

Project Name: Upper Goose Creek

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: CENTRAL BOULDER

Project Number: 610SW00200

BVCP Area: AREA I

CEAP Required: Yes

CEAP Status: 2018

Project Description

The 2017 Stormwater Master Plan (SMP) provided a comprehensive analysis of the city's stormwater conveyance infrastructure. The master plan identified several Tier 1 (high priority) projects to address new storm sewer improvements throughout the community. The Upper Goose Creek improvements project represents the highest priority project identified in the master plan. This project has two major components. The first component will involve drainageway improvements between 19th Street and Folsom Avenue. This is an unimproved section of drainageway with significant growth that has limited capacity to convey flood flows. Utilities staff will evaluate the potential of improving the channel capacity to convey flows associated with the 10-yr storm event through this section. The second component of the project will involve new storm sewer infrastructure improvements between 6th street and 19th street. Some of these storm sewer improvements will represent new piped infrastructure and some improvements will represent increasing the capacity of existing piped infrastructure.

Project Phasing

2021-2022 Design
2023 Construction

Public Process

A Community & Environmental Assessment Process (CEAP) will go to the Water Resources Advisory Board in 2022. This process will include public open houses and outreach.

Interdepartmental and Interagency Collaboration

This project is a collaboration of stormwater and flood mitigation efforts and will be constructed in collaboration with transportation staff to mitigate pavement impacts.

DET/Impact Fees

Change From Past CIP

None

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$0	\$0	\$0	\$0	\$0	\$26,231,713	\$0	\$0

Funding to Completion \$0
Future Unfunded \$0

Total Funding Plan: \$26,231,713

Additional Annual Operating and Maintenance

Additional Annual O&M: \$1000

Funding Source for O&M:

Additional Annual O&M Description:

remove sediment and debris

Project Name: Boulder Creek Flood Mitigation

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: MULTIPLE SUBCOMMUNITIES

Project Number: 610SW01500

BVCP Area: AREA I

CEAP Required: Yes

CEAP Status: pending project selected

Project Description

The Boulder Creek Restoration Plan was accepted by City Council in February 2016 and identified various improvements along Boulder Creek and Boulder Slough. This project will provide funds for flood mitigation work identified in the plan.

Projects requiring a Community and Environmental Assessment Process (CEAP) will be identified.

<https://bouldercolorado.gov/flood/boulder-creek-restoration-master-plan>

Project Phasing

Design: 2018 (Design improvements and complete a CEAP as needed)
Construction: TBD

Public Process

The Water Resources Advisory Board (WRAB) and City Council have reviewed the Restoration Plan. City Council accepted the plan in 2016.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Urban Drainage and Flood Control District coordinated a watershed wide restoration planning effort which included Boulder County and Longmont.

Change From Past CIP

no change

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$4,979	\$662,650	\$0	\$0	\$0	\$0	\$0	\$684,285
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$1,351,914

Additional Annual Operating and Maintenance

Additional Annual O&M: No

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Drainageway Maintenance/Enhancement

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity:

Project Number: 610SW01700

BVCP Area:

CEAP Required: N/A

CEAP Status: n/a

Project Description

The Drainageway Maintenance/Enhancement fund is intended to provide for larger maintenance related projects along the city's 16 major drainageways. This funding will address ongoing sediment removal efforts as well as large scale vegetation removal along the drainageways including efforts relating to the city's Emerald Ash Bore (EAB) removal program. This work will be performed by qualified private contractors. This project is categorized as "Essential" using the Budgeting for Resilience framework.

Project Phasing

Annual program initially funded at \$500,000 per year and escalated at 4% annually.

Public Process

Notification at neighborhood level.

DET/Impact Fees

None

Interdepartmental and Interagency Collaboration

OSMP, Parks and Recreation, and Transportation

Change From Past CIP

New Project

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$291,933	\$612,897	\$540,000	\$560,000	\$580,000	\$610,000	\$630,000	\$660,000
							Funding to Completion \$0	
							Future Unfunded \$0	

Total Funding Plan: \$4,484,830

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: South Boulder Crk Flood Mitigation

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: MULTIPLE SUBCOMMUNITIES

Project Number: 610SW01800

BVCP Area: AREA II

CEAP Required: No

CEAP Status:

Project Description

The South Boulder Creek (SBC) flood mitigation project is the largest proposed CIP project in the city’s Stormwater & Flood Management Utility. The project involves providing 100-yr flood protection to the community along the South Boulder Creek drainageway. The project is currently in the first of three phases. Phase I involves the proposed development of a flood detention facility to be located along highway US 36. The purpose of this detention facility is to provide flood protection for areas north of Hwy 36 including the area known as the West Valley.

The project is currently in the design phase and is identified for potential construction in 2024. Utilities staff is coordinating with numerous regulatory agencies, project stakeholders, and other departments on this project. Key project stakeholders include the University of Colorado (CU), the Colorado Department of Transportation (CDOT), the city’s Open Space & Mountain Parks (OSMP) department, and the city’s Planning Department. This project involves regular updates to various city boards including the Water Resources Advisory Board (WRAB), the Planning Board, the Open Space Board of Trustees (OSBT), and City Council.

Project Phasing

Design: 2019-2023
Construction: 2024-2025

Public Process

The South Boulder Creek Mitigation Plan was initiated in 2010 and completed in August 2015 with significant public process throughout its development. Design considerations of the regional detention facility will include public input during the preliminary design process. Preliminary design will be initiated once the Boulder Valley Comprehensive Plan update process has been completed and there is a decision regarding land use on CU South.

DET/Impact Fees

None

Interdepartmental and Interagency Collaboration

The regional detention facility will impact Colorado Department of Transportation and University of Colorado properties and may impact Open Space & Mountain Parks property during construction. Utilities staff will coordinate with these entities. Coordination will also occur through the Boulder Valley Comprehensive Plan update and preliminary design phase.

Change From Past CIP

Updated Schedule

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$313,445	\$4,196,216	\$1,000,000	\$2,000,000	\$3,000,000	\$66,000,000	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$76,509,660

Additional Annual Operating and Maintenance

**Additional Annual
O&M:**

Additional Annual O&M Description:

**Funding Source for
O&M:**

Project Name: Fourmile Misc Flood Mitigation

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: NORTH BOULDER

Project Number: 610SW02000

BVCP Area: AREA I

CEAP Required: Yes

CEAP Status: 2016

Project Description

This project provides funding to add an additional culvert at Broadway in conjunction with the Broadway reconstruction project. It will be used for general flood mitigation efforts along the drainage in future years. This project is categorized as "Essential" using the Budgeting for Resilience framework.

Project Phasing

Public Process

CEAP approved by GAC and Council in 2016

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Parks and Recreation: for development of Violet Park
Transportation Division: for underpasses and multi-use path.

Change From Past CIP

None

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$133,305	\$2,864,011	\$0	\$0	\$0	\$0	\$202,775	\$225,190
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$3,425,281

Additional Annual Operating and Maintenance

Additional Annual O&M: \$10,000

Funding Source for O&M:

Additional Annual O&M Description:

new flood easements, multi-use path and underpasses

Project Name: Gregory Creek Flood Mitigation

Project at a Glance

Project Type:	CIP-CAPITAL ENHANCEMENT		
Department:	PW/STORMWATER & FLOOD UTILITY	Subcommunity:	CENTRAL BOULDER
Project Number:	610SW02400	BVCP Area:	AREA I
CEAP Required:	No	CEAP Status:	NA

Project Description

A flood mitigation plan for Gregory Canyon Creek was approved by City Council in December 2015. The plan identified various improvements, primarily involving channel and culvert improvements to increase the creek conveyance capacity to carry a 10-year storm event. This project includes the replacement of culverts at Arapahoe Ave., Marine St., 8th St., University Ave., 7th St. and three alleyways; channel improvements between Arapahoe Ave. and Pennsylvania Ave.; utility relocations; water quality enhancements; and converting the Pennsylvania Ave. crossing of Gregory Canyon Creek from a culvert to a pedestrian bridge. The project is anticipated to be completed in two construction phases to address funding shortages. This project is categorized as "Essential" using the Budgeting for Resilience framework.

Project Phasing

- 2019-2020: Design of channel and culvert improvements from Arapahoe Ave. to Pennsylvania Ave.
- 2022: Phase 1 construction (Arapahoe-University)
- 2027: Phase 2 construction (Pleasant-Pennsylvania)

Public Process

The Water Resources Advisory Board (WRAB) and City Council have reviewed the mitigation plan. City Council accepted the mitigation plan in 2016.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

no change

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$1,169,267	\$973,092	\$0	\$8,224,574	\$0	\$0	\$0	\$1,000,645
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$11,367,578

Additional Annual Operating and Maintenance

Additional Annual O&M: \$1,000

Funding Source for O&M:

Additional Annual O&M Description:

new easements will need to be maintained

Project Name: Utility Billing Computer System

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610SW45300

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

This project is for the future upgrade of the Utility Billing Computer System

Project Phasing

Completion: 2023

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

This project will be coordinated the IT and Finance Departments.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$35,731	\$0	\$62,500	\$0	\$0	\$0	\$0	\$0

Funding to Completion \$0
Future Unfunded \$0

Total Funding Plan: \$98,231

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Preflood Property Acquisition

Project at a Glance

Project Type:	CIP-LAND ACQUISITION		
Department:	PW/STORMWATER & FLOOD UTILITY	Subcommunity:	MULTIPLE SUBCOMMUNITIES
Project Number:	610SW62200	BVCP Area:	SYSTEM-WIDE
CEAP Required:	No	CEAP Status:	NA

Project Description

This project provides on-going funding for the purchase of properties from willing sellers in areas prone to flooding especially the city's high hazard regulatory area. The city periodically updates its flood mapping to reflect changing conditions and improvements in flood modeling. The highest risk properties are identified and prioritized for purchase, based on updated mapping for each of the drainageways. This project is categorized as "Important" using the Budgeting for Resilience framework.

