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
This project provides for the rehabilitation and improvement to the existing collector sewer piping of the city’s wastewater collection system. The program is funded at approximately $2,000,000 per year (2015) escalated at 4% annually.

Project Phasing
This is an ongoing funding program.

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
No Change

Capital Funding Plan

<table>
<thead>
<tr>
<th>Fund(s)</th>
<th>Expended through 2018 Actuals</th>
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</thead>
</table>

Funding to Completion $0
Future Unfunded $0

Total Funding Plan: $30,198,824

Additional Annual Operating and Maintenance

<table>
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<th>Additional Annual O&amp;M:</th>
<th>Funding Source for O&amp;M:</th>
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<tbody>
<tr>
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</tbody>
</table>

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
- **Project Number:** 610WW40100
- **BVCP Area:** AREA I
- **CEAP Required:** No
- **CEAP Status:** Not applicable

### Project Description

Replacement of undersized trunk sanitary sewer and rehabilitation of hydraulically connected structurally deteriorated sewer segments.

### Project Phasing

- Design (Phase I and II) - 2018 - 2019
- Construction (Phase I) - 2019-2020
- Construction (Phase II) - 2022

### 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.

### Interdepartmental and Interagency Collaboration

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

### Change From Past CIP

Split project due to budget shortfalls. Phase II ($3.8M) added 2022.

### Capital Funding Plan

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**Total Funding Plan:** $7,596,227

### 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 new maintenance needs.
Project Name: Foothills & Baseline Trunk Swr Repl

Project at a Glance

Project Type: CIP-CAPITAL ENHANCEMENT
Department: PW/WASTEWATER UTILITY
Subcommunity: SOUTHEAST BOULDER
Project Number: 610WW40200
BVCP Area: AREA I
CEAP Required: No
CEAP Status: 

Project Description

Replacement and upsizing of hydraulically under capacity trunk sewers in Foothills south of Baseline and in Baseline from Foothills Hwy to 55th St.

Project Phasing

Planning & Pre-Design: 2017 - 2018
Design: 2018 - 2019
Construction: 2020 - 2021

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.

Interdepartmental and Interagency Collaboration

Collaboration with the transportation department regarding roadway restoration after construction.

Change From Past CIP

Addition of $1.4M in 2020 based on 60% design estimate 4/2019.

Capital Funding Plan

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Funding to Completion $0
Future Unfunded $0

Total Funding Plan: $4,919,200

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 new mainteannce needs.
**Project Name:** Sanitary Sewer Manhole Rehab

### Project at a Glance

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<thead>
<tr>
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<td>CEAP Required</td>
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<tr>
<td>CEAP Status</td>
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</table>

### Project Description

This project provides for the rehabilitation and improvement to the existing wastewater manholes that are part of the city’s sewer 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

None

### Interdepartmental and Interagency Collaboration

None

### Change From Past CIP

none

### Capital Funding Plan

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**Funding to Completion:** $0

**Future Unfunded:** $0

**Total Funding Plan:** $2,033,693

### Additional Annual Operating and Maintenance

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**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**

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<th>Project Type</th>
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<tbody>
<tr>
<td>Department</td>
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<td>CEAP Required</td>
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<tr>
<td>CEAP Status</td>
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</table>

**Project Description**

This project provides funds for monitoring of the City’s wastewater collection system.

**Project Phasing**

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

**Public Process**

None

**DET/Impact Fees**

None

**Interdepartmental and Interagency Collaboration**

None

**Change From Past CIP**

None

**Capital Funding Plan**

<table>
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Funding to Completion: $0
Future Unfunded: $0

**Total Funding Plan:** $1,511,010

**Additional Annual Operating and Maintenance**

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**Funding Source for O&M:**

No increase; funded by existing operating budget
**Project Name:** Condition Assessment Program

**Project at a Glance**

- **Project Type:** CIP-CAPITAL MAINTENANCE
- **Department:** PW/WASTEWATER UTILITY
- **Subcommunity:** SYSTEM-WIDE
- **Project Number:** 610WW45100
- **BVCP Area:** SYSTEM-WIDE
- **CEAP Required:** No
- **CEAP Status:** N/A

**Project Description**

The Wastewater Utility Condition Assessment Program is intended to provide an ongoing comprehensive assessment of the city's sanitary sewer collection system. There are approximately 360 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 will be escalated at 4% annually.

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

**Public Process**

- DET/Impact Fees: None

**Interdepartmental and Interagency Collaboration**

- Change From Past CIP: None

**Capital Funding Plan**

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**Total Funding Plan:** $8,307,852

**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

**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**
None

**Interdepartmental and Interagency Collaboration**
Collaboration with the IT and Finance Departments.

**Change From Past CIP**
none

**Capital Funding Plan**

<table>
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Funding to Completion: $0
Future Unfunded: $0

**Total Funding Plan:** $129,825

**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  Subcommunity: EAST BOULDER
Project Number: 610WW46000  BVCP Area: OUTSIDE PLANNING AREA
CEAP Required: Yes  CEAP Status: Complete

Project Description

The City's existing main sanitary interceptor sewer is at the end of its useful life and hydraulically insufficient. The interceptor is unlined concrete pipe that is corroding and was exposed during the 2013 flood and 2015 rainstorm. This project is for the rehabilitation, reconstruction, or re-alignment of the interceptor sewer and will aim to satisfy three primary goals: structural stability, increased capacity and address alignment vulnerability.

