



STUDY SESSION MEMORANDUM

TO: Mayor and Members of City Council

FROM: Joe Taddeucci, Director of Utilities
Chris Douglass, Civil Engineering Senior Manager
Brandon Coleman, Civil Engineering Manager
Christin Kapatayes, Engineering Project Manager
Angela Urrego, Communications Senior Project Manager

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SUBJECT: Study Session for Jan. 25, 2024
Stormwater and Flood Utility Overview and Key Project Updates

EXECUTIVE SUMMARY

The Stormwater and Flood Management Utility (“the flood utility”) works to enhance the health, safety, and welfare of the community from the risks caused by stormwater runoff and floods. City Council is regularly asked to provide input or take action on measures that support the flood utility’s stormwater and flood programs. These include considerations for capital projects; floodplain mapping studies and mitigation plans; and ordinance changes. The purpose of this memorandum is to provide City Council with an overview of the flood utility, including a summary of the [Comprehensive Flood and Stormwater \(CFS\) Plan](#) and key project updates.

KEY ISSUES IDENTIFIED

The City of Boulder is extremely vulnerable to flooding due to its geographic location at the base of the Rocky Mountains. That, in combination with high levels of urbanization and development along the drainageways, makes the city the number one flood risk in the state of Colorado. With 16 major drainageways, about 16% of land within city limits, including 2,600 structures and thousands of residents, are in the 100-year flood plain (areas that statistically have a 1% chance of flooding in any given year). Given the flooding potential within the city, flood mitigation planning and projects are critical, including outreach and engagement efforts to collaborate with and inform the community on flood safety and mitigation efforts.

Key Issues

- Projects to mitigate flood risks and address life-safety span multiple years from planning to construction and can be disruptive to the community and impactful to private property and the environment for lengthy periods of time. As a result, community support and buy-in for these projects can be challenging to achieve.
- Some of the drainageways within city limits are located on private property, not all of which include maintenance easements. To obtain access, the city focuses on easement acquisition as part of major flood improvement projects. Obtaining and negotiating easements is inherently challenging and poses risks in the form of project delays and costs when there is not property owner support.

Questions for Council

1. Does City Council have questions or need additional information about the overall function of the flood utility?
2. Does City Council have questions or need additional information related to the flood utility's community outreach process?
3. Does City Council have questions or need additional information related to key projects, including the open space disposal process associated with the South Boulder Creek Flood Mitigation Project?

BACKGROUND

Stormwater and Flood Utility Overview

The City of Boulder began developing in the late 1800s, and modern floodplain regulations were established starting in the 1960s. Early on in the city's development, stormwater and flood systems were not built as the city grew, and as a result, much of the city's development happened in and around the natural floodplains. The flood utility was established in 1973 to protect public health, safety, and welfare from damage caused by stormwater runoff and floods and to enhance the water quality of local receiving waters. Key elements of the city's flood utility are defined below.

- **Flood Management Program:** The flood management program is responsible for floodplain mapping, risk assessments, regulations, flood information and insurance, emergency preparedness, property acquisition, and flood mitigation capital improvements associated with the 16 drainageways that pass through the city.
- **Stormwater Drainage Program:** The stormwater drainage system includes the network of underground pipes, structures and channels that collect stormwater or surface runoff throughout the city and convey the stormwater to major drainageways. The stormwater drainage program involves routine inspections, maintenance, repairs, and regulatory compliance and also includes capital improvements and expansion to the system.
- **Stormwater Quality Program:** The Stormwater Quality Program involves preservation, protection, and enhancement of surface water, including compliance with state water quality regulations and educating the community to foster shared stewardship of this natural resource.

Stormwater and flood management are critically important to the city, reflecting the city's standing as a highly flood-prone community. The utility serves a customer base of approximately 30,000 properties and provides a multi-million dollar operational and capital infrastructure program. The 2024 budget for the stormwater and flood utility is \$15.9M. The utility's funding is comprised of service fees, Plant Investment Fees (PIF), bond proceeds, funding from the regional Mile High Flood District (MHFD), and occasional grants, loans, and cost sharing. These funds cover the utility's day-to-day operational expenses, capital expenditures, and debt services on existing bonds. Monthly utility service fees comprise 90% of flood utility. Rates and fees are annually assessed to fund the utility's activities and to ensure that required reserves are maintained and debt service coverage requirements are met.

Mile High Flood District (MHFD)

The utility actively works with multiple regional and state organizations to effectively collaborate on flood management and stormwater issues. One of those partners is the [Mile High Flood District](#) (MHFD), which is an independent special district that assists local governments in the Denver metropolitan area with multi-jurisdictional drainage and flood control challenges. The utility works closely with MHFD on flood mitigation planning, design, construction, maintenance of drainageways, stormwater quality criteria, and flood warning programs.