The project is for an ongoing funding program. Funding has been escalated to reflect inflation.

Project Phasing

This fund is used as properties come on the market that are identified as high hazard flood properties

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$1,932,623	\$810,946	\$684,285	\$711,656	\$740,122	\$769,727	\$800,516	\$832,537
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$7,282,411

Additional Annual Operating and Maintenance

Additional Annual O&M: \$1,000

Funding Source for O&M:

Additional Annual O&M Description:

Maintaining newly acquired property (weeds, sediment, debris, etc)

Project Name: Greenways Program - Flood fund

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT
Department: PW/STORMWATER & FLOOD UTILITY
Subcommunity: SYSTEM-WIDE
Project Number: 610SW63000
BVCP Area: SYSTEM-WIDE
CEAP Required: No
CEAP Status: N/A

Project Description

This funding will provide Utilities contributions to the overall Greenways Program. Funding will be prioritized with other funding in the Greenways CIP. These funds will be combined with funding from the Transportation Fund. This project is for an ongoing funding program. This project is categorized as "Important" using the Budgeting for Resilience framework.

<https://bouldercolorado.gov/water/greenways-program>

Project Phasing

This funding leverages outside funding or funding for other projects in order to meet the objectives of the Greenways Program.

Public Process

All Greenways projects are coordinated through the Greenways Advisory Committee (GAC). Public hearings will be scheduled through the Community and Environmental Assessment Process (CEAP) for individual projects.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Projects will be coordinated through the GAC which is made up of representatives from 6 advisory boards that have an interest in the Greenways objectives.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$118,365	\$1,136,362	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500	\$97,500
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$1,839,727

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Greenways Program-Lottery Fund

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT
Department: PW/STORMWATER & FLOOD UTILITY
Subcommunity: SYSTEM-WIDE
Project Number: 610SW63100
BVCP Area: SYSTEM-WIDE
CEAP Required: No
CEAP Status:

Project Description

The funding will provide Lottery funds contributions to the overall greenways program. Funding will be opportunistic and prioritized with the other funding in the Greenways CIP. These funds will be combined with funding from the Transportation and Utilities Fund. This project is for an ongoing funding program.

<https://bouldercolorado.gov/water/greenways-program>

Project Phasing

This funding leverages outside funding or funding for other projects in order to meet the objectives of the Greenways Program.

Public Process

All Greenways projects are coordinated through the Greenways Advisory Committee (GAC). Public hearings will be scheduled through the Community and Environmental Assessment Process (CEAP) for individual projects.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Projects will be coordinated through the GAC which is made up of 6 advisory boards that have an interest in the Greenways Program.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Lottery	\$449	\$1,744,994	\$151,067	\$151,067	\$151,067	\$151,067	\$151,067	\$151,067
								Funding to Completion \$0
								Future Unfunded \$0
Stormwater & Flood Mgt Utility	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
								Funding to Completion \$0
								Future Unfunded \$0

Total Funding Plan: \$2,651,845

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0
Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: East Pearl (Middle Boulder Creek)

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: CENTRAL BOULDER

Project Number: 610SW71000

BVCP Area: AREA I

CEAP Required: No

CEAP Status:

Project Description

The storm sewer system in Downtown Boulder along Pearl Street from 16th Street to 21st Street requires improvements. The master plan project expands the storm sewer system in this area to provide a sufficient level of service.

Project Phasing

Design: 2021

Construction: 2022

Public Process

This project was identified through the 2017 stormwater master plan process which was presented to the Water Resources Advisory Board (WRAB). The public had multiple opportunities to provide feedback on the master plan approach and project prioritization at those WRAB meetings.

Interdepartmental and Interagency Collaboration

Collaboration with Transportation Division for roadway restoration after installation of the sewer system.

Collaboration with Community Vitality for parking services impacts in the downtown area.

DET/Impact Fees

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$0	\$0	\$3,862,873	\$0	\$0	\$0	\$0	\$0

Funding to Completion \$0

Future Unfunded \$0

Total Funding Plan: \$3,862,873

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: 2017 MP -Wonderland Creek 1 Stm Sew

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: NORTH BOULDER

Project Number: 610SW72000

BVCP Area: AREA I

CEAP Required: No

CEAP Status: Not started

Project Description

The storm sewer system in Broadway between Fourmile Canyon Creek and Wonderland Creek requires improvements. This project expands the storm sewer system in this area to provide a sufficient level of service.

Project Phasing

Design: 2020
Construction: 2021

Public Process

This project was identified through the 2017 stormwater master plan process which was presented to the Water Resources Advisory Board (WRAB). The public had multiple opportunities to provide feedback on the master plan approach and project prioritization at those WRAB meetings.

Interdepartmental and Interagency Collaboration

Collaboration with the Transportation Division to coincide with the upcoming reconstruction of Broadway may eliminate the need for this project.

DET/Impact Fees

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$0	\$0	\$386,896	\$0	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$386,896

Additional Annual Operating and Maintenance

Additional Annual O&M: \$600

Funding Source for O&M:

Additional Annual O&M Description:

Additional maintenance cost assumed to be \$3/ft of new sewer

Project Name: Storm Sewer Rehabilitation

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610SW76000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status: N/A

Project Description

The program provides funds for the rehabilitation or replacement of existing storm sewers that have reached the end of their useful life.

Project Phasing

This is an ongoing construction program. Sewers addressed by this program are prioritized annually for inclusion in the program.

Public Process

Public process is limited to notification of construction activities.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Collaboration with the Transportation Division on drainage needs and roadway impacts.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$584,173	\$1,495,604	\$657,966	\$684,285	\$711,656	\$740,122	\$769,727	\$800,516

Funding to Completion \$0

Future Unfunded \$0

Total Funding Plan: \$6,444,048

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Local Drainage Improvements

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610SW77000

BVCP Area: AREA I

CEAP Required: No

CEAP Status: Not applicable

Project Description

This capital project provides funds to improve local drainage problems which are small enough to be outside of the scope of a master planning effort. Most work funded by this program is intended to address system deficiencies highlighted through customer complaints. Funding is also used to supplement the storm sewer rehabilitation program.

Project Phasing

This ongoing funding program addresses miscellaneous unplanned drainage improvement projects. These projects are primarily reported by residents to City staff as they arise.

Public Process

Work implemented by this project is typically the result of direct complaints from residents.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Collaboration with the Transportation Division on drainage needs and roadway impacts.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$3,091,528	\$1,433,080	\$986,949	\$1,026,427	\$1,067,484	\$1,110,183	\$1,154,591	\$1,200,774

Funding to Completion \$0
Future Unfunded \$0

Total Funding Plan: \$11,071,015

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Work implmented through this project typically reduces maintenance.

Project Name: Stormwater Quality Improvements

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610SW77500

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status: Not applicable

Project Description

This program will fund stormwater quality projects as identified in the Stormwater Master Plan and the stormwater quality engineering staff to improve water quality in Boulder Creek and its tributaries. This funding can be used for multiple efforts such as infrastructure maintenance, installation and planning studies.

Project Phasing

This ongoing funding program is funded at \$150,000 per year (2014) escalated by an inflation index for future years.

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$265,082	\$721,975	\$197,390	\$205,285	\$213,497	\$222,037	\$230,918	\$240,155
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$2,296,340

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

This project is frequently used to supplement maintenance efforts

Project Name: Transportation Coordination

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/STORMWATER & FLOOD UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610SW78000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status: N/A

Project Description

This program will fund the reconstruction of existing storm sewers, the construction of new storm sewers and water quality improvements as part of on-going Transportation Division improvement projects. This project is for an ongoing funding program.

Project Phasing

This funding is allocated per the project sequencing and prioritization performed for transportation CIP projects.

