. Presentation