The MHFD provides funding to the city's flood utility for certain qualifying expenditures. MHFD funds are generated by a special mill levy (property tax), with the objective that they be returned proportionally to their geographic area of origin over time. It is estimated that funding from the MHFD will be approximately \$1.4 million in 2024.

Comprehensive Flood and Stormwater Master Plan (CFS)

The 2022 CFS updated overall plans for the flood utility, the previous comprehensive plan for which had last been completed in 2004. The process to update the plan began in late 2019 and included community engagement, policy and program evaluation and recommendations, and development of a prioritization framework for major flood projects.

The updated CFS reflects feedback from the community, embodies Boulder's values, captures the strategic vision of the utility, and positions the utility to move forward expeditiously. The plan is broken into two volumes. [Volume I](#) is a summary document, and [Volume II](#) provides more in-depth background and technical detail. The two-volume plan includes six key findings and outcomes as summarized in Table 1.

Table 1- CFS Key Outcomes and Recommendations

<u>OUTCOMES AND RECOMMENDATIONS</u>	<u>PLAN DETAILS</u>
Prioritize projects to do the greatest good first	Created a project prioritization framework to prioritize when major flood mitigation projects should be funded and constructed.
Provide services equitably	Incorporated racial equity into policies, current and future outreach and education efforts, and provision services.
Make infrastructure resilient to climate change	Developed proactive measures to address climate change through infrastructure resilience.
Prepare for the extremes	Clarified roles and responsibilities for city staff and community members related to flood preparedness, flood warning and emergency response.
Inform the community to create a prepared community	Refined outreach and education efforts to reach targeted audiences with a focus on vulnerable populations and non-English speaking community members.
Maintain the system we have	Defined support needs and public and private maintenance responsibilities for stormwater drainage systems and major drainageways.
Adequately Fund the Program	Defined three funding levels that result in different pacing of CIP implementation.

Project Prioritization

One of the primary objectives of the CFS update was to develop a method of prioritizing major flood projects in alignment with community values. To do this, the project team developed a Project Prioritization Framework that incorporates numerous project criteria based on community input. Project prioritization criteria include ability to implement, cost, effectiveness, environmental and cultural resources, equity, life safety, and multiple benefits.

The Framework involves a scoring mechanism that allows for relative comparison of project benefits. The criteria weighting that informs these project scores was assigned based on direct feedback from the community and the Water Resources Advisory Board (WRAB) lending to results that reflect how well a particular project aligns with community values. Life safety received the highest ranking, as public health, safety, and welfare are fundamental goals of the city. Additional information discussing the

Framework, including its purpose development, criteria, and use is detailed in [Volume II](#) of the CFS.

Subsequent to City Council's Sept. 15, 2022 plan approval, city staff applied the Project Prioritization Framework to the 30-plus identified flood mitigation projects to the 20-year CIP. The initial prioritization of the 30-plus identified flood mitigation projects was presented to [WRAB on June 26, 2023](#).

Community Outreach Process

Community engagement is a significant and essential part of achieving flood mitigation. Capital flood projects are often made up of complex and unique challenges. Each project includes its own set of tradeoffs to consider, including level of flood protection, technical solutions, environmental and cultural resources, impacts to the built environment, disruption to private property, and cost, among others. The solutions are rarely simple, so partnering with the community and decision makers in carefully weighing these tradeoffs is at the heart of the engagement process. Alongside careful and thorough technical analyses, community input has a significant role in shaping the approach to addressing the broad range of interests involved in each project.

Although the utility is striving to increase the pace of capital flood projects in alignment with CFS community feedback themes, these projects and associated engagement efforts can be lengthy. Community members can experience engagement fatigue after providing feedback over multiple years or may only become involved part-way through an effort. Therefore, the project team aims to balance providing ample opportunities for feedback and information sharing with progressing projects in a way that honors the feedback received throughout the project duration.

Through a process of continuous improvement, typical engagement methods included in the city's [Engagement Strategic Framework](#) provide multiple opportunities for community members to engage on flood projects and include:

- Exchange of information through multiple different platforms including websites, direct mail in English and Spanish, flyers, social media, pop-up meetings, story maps, videos, the city calendar, and community meetings;
- Fostering relationships with community members, including conducting individual property owner meetings;
- Promoting equity and transparency to connect with community members, including hybrid meetings, options to connect with staff members via email, phone and in-person office hours, and interpretation services; and,
- Establishing collaborative alliances and partnerships to broaden outreach and promote community events, including partnerships with Boulder Housing Partners, Boulder Public Library, Centro Amistad, EFFA, and city departments (Climate Initiatives, OSMP, Parks and Recreation, Planning and Development Services, etc.) to enhance engagement and host impactful events.