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Funding is used to supplement transportation CIP projects and requires extensive collaboration with transportation staff.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Stormwater & Flood Mgt Utility	\$1,342,867	\$934,132	\$657,966	\$684,285	\$711,656	\$740,122	\$769,727	\$800,516
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$6,641,271

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Additional maintenance funding considered in Transportation CIP

Project Name: Transmission System R&R Program

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA00500

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

The City owns and operates approximately 465 miles of water mains that deliver drinking water to the Boulder customers. The larger pipes (14-inch diameter and larger), are referred to as the water transmission system as these pipes convey large volumes of water around the city. The smaller pipes (12-inch diameter and smaller) are referred to as the water distribution system as these pipes provide drinking water throughout residential streets in Boulder directly to households. Utilities staff is in the process of completing a Water Transmission Study that represents a comprehensive evaluation of the large diameter water pipes, which comprise approximately 65 miles of the total system. The purpose of this study is to review the city's current approach to providing water and to identify capital improvements projects necessary to replace aging water utility infrastructure before pipe failure occurs. The water transmission system has an estimated replacement value of \$350M. This figure represents approximately 20 percent of the value of the treated water system overall. The transmission system is of high importance because it supplies the vast majority of water to the system and has limited valving to isolate segments for repairs and/or emergency response.

Project Phasing

This project involves several CIP phases typical of a large-scale project: Alternatives Analysis, Preliminary Design, Final Design, Colorado Department of Public Health and Environment (CDPHE) Applications, County Permitting, and Construction.

Public Process

Neighborhoods are notified a couple of weeks in advance of the construction and on the water info website.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

City & County Transportation, City & County Open Space, City Development Review, City Planning, City Flood, City Wastewater, Xcel, Century Link, BNSF, Private Developers, BVSD, RTD, small water districts and Ditch Companies.

Change From Past CIP

No

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$1,773,333	\$799,981	\$1,500,000	\$0	\$10,000,000	\$0	\$10,000,000	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$24,073,314

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

1 or 2 dozen extra valve operations by maintenance staff annually.

Project Name: Barker Gravity Pipeline Repair

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA10600

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status:

Project Description

The Barker Gravity line is a 12-mile long pipeline that delivers water from Barker Reservoir in Nederland to Kossler Reservoir, located up Flagstaff Road. The pipeline is over 100 years old and represents one of city’s three major raw water (untreated) pipelines that deliver water to the city’s two water treatment facilities. The Barker Gravity line delivers water to the Betasso Water Treatment Plant located up Boulder Canyon. Utilities has identified a 12-year rehabilitation program to ensure this pipeline can continue to reliably deliver water for the next 100 years. Utilities staff is using a trenchless technology approach to rehabilitate the pipe with a structural pipe liner that meets state and federal drinking water regulations. This project rehabilitates about one mile of pipe per year and an annual cost of approximately \$3.5M. This project is categorized as Essential using the Budgeting for Resilience framework.

Project Phasing

Ongoing Program: 2017-2028

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

The United States Forest Service, Boulder County and Private Land Owners will be coordinated with in advance of activities on the pipeline easement crossing their lands. United States Corps of Engineers permitting may be required if any wetlands are disturbed (i.e. in the bottom of the siphon segments or where access roads cross drainages).

Change From Past CIP

Updated costs from 15 year to 12 year program.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$9,522,364	\$4,528,801	\$3,782,672	\$6,018,967	\$4,640,332	\$4,815,945	\$3,972,156	\$4,121,042
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$41,402,279

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

\$250k annual costs for grouting repairs to non rehabilitated sections

Project Name: BCH Penstock Repair

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA10700

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status:

Project Description

The BCH Penstock is a pressure pipeline that delivers water from Kossler Reservoir to Boulder Canyon Hydro. This project is categorized as Essential using the Budgeting for Resilience framework. This project will provide funds for analysis and targeted repairs for areas discovered in the inspection in 2019. An analysis will be performed on approximate remaining operational life including recommendations from metallurgical and corrosion experts. The rehabilitation project is scheduled for 12 years at approximately 850 feet per year.

Project Phasing

Investigation of condition and maintenance/rehabilitation requirements in 2019 with recommendations/results to be used for rehabilitation program estimate for future years.

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$853,998	\$1,274,492	\$1,013,472	\$1,054,011	\$1,096,171	\$1,140,018	\$1,185,619
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$7,617,781

Additional Annual Operating and Maintenance

Additional Annual O&M: Ongoing maintenance so no additional O&M required.

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Barker Dam Outlet

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA10900

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: Yes

CEAP Status: CEAP to begin after Alternatives Design Report is completed in 2020

Project Description

Barker Dam is located in Nederland at the east end of Barker Reservoir. The dam is owned by the city of Boulder and it provides a significant component of the city’s water storage. The dam is over 100 years old and requires significant rehabilitation/replacement of the dam’s outlet works. The current configuration of the outlet gates requires that Barker Reservoir be nearly emptied to perform a thorough gate inspections once every 5-10 years. Reconfiguration of the outlet facilities would potentially eliminate the need to empty the reservoir for gate inspection. The project would likely require construction of a vertical shaft near the north embankment, inlet tunnels and one outlet tunnel, an outlet distribution facility, a pipeline to Barker Gravity Line, and valve house. The outlet facilities would provide the opportunity to develop a hydroelectric generation facility as well. Information regarding the alternative approaches will be provided as part of the city’s Community & Environmental Assessment Process (CEAP). This project is categorized as Essential using the Budgeting for Resilience framework.

Project Phasing

The Outlet System Rehabilitation Project will begin in 2023/2024 with an update to the alternative analysis. The project is anticipated to complete construction in 2024/2025.

Public Process

CEAP is to be finalized by 2019 along with final approval of the project.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

After the alternative analysis has been completed in 2017, a CEAP will be required in 2018 to confirm the preferred option proposed by city staff and technical experts. The final design will have to be reviewed and approved in 2019 by DWR-Dam Safety Division before construction can proceed in 2020. Water Resources staff will coordinate with the Water Commissioner and affected water rights holders if lower reservoir levels are required in 2019/2020.

Change From Past CIP

Project schedule shifted out due to satisfactory gate inspections.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$520,657	\$0	\$0	\$977,476	\$9,774,764	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$11,272,897

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Kossler Dam

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA11900

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. Kossler Dam Face Rehabilitation Project was completed in 2015. Temporary repairs were constructed to the Kossler Reservoir Inlet Structure in 2017. Both the Inlet Structure and the Outlet Structure will require full rehabilitation/replacement within 10 years and is presently scheduled for 2025. Gate analysis 2021 and replacement in 2022/2023.

Project Phasing

Analysis: 2021
Construction: 2022/2025

Public Process

This project is inspection of an existing facility/structure so no process is anticipated. It is on City of Boulder pipeline easement.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Approval of rehabilitation design and structural modifications in YR - 2022 is required from the CO Division of Dam Safety as Kossler Dam is a jurisdictional High Hazard Dam.

Change From Past CIP

We are analyzing and replacing gate, shifted const out to 2025.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$1,046,684	\$68,369	\$100,000	\$1,500,000	\$300,000	\$100,000	\$750,000	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$3,865,054

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Treated Water Hydro Study

Project at a Glance

Project Type: CIP-CAPITAL PLANNING STUDIES

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA31000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. The City's potable water system includes two (2) mountain-to-town hydroelectric stations, two (2) in-town hydroelectric facilities, two (2) "reverse pump stations" integrated with the two in-town hydroelectric stations, and three (3) pump stations. There is one (1) stand-alone pressure reducing valve (PRV) station and each of the hydroelectric and system pump stations are equipped with co-located PRVs as well. These facilities serve the primary purpose of controlling pressure and transferring water between the City's three pressure zones in a cost-efficient and safe manner. These facilities have provided acceptable service to City customers but have required ongoing and consistent reinvestment to address aging infrastructure, surge mitigation, or operational issues related to pressure management. Many components of the system are now at a critical point in their life cycle whereby potentially large investments are needed to continue reliable service and to meet City level of service goals now through buildout. The purpose of this study is to confirm the most cost-efficient options for all treated water hydroelectric stations and their adjacent pressure controlling infrastructure. The project includes conceptual-level design for the preferred alternative for yard piping and PRV system at the Sunshine Hydro Campus.

Project Phasing

This project is a single-phase study and includes conceptual design for the preferred alternative at the Sunshine Hydro Campus.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$250,000	\$0	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$250,000

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Maxwell Hydro/PRV Facility

Project at a Glance

Project Type: CIP-CAPITAL PLANNING STUDIES

Department: PW/WATER UTILITY

Subcommunity: NORTH BOULDER

Project Number: 610WA34200

BVCP Area: AREA I

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. The Maxwell facility is a treated water pressure reducing and hydroelectric facility located below Betasso Water Treatment Facility. This project is to completely replace the pump control valve.

Project Phasing

Completion: 2021

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

Added \$100K in 2021 for equipment replacement.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$2,177	\$332,824	\$100,000	\$0	\$0	\$0	\$50,000	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$485,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Sunshine Hydroelectric/PRV Facility

Project at a Glance

Project Type: CIP-CAPITAL PLANNING STUDIES

Department: PW/WATER UTILITY

Subcommunity: AREA III

Project Number: 610WA34700

BVCP Area: AREA III

CEAP Required: No

CEAP Status: Not Required

Project Description

The Sunshine facility is a treated water pressure reducing and hydroelectric facility located below Betasso Water Treatment Facility. This project will inspect and rebuild the turbine.

Project Phasing

Completion: 2022

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Shared access considerations with Open Space & Mountain Parks.

Change From Past CIP

Added \$150,000 in 2022 for turbine inspection and rebuild.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$218,352	\$36,801	\$0	\$150,000	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$405,153

Additional Annual Operating and Maintenance

Additional Annual O&M: 0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Kohler Hydro/PRV Facility

Project at a Glance

Project Type: CIP-CAPITAL PLANNING STUDIES

Department: PW/WATER UTILITY

Subcommunity: SOUTH BOULDER

Project Number: 610WA37600

BVCP Area: AREA I

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. The Kohler facility is a treated water pressure reducing and hydroelectric facility located below Betasso Water Treatment Facility. This project is an update to the complete overhaul of the pump valves (2019/2020) which includes: disassembly, inspection, repair and reassembly.

Project Phasing

Completion: 2025/2026

Public Process

None.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

Added \$100K in 2019 for pump valve overhauls

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$45,597	\$100,000	\$0	\$0	\$0	\$0	\$50,000	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$195,597

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Water Mains In-House R&R Program

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA38000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

The City of Boulder Public Works (PW) Department is dedicated to maintaining and improving the quality of life in Boulder by planning for future needs, promoting environmental quality, building and maintaining municipal infrastructure, managing public investments, and protecting health and safety (PW Mission Statement). The utilities division helps meet this goal by ensuring our utility system is engineered, built, operated, and maintained according to industry best practices. One key component is ongoing replacement of treated water pipes in the system that are at the end of their useful life. Timely replacement of old piping helps limit the number and frequency of pipe breaks in the system and the risks they impart on public health, the environment, customer service and cost efficiency of utility services. As of 2020 the City's program replaces about four to five miles of pipe per year, which is approximately a 100-yr replacement frequency. This project focuses on the components of these efforts most effectively performed by in-house City crews. Projects are prioritized through a comprehensive approach that considers overall utility reliability and redundancy, improvements required to serve the City Comprehensive Plan, City Council priorities, safety of the public and operations staff, regulations, available budget and revenues, timing of other PW projects, timing with other City department projects, and pavement management projects.

Project Phasing

Planning is conducted on an annual basis for this project with year-round construction to replace existing aged pipe in-kind with new pipe.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$2,400,000

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Distribution Waterline Replacement

Project at a Glance

Project Type:	CIP-CAPITAL MAINTENANCE		
Department:	PW/WATER UTILITY	Subcommunity:	SYSTEM-WIDE
Project Number:	610WA38900	BVCP Area:	SYSTEM-WIDE
CEAP Required:	No	CEAP Status:	Not Required

Project Description

The City owns and operates approximately 465 miles of water mains that deliver drinking water to the Boulder customers. The larger pipes (14-inch diameter and larger), are referred to as the water transmission system as these pipes convey large volumes of water around the city. The smaller pipes (12-inch diameter and smaller) are referred to as the water distribution system as these pipes provide drinking water throughout residential streets in Boulder directly to households. The water distribution system is comprised of approximately 400 miles of pipe.

Utilities has a proactive water distribution rehabilitation program intended to replace aging water utility infrastructure in an efficient timely manner. Utilities is currently replacing approximately 4 miles of water distribution pipe per year at an annual cost of \$4.2M. This replacement rate represents approximately one percent (1%) of the system per year. The water distribution system is comprised of three primary pipe materials, including steel, ductile iron, and polyvinyl chloride (PVC) pipe. The city’s goal is to replace all the steel and ductile iron pipe because it is old and subject to external corrosion. PVC pipe has become the industry standard for small diameter pipe because it is corrosion resistant and has an estimated useful life of 75 to 100 years.

Project Phasing

Planning is conducted on an annual basis for this project with year-round construction to replace existing aged pipe in-kind with new pipe.

Public Process

Neighborhoods are notified a couple of weeks in advance of the construction and on the water info website.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

City & County Transportation, City & County Open Space, City Development Review, City Planning, City Flood, City Wastewater, Xcel, Century Link, BNSF, Private Developers, BVSD, RTD, small water districts and Ditch Companies.

Change From Past CIP

-

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$15,199,459	\$6,448,284	\$0	\$4,200,000	\$0	\$4,200,000	\$0	\$4,200,000
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$34,247,742

Additional Annual Operating and Maintenance

Additional Annual O&M: 0 **Funding Source for O&M:**

Additional Annual O&M Description:

No increase, funded by existing operating budget.

Project Name: Utility Billing Computer System

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA45300

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

The existing Utility Billing Computer System is aging and needs updates. This project will upgrade the system.

The funding is split between the three Utilities Enterprise Funds (SW, WW, and WA)

Project Phasing

Completion: 2020

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

This project will be coordinated with the IT and Finance Departments.

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$71,461	\$28,539	\$125,000	\$0	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$225,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Meter Replacement Program

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA45400

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status: NA

Project Description

Potable water customers are billed for their water use based a network of nearly 30,000 water meters. Meters in the system are tested by the City in accordance with AWWA best practices and overall provide reliable service to City customers and Utility Billing. However, many cohorts of meters are at the end of predicted lifespan and require replacement. The majority of these meters can be replaced via in-house crews to streamline schedule and save costs.

Project Phasing

This project funds replacements in order of priority starting with large-sized meters in the City's potable system. Smaller meters will be funded subsequently on an annual cycle.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$250,792	\$255,000	\$425,000	\$0	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$930,792

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Large Meter Improvements Phase 1

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA45500

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

Potable water customers are billed for their water use based a network of nearly 30,000 water meters. Meters in the system are tested by the City in accordance with AWWA best practices and generally provide reliable service to City customers and Utility Billing. However, many of water meters are at the end of predicted lifespan and require replacement. The majority of these meters can be replaced via in-house crews to streamline schedule and save costs. Some of the meters are located in vaults that need to be replaced due to issues related to age, safe access for operations and maintenance, and space required for modern meter equipment. Four vaults have been identified for this project phase including: 1) Broadway & Pennsylvania (CU Large Meter) 2) Grandview & 19th (CU Large Meter) 3) Folsom Field 4-inch Meter/Vault 4) Justice center 6th and Canyon 4-inch Meter/Vault. Following completion of the large meter replacement program, Utilities will begin the replacement of the system’s smaller water meters.

Project Phasing

This project involves several CIP phases typical of a large-scale project: Alternatives Analysis, Preliminary Design, Final Design, Colorado Department of Public Health and Environment (CDPHE) Applications, County Permitting, and Construction. There are a number of vaults system-wide that must be replaced over the course of several budget cycles. Four vaults are contemplated for Phase 1. Future phases of construction will be determined as part of annual City budget processes.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$0	\$1,360,000	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$1,360,000

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Watershed Improvements

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA52000

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. General Watershed improvements for critical as recommended in the 2009 Source Water Master Plan. This project funds ongoing improvements to facilitate continued reliable operation of the watershed source water storage and delivery system. Fund augmentation needs will be assessed at the end of 2019.

Project Phasing

Fiber-optic and Instrumentation upgrades in 2019 and 2020. Ongoing 30k after for other watershed projects on an annual basis.

Public Process

No public process is required as any improvements in the watershed are on city land.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Coordination only required with State Engineer's Office on dam related items. All other items are internal to the city engineering and management staff team.

Change From Past CIP

We added 200k for instrumentation.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$461,723	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$611,723

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: NCWCD Conv - Boulder Feeder Canal

Project at a Glance

Project Type: CIP-NEW FACILITY/INFRASTRUCTUR

Department: PW/WATER UTILITY

Subcommunity:

Project Number: 610WA54600

BVCP Area:

CEAP Required:

CEAP Status:

Project Description

NCWCD Conv - Boulder Feeder Canal point source drainage inflow improvements on a priority basis.

Project Phasing

Ongoing improvements continue until 2017 at which time the drainage improvements in the priority segments will have been completed.

Public Process

No public process required as NCWCD owns the canal and easement.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Just coordination with NCWCD as locations to be improved are on their canal easement.

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$8,859	\$191,043	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$1,159,902

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Incl. with payment to NCWCD for water ordered by city

Project Name: Instream Flow Structures and Gaging

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity:

Project Number: 610WA54900

BVCP Area:

CEAP Required:

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. Boulder will install a stream gauge on Boulder Creek downstream of the Rural Ditch headgate and improve flow measurement along the reach. The stream gage will be used to measure instream flow water that Boulder is leasing to users below the headgate.

Project Phasing

Project will be done in coordination with the Rural Ditch Company that is in the process of negotiations. We are awaiting feedback from the ditch company. Project will proceed once an agreement has been made. Negotiations are proceeding slowly.

Public Process

Project is outside city limits, is not on city lands, and is owned by and being constructed by another entity. Boulder is contributing funds to the project. Project will not have a public process.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Boulder is coordinating with Rural Ditch Company. The ditch company will manage the construction of the project. Boulder is contributing funds.

Change From Past CIP

No Change

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$108,428	\$10,000	\$10,000	\$10,000	\$10,000	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$148,428

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Source Systems Condition Assessment

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity:

Project Number: 610WA60000

BVCP Area:

CEAP Required:

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. An assessment of the components that make up the City's source water system including a detailed inventory of all asset to determine the type of asset, structural and maintenance condition, redundancy, remaining useful life, and approximate replacement or rehabilitation costs.