Development of specific engagement efforts make use of the city's [Racial Equity Plan](#) and racial equity instrument to enhance and refine outreach methods to reach traditionally under-represented communities and Spanish-speaking community members.

Ultimately, we understand these projects can be disruptive and the utility is committed to and has been successful in working together with individuals and the community to arrive at solutions that ultimately protect the community from floods.

ANALYSIS

The utility uses a lifecycle approach to address flood risks throughout the community. The approach starts with floodplain mapping to identify risk along the drainageway followed by mitigation planning to identify projects that would minimize flood risk. Once a mitigation plan is approved by City Council, the project then proceeds to design and construction. Key projects currently in various stages of this lifecycle are discussed below.

South Boulder Creek (SBC)

The [South Boulder Creek \(SBC\) Flood Mitigation Project](#) is intended to protect life and safety by addressing flooding in the area known as the West Valley. There are an estimated 600 structures and 3,500 people in the South Boulder Creek floodplain within city limits. Over the last 80 years, South Boulder Creek has had six significant flood events, with overtopping of US36 happening in 1969 and 2013.

The [South Boulder Creek Major Drainageway Plan](#) was approved by City Council in 2015. The plan includes three phases with the first phase being a regional detention facility upstream of US36 on and near the property commonly referred to as "CU South."

The South Boulder Creek Flood Mitigation Project will protect approximately 2,300 residents and 260 structures from a 100-year flood (1% annual chance of occurring) on South Boulder Creek. Since the project is not on utility-owned property, staff have been working collaboratively with key property owners, including the University of Colorado – Boulder, city Open Space and Mountain Parks (OSMP), and the Colorado Department of Transportation (CDOT). The project has completed a conceptual alternatives analysis, preliminary 30% design, and is nearing completion of a 60% design and is slated for construction starting in late 2024.

The Project requires formal transfer of 2.2 acres of city open space to utilities for flood mitigation purposes. The land will need to be transferred using the OSMP disposal process, which includes approval from the Open Space Board of Trustees (OSBT) and City Council. An initial information item will occur at OSBT's [Jan. 17 meeting](#), followed by a joint public hearing with OSBT and City Council scheduled for Feb. 22. OSBT deliberation and action on the disposal will occur at its March 12 meeting, and a public hearing, council deliberation and action is scheduled for the March 21, 2024 meeting.

Additionally, and in parallel with the disposal, the flood utility is pursuing annexation of 4.1 acres of OSMP property utilized for the flood project features adjacent to US36 so that the entire Flood Project will be located within Boulder city limits. Council consideration and action on the annexation will take place during the same March 21 meeting as the disposal.

Upper Goose and Twomile Canyon Creek

The [Upper Goose and Twomile Canyon Creek \(UGT\) Mitigation Plan](#) involves Twomile Canyon Creek and the upper portion of Goose Creek, which includes 759 structures in the 100-year floodplain. The recommended flood mitigation plan was selected considering mitigation needs, community values, and budget feasibility. The plan involves a combination of above-ground channels and buried pipes to safely convey floodwater.

The UGT Mitigation Plan was approved 8-1 by City Council in May 2023 ([City Council Memo – May 18, 2023](#)). Council's decision included direction for staff to advance a piped alternative alignment in Floral Drive to reduce impacts to properties adjacent to a portion of Goose Creek, Reach 6. On Nov. 15, 2023, staff led a public meeting to update community members on the project timeline and next steps for the UGT Flood Mitigation Plan. Meeting information was publicly disseminated through various channels including the project website, mailings, flyers in public spaces, social media, and as an event on the city calendar. The meeting was conducted in a hybrid manner with 63 in-person participants and 31 online participants. To encourage a more inclusive and interactive atmosphere during the meeting, in-person and online attendees had the opportunity to write their questions to the city during a Q&A session and interpretation services were also available for the meeting.

The May City Council meeting and November Community meeting received public feedback with a strong preference to avoid or limit ground disturbance activities in the entire Goose Creek Reach 6 natural channel. In response to community feedback, staff are re-evaluating an underground piped alternative in Edgewood Drive, which if feasible could reduce impacts to Reach 6. While there are no remaining project approval steps requiring City Council action, staff will provide updates or return to council for additional direction should project activities such as evaluation of the Edgewood Drive piped alternative merit further discussion.

NEXT STEPS

Staff will continue to advance the South Boulder Creek Flood Mitigation Project with emphasis on the open space disposal process slated for council consideration in March. Design efforts for the UGT Flood Mitigation Plan are beginning in the first quarter of 2024 with a focus on conceptual design of the reaches furthest downstream. Staff will also continue to focus on outreach efforts to inform and educate the community for all ongoing projects.