Project Phasing

2025: Perform Assessment

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

New project

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$350,000	\$0	\$0	\$0	\$0	\$425,829	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$775,829

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Green Lake 2 Dam

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA62700

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status: Not Required

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. This project will provide funds for the evaluation of alternatives and design of the rehabilitation of Green Lake 2 Dam. Green Lake 2 Dam needs extensive rehabilitation to allow continued full storage of water.

Project Phasing

Alternative Analysis: 2023/2024
Access Road Improvements: 2025
Design & Construction: 2027-2028/29

Public Process

This project is servicing existing City of Boulder infrastructure/facilities. No public process required.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

Shifted out three years.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$99,719	\$0	\$0	\$75,000	\$25,000	\$250,000	\$0
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$449,719

Additional Annual Operating and Maintenance

Additional Annual O&M: 0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Albion Dam

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA62800

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status: N/A

Project Description

Albion Dam is one of several high elevation dams located in the North Boulder Creek Watershed, which is located to the west of Boulder in Indian Peaks Wilderness. The North Boulder Creek watershed is one of three watersheds that provide raw water to the city of Boulder. Albion Dam has a storage capacity of approximately 1,000 acre-feet (AF) which is about 1/12 the size of the Barker Reservoir in Nederland. Albion dam requires significant rehabilitation on the upstream and the downstream faces as well as the dam’s spillway. Utilities staff completed emergency repairs in 2016 to address blockages in the dam’s outlet works from crumbling infrastructure. In 2017, a rehabilitation alternative study was issued. This project will fund a new dam liner, and crest and spillway repairs as recommended in the 2008 Source Water Master Plan. This project is categorized as Essential using the Budgeting for Resilience framework.

Project Phasing

Design & Construction: 2021-2022

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

SEO office will review design in 2018 before construction can begin in 2019.

Change From Past CIP

Shifted out years, revised cost estimates.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$217,128	\$329,508	\$986,706	\$9,867,055	\$0	\$0	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$11,400,397

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Skyscraper Dam

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA64000

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. Funding is for infrastructure evaluation and gate replacement as recommended in the Source Water Master Plan.

Project Phasing

Completion: 2021

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$171,071	\$0	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$171,071

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Wittemyer Ponds

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA65000

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: Yes

CEAP Status: to be finalized in 2019 if required

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. Wittemyer Ponds consists of multiple reservoirs planned for potential use to facilitate city water exchanges. Alternatives for improving the ponds to reservoirs will be considered for final implementation.

Project Phasing

Alternatives Study: 2021
CEAP: 2027
Design & Construction: 2027-2028/2029.

Public Process

CEAP in 2019. Typical review by WRAB and CC during CIP

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Collaborate with Boulder County and any other affected landowners depending on the location of the outlet structure and outcome of the alternatives analysis.

Change From Past CIP

Moving funds out 4 years.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$300,000	\$0	\$0	\$100,000	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$400,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$50k

Funding Source for O&M:

Additional Annual O&M Description:

Est. as 1% of construction cost (to be confirmed)

Project Name: Kohler Tank Yard Piping Replacement

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA67100

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

The City's potable water system includes a complex system of hydroelectric stations, pump stations, and storage tanks. These critical facilities control pressure, transfer large volumes of water across the City and provide critical water storage for use during short-term periods of high consumer demand, emergency storage for potential times of interrupted water supply, and water to meet fire flow demands. The Kohler site is especially important for water transmission as it a major hub of several of these major infrastructure system components all at the same location. Since their original construction various improvement projects have been completed to maintain service and the ability to meet more stringent regulations. The next phase of priority repair and replacement (R&R) at the Kohler site focuses on yard piping replacement. This piping is old and at the end of its useful lifespan.

Project Phasing

This project involves several CIP phases typical of a large-scale project: Alternatives Analysis, Preliminary Design, Final Design, Colorado Department of Public Health and Environment (CDPHE) Applications, County Permitting, and Construction.

Public Process

WRAB, PB and CC CIP/budget review.
Neighborhood mailing 1 month before construction.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

City roofing permit.

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$903,362	\$0	\$0	\$0	\$0	\$1,000,000	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$1,903,362

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Lakewood Pipeline

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA78000

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: Yes

CEAP Status: Yes

Project Description

This project provides funding for periodic inspection and maintenance on the Lakewood Pipeline.

Project Phasing

Work anticipated in 2019 as part of a every 5 year interval inspection to assess the ongoing condition of the pipe.

Public Process

This project is inspection of an existing facility/structure so no process is anticipated. It is on city of Boulder pipeline easement.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

Shifting to 10 year interval because of slow changes in condition.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$7,314	\$248,087	\$0	\$0	\$0	\$384,864	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$640,264

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Water System Master Plan & COS

Project at a Glance

Project Type: CIP-CAPITAL PLANNING STUDIES

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA81000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

Utilities Engineering (UE) implements long-term utility planning processes to develop and prioritize projects within the Capital Improvement Program (capital projects), identify and plan utility improvements needed now and through buildout of the Boulder Valley Comprehensive Plan, and document implications for utility rates. As part of this planning process, the UE team periodically executes holistic, long-range master plans to catalogue infrastructure and funding needs anticipated in the water system (source water to customer meters) now and through buildout. The City's current master plan dates back to 2011 and an update is necessary. The purpose of this project is to update the master plan for the water fund as a whole (both source water and treated water systems) and to integrate a Cost of Service study (COS) to confirm appropriate revenue and rate needs near- and long-term as required for financial sustainability of the utility.

Project Phasing

This project is a single-phase master plan and includes alternatives analysis and recommended conceptual long-range plans for the water system as a whole as needed to meet the City vision defined by the Boulder Valley Comprehensive Plan.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$0	\$0	\$1,000,000	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$1,000,000

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Lakewood Hydroelectric/PRV

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WATER UTILITY

Subcommunity: AREA III

Project Number: 610WA90100

BVCP Area: AREA III

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. The Lakewood Hydroelectric station is located on the raw water transmission system near Betasso Water Treatment Facility. This project provides ongoing enhancements of hydro-electric equipment at this location as systems age or need to be replaced.

A generator overhaul was completed in 2016 and a pressure reducing valve refurbishment is planned for 2019/2020.

Project Phasing

Completion: 2019/2020 Pressure Reducing Valve
Generator and System Inspection/Rehab: 2026

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$123,568	\$306,432	\$50,000	\$0	\$0	\$0	\$0	\$150,000
								Funding to Completion \$0
								Future Unfunded \$0

Total Funding Plan: \$630,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Barker Dam Hydroelectric

Project at a Glance

Project Type: CIP-NEW FACILITY/INFRASTRUCTUR
Department: PW/WATER UTILITY
Project Number: 610WA91000
CEAP Required: No
Subcommunity: OUTSIDE PLANNING AREA
BVCP Area: OUTSIDE PLANNING AREA
CEAP Status: Starts in 2023

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. Analysis and develop hydroelectric potential if preferred as recommended in the Source Water Master Plan, MWH, 2008/2009.

Project Phasing

Analysis Study: 2026
Design: 2027
Construction: 2028

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

Added in 2021.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$0	\$50,000	\$0	\$0	\$0	\$100,000
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$150,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$37,000

Funding Source for O&M:

Additional Annual O&M Description:

O&M costs may be offset by increased hydro revenue (TBD)

Project Name: Carter Lake Hydroelectric

Project at a Glance

Project Type: CIP-NEW FACILITY/INFRASTRUCTUR
Department: PW/WATER UTILITY
Project Number: 610WA93000
CEAP Required: Yes
Subcommunity: OUTSIDE PLANNING AREA
BVCP Area: OUTSIDE PLANNING AREA
CEAP Status: 2019

Project Description

Analyze potential for hydroelectric facility on the city's portion of the Carter Lake Pipeline and then design and build if preferred. This project is categorized as Essential using the Budgeting for Resilience framework.

Project Phasing

Alternatives analysis in with Community & Environmental Assessment Process (CEAP) and then potentially design and construction. Potentially scheduled for 2027/2028.

Public Process

CEAP in 2019 if hydro alternative is feasible.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Coordination with Northern Colorado Water Conservancy District and power company (most likely Xcel).

Change From Past CIP

Moving to 2026.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$50,000	\$0	\$0	\$0	\$0	\$250,000	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$300,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$25k

Funding Source for O&M:

Additional Annual O&M Description:

Est. as 1% of construction cost (to be confirmed)

Project Name: Source Water Rehabilitation Program

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: MULTIPLE SUBCOMMUNITIES

Project Number: 610WA94000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. Funding for capital maintenance for the critical source water facilities, hydroelectric, pressure reducing, and reversible pump-generator system components not identified as individual capital projects.

Project Phasing

Funding for this ongoing maintenance program began in 2016/2017 and will continue through the budget planning horizon. Increase in 2020 is scheduled increase in annual allowance for operations, maintenance and rehabilitation improvements.

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

No process required as city owned facilities but coordination may be required with land use neighbors.

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$400,355	\$401,634	\$175,479	\$182,498	\$189,798	\$197,390	\$205,285	\$213,497
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$1,965,936

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing budget.

Project Name: Hydro Facilities Rehab Program

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: MULTIPLE SUBCOMMUNITIES

Project Number: 610WA94100

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status: N/A

Project Description

This project is categorized as Essential using the Budgeting for Resilience framework. Hydro maintenance for all facilities. Misc minor items/repairs/upgrades not included in specific CIP budgets.

Project Phasing

Initial estimate of \$50k a year indefinitely escalated from starting year of 2017. Estimate to be updated periodically per actual costs for Hydro O&M tasks encountered/completed.

Public Process

No public process warranted as an existing city owned facility. Typical WRAB and CC review during CIP process annually.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None required as an existing city facility.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$95,915	\$112,781	\$58,493	\$60,833	\$63,266	\$65,797	\$68,428	\$71,166
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$596,679

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Additional O&M not required as project is for misc. maintenance

Project Name: 63rd WTF Campus Electrical & HSPS

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA94400

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

The City owns and operates two potable water treatment facilities that supply drinking water to Boulder customers. These include the Betasso Water Treatment Facility (Betasso) rated at 40 million gallons per day (mgd) and the 63rd Water Treatment Facility (63rd) rated at 16 mgd. Initial construction of the 63rd WTF occurred in 1969 to provide critical backup supply during times when Betasso facility is offline for repairs or emergencies. In addition, the facility is required for use of critical water rights from the western slope. Since the 63rd WTF construction, various expansion and improvement projects have been constructed to maintain service and the ability to meet more stringent regulations. Overall, the facility has provided high-level service to City water customers but is aging and needs repairs. The focus of this project is twofold: 1) Replacing major power supply and electrical components on the campus and to improve their reliability and redundancy and 2) Repair and replacement (R&R) of the largest power consuming treatment process on campus called the high service pump station (HSPS). The HSPS was built in 1969 and is the sole source of supply to the distribution system from the 63rd WTF. Minor repairs have been implemented over time, but the station is now at its end of useful life. The project also contemplates converting the existing power supply of the station to a lower voltage that is less hazardous and more easily maintained.

Project Phasing

This project involves several CIP phases typical of a large-scale project: Alternatives Analysis, Preliminary Design, Final Design, Colorado Department of Public Health and Environment (CDPHE) Applications, County Permitting, and Construction.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

New Project

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$2,528,077	\$2,000,000	\$18,300,000	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$22,828,077

Additional Annual Operating and Maintenance

Additional Annual O&M: ~\$50,000

Funding Source for O&M:

Additional Annual O&M Description:

Inspections, Maintenance, Instrumentation Calibration, Etc.

Project Name: BWTF Disinfection & Corrosion

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA94500

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

The City owns and operates two potable water treatment facilities that supply drinking water to Boulder customers. The vast majority of water is supplied to the City via the Betasso Water Treatment Facility (Betasso). Initial construction of the Betasso plant occurred in 1964. Since then various expansion and improvement projects have been constructed to maintain service and the ability to meet more stringent regulations. Most recently items of highest priority were repaired in the 2016 capital improvements project. The next phase of priority repair and replacement (R&R) focuses on two main items: 1) Disinfection capacity and 2) the lime and carbon dioxide chemical feeds systems used for corrosion control. Because these two aspects of the treatment process interact and work together they are being addressed in a single combined project. Currently regulatory driven disinfection occurs in two tanks known as clearwells. Clearwell #1 is baffled and performs most of the disinfection. Clearwell #2 is not baffled and therefore has limited capacity. Major repairs are required for Clearwell #1 in the next 5 years to repair corroded structural members and replace its interior and exterior coatings. This project focuses on baffling Clearwell #2 or adding disinfection capacity. This will help meet anticipated regulations, will add redundancy to allow for timely repairs to Clearwell #1, and provides needed system reliability improvements to meet level of service goals now through buildout. The project will also address priority repair and replacement (R&R) for the lime and carbon dioxide chemical feeds systems. These critical systems are used for conditioning treated water to prevent corrosion of pipes in the distribution system and to control of lead and copper levels for regulatory compliance.

Project Phasing

This project involves several CIP phases typical of a large-scale project: Alternatives Analysis, Preliminary Design, Final Design, Colorado Department of Public Health and Environment (CDPHE) Applications, County Permitting, and Construction.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

New Project

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$0	\$0	\$1,150,000	\$10,450,000	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$11,600,000

Additional Annual Operating and Maintenance

Additional Annual O&M: ~\$25,000

Funding Source for O&M:

Additional Annual O&M Description:

New pumps and feed systems inspection and ongoing maintenance

Project Name: Treated Water Misc. R&R

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WA95000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status: Not Required

Project Description

The City of Boulder owns and operates a complex treated water utility system valued at approximately \$1.7 billion. Overall, these facilities provide high-level service to City water customers, but various components of the system need ongoing repairs and miscellaneous other improvements to address aging infrastructure, equipment obsolescence, and safe/reliable operations. The purpose of this project is to repair or replace miscellaneous capital assets or components within the treated water system as needed throughout the year. This project primarily involves selection and purchase of equipment per typical City purchasing policies.

Project Phasing

This provides ongoing capital maintenance funding. Where applicable for large-scale items, purchases may involve phasing such as alternatives analysis, design, permitting, and construction.

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

No

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$58,448	\$433,783	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$2,592,232

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Silver Lake Hydroelectric/PRV

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: OUTSIDE PLANNING AREA

Project Number: 610WA97000

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status:

Project Description

The Silver Lake Hydroelectric station is located on the raw water transmission system near the Lakewood Reservoir. This project provides ongoing enhancements of hydro-electric equipment at this location as systems age or need to be replaced.

A short term Programmable Logic Controller (PLC), which monitors input devices and provides output based on custom programming controls, was completed in 2016. In 2017, an alternatives analysis for permanent PLC upgrades will be conducted. The 2019 project funds the replacement of the needles/seats.

Project Phasing

Completion of Needles/Seats Rehabilitation Project in 2019. The next 10-Year Inspection and Overhaul is scheduled in 2023.

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

added \$250k (2023) for next 10 yr inspection & overhaul

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$114,755	\$263,557	\$0	\$0	\$250,000	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$628,312

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

O&M included in Hydro Operating Budget (to be confirmed)

Project Name: Boulder Canyon Hydro

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WATER UTILITY

Subcommunity: MULTIPLE SUBCOMMUNITIES

Project Number: 610WA97500

BVCP Area: OUTSIDE PLANNING AREA

CEAP Required: No

CEAP Status: N/A

Project Description

Boulder Canyon Hydroelectric – Maintenance and Inspection of the installed replacement unit (commercial operation started in 2013) and control systems. This project is categorized as Essential using the Budgeting for Resilience framework.

Project Phasing

5 year inspection of the turbine in 2018, rock slope stabilization above Pump House in 2019 and full 10 year inspection and overhaul in 2023.

Public Process

No process required as an existing city owned facility.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None required as an existing city owned facility.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Water Utility	\$73,903	\$124,738	\$0	\$0	\$250,000	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$448,641

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0 (TBD)

Funding Source for O&M:

Additional Annual O&M Description:

O&M included with Hydro Operating budget (to be confirmed)

Project Name: Sanitary Sewer Rehabilitation

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE
Department: PW/WASTEWATER UTILITY **Subcommunity:** SYSTEM-WIDE
Project Number: 610WW40000 **BVCP Area:** SYSTEM-WIDE
CEAP Required: No **CEAP Status:** Not applicable

Project Description

The city’s sanitary sewer rehabilitation program is intended to address aging infrastructure in the wastewater collection system. The primary goal of the lining program is the proactive rehabilitation of the collection system before pipes fail. This lining program was accelerated in 2015 following the September 2013 flood event in response to significant sanitary sewer backups in the collection system. Utilities staff committed to lining the entire wastewater collection system in 20-year period based on WRAB and City Council direction. The city’s wastewater collection system is comprised primarily of vitrified clay pipe (VCP), which was the most common pipe material used before polyvinyl pipe (PVC) became the sanitary sewer standard in the 1980’s. The goal of this program involves the lining of all VCP and reinforced concrete pipe (RCP) in the system over the next 20 years. Wastewater Utility rates were increased significantly in 2015 to accelerate the pace of this program. Utilities staff is in their 6th year of the accelerated lining program. The sanitary sewer lining program represents an industry standard proactive approach to pipe rehabilitation to address aging infrastructure before pipe failure. The investment is very cost effective as the lining of 8-inch diameter pipes can be completed for an approximate cost of \$25 per linear foot. This pipe lining utilizes a “trenchless technology” that greatly minimizes impacts to the community because there is no excavation in the streets and alley’s where the pipes are located. By contrast, open cut pipe replacement, which is necessary upon pipe failure, typically costs approximately \$200 per linear foot with far greater impacts to the residents. The lining program offers an ancillary benefit of reducing the I&I that enters the system, but the program’s primary goal is to replace existing infrastructure in a cost-effective manner that minimizes impacts to the community.

Project Phasing

This is an annual program with ongoing funding to meet targets set post 2013 flood.

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Collaboration with utilities maintenance staff to perform pre-rehabilitation repairs, and coordination with the transportation department to avoid conflicts with road resurfacing programs.

Change From Past CIP

4% escalation

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$7,853,755	\$4,069,504	\$3,400,000	\$3,500,000	\$3,600,000	\$3,800,000	\$3,900,000	\$4,100,000
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$34,223,259

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0 **Funding Source for O&M:**

Additional Annual O&M Description:

The work in this project results in a decreased maintenance burden

Project Name: Lower Goose Creek Trunk Sewer Repl

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WASTEWATER UTILITY

Subcommunity: EAST BOULDER

Project Number: 610WW40100

BVCP Area: AREA I

CEAP Required: No

CEAP Status: Not applicable

Project Description

The 2016 Wastewater Collection System Master Plan (WWCSMP) identified four Tier 1 (high priority) projects to address hydraulic capacity limitations in the city's sanitary sewer collection system. The Lower Goose Creek trunk sewer improvements project is one of the four Tier 1 projects. This project involves the rehabilitation and replacement of a section of medium diameter sanitary sewer located in the vicinity of Pearl Parkway and Foothills Parkway. The Goose Creek Trunk Sewer Replacement Project will address structurally deteriorated sections of trunk sewer and improve the ability of this sewer to handle wet weather flows.

Project Phasing

Design (Phase I and II) - 2018 - 2019

Construction (Phase I) - 2020 - 2021

Construction (Phase II) - 2023

Public Process

This project was identified through the 2017 wastewater master plan process which was presented to WRAB and the public had opportunities to provide feedback on the master plan approach and project prioritization at those WRAB meetings.

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Collaboration with transportation department regarding resurfacing of Pearl St in project extents.

Change From Past CIP

\$1M added to 2021 for Phase I construction. Phase II delayed 1 year.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$94,964	\$3,692,904	\$1,000,000	\$0	\$3,300,000	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$8,087,868

Additional Annual Operating and Maintenance

Additional Annual O&M: 0

Funding Source for O&M:

Additional Annual O&M Description:

Project improvements will decrease annual O&M needs.

Project Name: Sanitary Sewer Manhole Rehab

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WW42000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

This project provides for the rehabilitation and improvement to the existing wastewater manholes that are part of the city's wastewater collection system. The program is funded at \$200,000 per year (2018) escalated by an inflation index for future years.

The asset condition assessment shows the need for increased funding to meet system needs. Escalation in program funds begins in 2021.

Project Phasing

This is an ongoing funding program.

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$111,796	\$496,395	\$260,000	\$270,000	\$280,000	\$300,000	\$310,000	\$320,000
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$2,348,190

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Work implemented through this project will reduce maintenance needs.

Project Name: Collection System Monitoring

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WW45000

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status: N/A

Project Description

This project provides funds for monitoring of the City's wastewater collection system. Flow monitoring informs capital project design and provides useful information about the impact of rainfall events on sanitary sewer flows.

Project Phasing

This is an ongoing funding program and is funded at approximately \$150,000 per year.

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

no change

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$508,886	\$235,596	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$1,644,482

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

no change

Project Name: Condition Assessment Program

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE
Department: PW/WASTEWATER UTILITY
Project Number: 610WW45100
CEAP Required: No

Subcommunity: SYSTEM-WIDE
BVCP Area: SYSTEM-WIDE
CEAP Status: N/A

Project Description

The Wastewater Utility Condition Assessment Program is intended to provide an ongoing comprehensive cleaning and assessment of the city's sanitary sewer collection system. There are approximately 370 miles of sanitary sewer pipe in the collection system.

Project Phasing

This is an ongoing funding program. The program was funded at \$600,000 in 2016, and has been escalated at 4% annually.

A new assessment cycle was awarded in early 2019 with the ability to renew for 3 years.

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

no change

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$2,558,089	\$727,601	\$730,000	\$890,000	\$920,000	\$960,000	\$1,000,000	\$1,040,000
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$8,825,689

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Work implemented through this project typically reduces maintenance.

Project Name: Utility Billing Computer System

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: SYSTEM-WIDE

Project Number: 610WW45300

BVCP Area: SYSTEM-WIDE

CEAP Required: No

CEAP Status:

Project Description

The existing Utility Billing Computer System is outdated and needs updated. This project will update the system.

Project Phasing

Completion: 2020

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Collaboration with the IT and Finance Departments.

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$35,731	\$29,094	\$62,500	\$0	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$127,325

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: Interceptor Sewer Realignment

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Project Number: 610WW46000

CEAP Required: Yes

Subcommunity: EAST BOULDER

BVCP Area: OUTSIDE PLANNING AREA

CEAP Status: 1041 Approval from Boulder County anticipated in June 2020

Project Description

The city's Wastewater Collection System Master Plan (WWCSMP) concluded that the city's sanitary sewer system performs very well under dry weather conditions. This means that the collection system has adequate capacity to convey the city's daily wastewater flow of approximately 10 million gallons per (mgd) day to the WRRF. The master plan identified that the system becomes overwhelmed in some locations when significant rainfall induced inflow & infiltration (I&I) enters the system and takes up conveyance capacity intended for the base sanitary sewer flow. Inflow and infiltration represents extraneous water that enters the sanitary sewer system, but the I&I volume can vary tremendously depending on the age and quality of the system. The WWCSMP identified four Tier 1 (high priority) projects to be completed to address collection system capacity related issues throughout the city. The 42-inch diameter Interceptor sewer realignment project is the largest of the four capacity driven projects. The existing pipeline is over 50 years old and at the end of its useful life. This replacement of the existing pipe will address several key issues including the following: This project will provide a new pipeline with a projected useful life of 75 to 100 years. It will address increased capacity needs to provide a greater level of service to the community by accommodating the estimated I&I contribution. Lastly, the new pipeline will be located further from Boulder Creek representing a less vulnerable condition from flooding.

This project is entering the design phase after a multi-year alternatives analysis phase that identified potential new routes to realign the city's largest diameter pipe between the vicinity of Valmont Road and 61st Street and the WRRF. The alternatives analysis included the successful completion of the Boulder County 1041 Permit process with acceptance from both the Boulder County Planning Commission and Boulder County Commissioners in 2020. This project is scheduled for potential construction in 2022.

Project Phasing

Planning (1041): 2016-2020

Preliminary Design: 2020

Final Design : 2021

Construction: 2022 - 2023

Public Process

This project was identified after the 2013 flood event and was incorporated into the 2076 wastewater collection system master plan which was presented to the Water Resources Advisory Board (WRAB). The public had the opportunity to provide feedback on the master plan approach and project prioritization at those WRAB meetings.

A Community & Environmental Assessment Process (CEAP) was started in 2016 and will complete in 2017.

Interdepartmental and Interagency Collaboration

This project will require extensive collaboration with other property owners and managers such as the Regional Transportation District (RTD), Boulder County, and City of Boulder Open Space & Mountain Parks.

Capital Funding Plan

DET/Impact Fees

Change From Past CIP

Increase in construction cost from \$30M to \$48M.

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$529,418	\$8,000,900	\$3,600,000	\$44,475,000	\$0	\$0	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$56,605,318

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0 **Funding Source for O&M:**

Additional Annual O&M Description:

Replacement of existing infrastructure - no additional O&M cost.

Project Name: Inverted Siphon Replacement

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: GUNBARREL

Project Number: 610WW46500

BVCP Area: AREA III

CEAP Required: No

CEAP Status: N/A

Project Description

Of the 370 miles of sanitary sewer in the city's wastewater collection system, there exists only one inverted siphon. This feature conveys wastewater flow from the majority of Gunbarrel underneath Boulder Creek on the property of the Boulder Water Resource Recovery Facility.

The existing ductile iron siphon was installed in 1976. The 2019 wastewater condition assessment program identified two issues: internal pipe corrosion and the inability to effectively clean and maintain the pipe.

This project will replace the inverted siphon and will allow for future integration of flows that are currently conveyed over Boulder Creek via an elevated pipeline from east Gunbarrel.

Project Phasing

Preliminary Design: 2020

Final Design: 2021

Construction: 2022

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

New Project

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$0	\$0	\$300,000	\$3,500,000	\$0	\$0	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$3,800,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Project improvement will decrease O&M.

Project Name: Meter Replacement Program

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WASTEWATER UTILITY

Subcommunity:

Project Number: 610WW54800

BVCP Area:

CEAP Required:

CEAP Status:

Project Description

This project is for replacing aging water meters that are used for customer billing and usage information. There are currently over 28,000 meters in the system, and most of them are reaching the end of their useful life at 15 – 20 years old. This project provides funding for a large meter (greater than 2 inch) replacement on an ongoing basis. These meters are tested annually and will be repaired or replaced as needed. The small meter (less than 2 inch) program will begin in 2022 and aim to replace all small meters within 10 years.

Project Phasing

The large meter program is funded at \$45k in 2020 and 2021, then \$100,000 in future years. Smaller meters are funded at \$180k per year escalated for 9 to 10 years.

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$0	\$45,000	\$75,000	\$240,000	\$0	\$0	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$360,000

Additional Annual Operating and Maintenance

Additional Annual O&M:

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: Water Resource Recovery Pumps

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW60000

BVCP Area: AREA III

CEAP Required: No

CEAP Status: N/A

Project Description

The existing pumps at the Boulder Water Resource Recovery Facility require rehabilitation. This project will fund the upgrade of those pumps on a recurring basis. The highest priority assets will be funded each cycle.

Project Phasing

Ongoing pump rehabilitation and replacement. Normally on a two-year cycle, \$75k was added to 2021 to cover near term needs that cannot wait until the 2022 cycle.

Public Process

None

DET/Impact Fees

None

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

Added \$75,000 to 2021.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$150,067	\$75,000	\$75,000	\$150,000	\$0	\$0	\$150,000	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$600,067

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: WRRF Primary Clarifiers

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW60500

BVCP Area: AREA III

CEAP Required: No

CEAP Status:

Project Description

The Water Resource Recovery Facility's primary clarifiers are concrete circular settling tanks with rotating steel mechanisms to separate solids from the water. They are located after the headworks and before the aeration basins (biological process). The mid-term rehabilitation in 2023 will recoat the rotating mechanisms. The long-term replacment in 2029 will replace mechanisms, drives, walkway bridges, and effluent weirs, baffles, and launders.

Project Phasing

Near term repairs: 2020

Mid-term Rehab: 2022-2023

Long term replacement: 2029

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

Pushed back one year to 2022/2023 along with phosphorus project

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$0	\$115,000	\$0	\$70,893	\$700,000	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$885,893

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: WRRF Secondary Clarifiers

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW60600

BVCP Area: AREA III

CEAP Required: No

CEAP Status:

Project Description

Secondary clarification is an essential unit process of the overall treatment system at the Boulder WRRF. Similar to the primary clarifiers, the internal componentry is submerged in wastewater and needs repair and rehabilitation periodically, and eventual replacement. This project is to repair the internal mechanism to provide full-utilization of the asset.

Project Phasing

Inspection/repair: 2022-2023

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Change From Past CIP

Pushed back one year to 2022/2023 along with phosphorus project

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$0	\$0	\$0	\$50,000	\$500,000	\$0	\$0	\$0
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$550,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Clarifiers are maintained under the existing operating budget.

Project Name: WRRF Digester Complex

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW60700

BVCP Area: AREA III

CEAP Required: No

CEAP Status:

Project Description

This project is to replace the Water Resource Recovery Facility secondary digester floating cover. The cover has tipped and failed on several occasions in recent years taking the system offline and limiting its ability to handle gas and interrupting wastewater treatment.

The project budget was increased from \$2M to \$3.25M based on an updated cost estimate and recent bids on roof replacement.

Project Phasing

Planning & Design: 2020

Construction: 2021

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

None

Change From Past CIP

Increased budget from \$2M to \$3.25M

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$0	\$200,000	\$3,250,000	\$0	\$0	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$3,450,000

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: WRRF Rehabilitation

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW61500

BVCP Area: AREA III

CEAP Required: No

CEAP Status: N/A

Project Description

The Wastewater Utility Asset Management Planning Tool identified miscellaneous rehabilitation projects not identified in master plan documents. This funding could be for one project or several smaller projects.

Project Phasing

This project provides ongoing funding, annually, at an aggregate \$250,000 level.

Public Process

N/A

DET/Impact Fees

Interdepartmental and Interagency Collaboration

Projects are coordinated with Boulder County land use and planning

Change From Past CIP

no change

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$106,977	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$1,856,977

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

Project Name: WRRF Permit Improvements

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW61700

BVCP Area: AREA III

CEAP Required: No

CEAP Status: N/A

Project Description

The Boulder Water Resource Recovery Facility requires improvements and new facilities as required by Federal and State regulation to improve effluent quality, as identified by the State of Colorado Discharge Permit System (CDPS) Permit. This project addresses necessary improvements to remove phosphorus.

Project Phasing

Phosphorus Project
Study/Pre-design: 2020
Planning & Design: 2021-2023
Construction: 2023-2025

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

Project pushed from 2022 to 2023 based on permit information.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$243,679	\$919,232	\$0	\$1,700,000	\$0	\$0	\$0	\$80,000
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$2,942,911

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: WRRF Instrumentation/Control

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW63700

BVCP Area: AREA III

CEAP Required: No

CEAP Status: N/A

Project Description

This project will fund the rehabilitation and/or replacement of instrumentation & control (I&C) facilities at the Boulder Water Resource Recovery Facility. These recommendations are based on the 2013 Process Automation System (PAS) Strategic Plan. The PAS Strategic Plan identified \$6,000,000 worth of I&C improvements to be completed over 10 years.

Project Phasing

Completion (Phase I): 2018
Design (Phase II): 2020
Construction (Phase II): 2021
Design (Phase III): 2025
Construction (Phase III): 2026

Note that the 2020 CIP increased the Phase II project by \$1.6M and decreased the Phase III project by \$2M and delayed from 2024 to 2029.

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

Addition of \$1.4M in 2021 to cover increased Phase II scope.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$1,172,337	\$1,839,546	\$1,400,000	\$0	\$0	\$0	\$100,000	\$1,000,000
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$5,511,882

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: WRRF Activated Sludge

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW64000

BVCP Area: AREA III

CEAP Required: No

CEAP Status: N/A

Project Description

This project will fund the scheduled rehabilitation of the Boulder Water Resource Recovery Facility's mechanical aeration system, which is a critical system supporting the microbiological process. Specifically, this money is for a preventative maintenance service through a qualified third-party. The typical agreements are 5-years and we pay in advance for annual services.

Project Phasing

Inspection/testing: 2019 through 2023

Public Process

none

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

none

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$8,453	\$190,511	\$0	\$0	\$0	\$230,918	\$0	\$0
						Funding to Completion	\$0	\$0
						Future Unfunded	\$0	\$0

Total Funding Plan: \$429,882

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: WRRF Digester Cleaning

Project at a Glance

Project Type: CIP-CAPITAL MAINTENANCE

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW66000

BVCP Area: AREA III

CEAP Required: No

CEAP Status:

Project Description

The Boulder Water Resource Recovery Facility has a primary and secondary digester. This project is to provide cleaning on a 10-year cycle. The last time the primary was cleaned was 2012, and the secondary was cleaned in 2014.

Project Phasing

Primary Digester Construction: 2021

Public Process

None

DET/Impact Fees

Interdepartmental and Interagency Collaboration

EPA, CDPHE, Boulder County

Change From Past CIP

Moved primary digester scope out one year from 2020 to 2021.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$0	\$0	\$142,331	\$0	\$0	\$0	\$0	\$0
						Funding to Completion	\$0	
						Future Unfunded	\$0	

Total Funding Plan: \$142,331

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget

Project Name: WRRF Permit Improvements - Proj. Bo

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT

Department: PW/WASTEWATER UTILITY

Subcommunity: AREA III

Project Number: 610WW69900

BVCP Area: AREA III

CEAP Required: No

CEAP Status: N/A

Project Description

The next major capital improvements project at the city's Water Resource Recovery Facility (WRRF) will target phosphorus removal in preparation for the Regulation 85 total phosphorus limitation that will appear in the city's updated State of Colorado Discharge Permit System (CDPS) Permit. The current permit expired in 2016 but has been administratively extended and is expected to be renewed in 2021, with an effective date in 2025. The city invested significantly over the last 15 years in nitrogen removal to meet current permit limits so, fortunately, the WRRF is already out-performing Regulation 85 nitrogen limitations. The source of the vast majority of phosphorus in the city's wastewater is human waste, so controlling phosphorus from commercial and industrial dischargers would not be an effective compliance strategy. A wastewater process engineering study, slated for early 2021, will take a hard look at recent industry advances in biological phosphorus removal and evaluate these alternatives against chemical phosphorus removal with the objective of selecting an alternative to proceed to preliminary design. The current CIP budget line item is escalated from a similar study in 2012, which recommended a chemical phosphorus removal alternative.

Project Phasing

Phosphorus Project
Study/Pre-design: 2020
Planning & Design: 2021-2023
Construction: 2023-2025

Public Process

DET/Impact Fees

Interdepartmental and Interagency Collaboration

none

Change From Past CIP

Funds moved to 2023 due to updated permit information.

Capital Funding Plan

Fund(s)	Expended through 2019 Actuals	Revised 2020 Budget - Current Year	2021 Budget	2022	2023	2024	2025	2026
Wastewater Utility	\$5,054,332	\$0	\$0	\$0	\$19,223,000	\$0	\$0	\$0
							Funding to Completion	\$0
							Future Unfunded	\$0

Total Funding Plan: \$24,277,332

Additional Annual Operating and Maintenance

Additional Annual O&M: \$0

Funding Source for O&M:

Additional Annual O&M Description:

No increase, funded by existing operating budget