Project estimate increased from $20M to $30M based on preliminary design. City bonded for original $10M in 2016 so $20M appears in the 2020 CIP to cover the remainder of project funding.

Project Phasing

Planning (1041): 2016-2019
Design: 2020
Construction: 2021 - 2022

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.

Change From Past CIP

Addition of $20M in 2022 based on 2019 cost estimate.

Capital Funding Plan

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Funding to Completion $0
Future Unfunded $0

Total Funding Plan: $29,246,544

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 new maintenance needs.
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

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Funding to Completion $0
Future Unfunded $0

Total Funding Plan: $854,364

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

Construction: Upcoming priorities 2019-2020, then ongoing per 3 year recurring cycle.

Public Process

None

Interdepartmental and Interagency Collaboration

None

DET/Impact Fees

None

Change From Past CIP

Split $150,000 for year 2019 over 2 years ($75k each year)

Capital Funding Plan

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Funding to Completion $0
Future Unfunded $0

Total Funding Plan: $600,000

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 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 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 2022 will recoat the rotating mechanisms. The long-term replacement in 2029 will replace mechanisms, drives, walkway bridges, and effluent weirs, baffles, and launders.

Project Phasing

Near term repairs: 2019
Mid-term Rehab: 2021-2022
Long term replacement: 2029

Public Process

none

Interdepartmental and Interagency Collaboration

none

Capital Funding Plan

<table>
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Funding to Completion: $0
Future Unfunded: $0

Total Funding Plan: $894,828

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:**
- **Project Number:** 610WW60600
- **BVCP Area:**
- **CEAP Required:**
- **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:** 2021-2022

#### Public Process

**DET/Impact Fees**

#### Interdepartmental and Interagency Collaboration

**Change From Past CIP**

Moved back one year to align with PST Rehab and permit imp. project.

#### Capital Funding Plan

<table>
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<th>Fund(s)</th>
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**Total Funding Plan:** $550,000

**Future Unfunded:** $0

#### Additional Annual Operating and Maintenance

- **Additional Annual O&M:**
- **Funding Source for O&M:**
- **Additional Annual O&M Description:**

**Project Name:** WRRF Digester Complex

**Project at a Glance**

<table>
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</table>

**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.

**Project Phasing**

<table>
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<tr>
<th>Planning &amp; Design:</th>
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<tbody>
<tr>
<td>Construction:</td>
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**Public Process**

None

**DET/Impact Fees**

None

**Interdepartmental and Interagency Collaboration**

None

**Change From Past CIP**

Pushed construction funding back one year from 2020 to 2021.

**Capital Funding Plan**

<table>
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<tr>
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Funding to Completion: $0

Future Unfunded: $0

**Total Funding Plan:** $2,200,000

**Additional Annual Operating and Maintenance**

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Funding Source for O&M:

No increase, funded by existing operating budget
**Project Name:** WWTF 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

**Interdepartmental and Interagency Collaboration**

Projects are coordinated with Boulder County land use and planning

**Capital Funding Plan**

<table>
<thead>
<tr>
<th>Fund(s)</th>
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<tbody>
<tr>
<td>Wastewater Utility</td>
<td>$90,727</td>
<td>$659,274</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
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</table>

Funding to Completion $0  
Future Unfunded $0

**Total Funding Plan:** $2,250,000

**Additional Annual Operating and Maintenance**

**Funding Source for O&M:**

**Additional Annual O&M Description:**
Project Name: WRRF Permit Improvements

Project at a Glance

<table>
<thead>
<tr>
<th>Project Type:</th>
<th>CIP-CAPITAL ENHANCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department:</td>
<td>PW/WASTEWATER UTILITY</td>
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<tr>
<td>Subcommunity:</td>
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<td>Project Number:</td>
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<td>BVCP Area:</td>
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<td>CEAP Required:</td>
<td>No</td>
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<tr>
<td>CEAP Status:</td>
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</table>

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/Predesign: 2019
  - Planning & Design: 2020-2021
  - Construction: 2022-2023

Public Process

none

Interdepartmental and Interagency Collaboration

none

DET/Impact Fees

none

Change From Past CIP

New funding in 2019 for study/testing. Awaiting new CDPHE permit.

Capital Funding Plan

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<tbody>
<tr>
<td>Wastewater Utility</td>
<td>$142,175</td>
<td>$110,031</td>
<td>$919,232</td>
<td>$1,838,463</td>
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<td>$71,166</td>
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</table>

Total Funding Plan: $3,081,067

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 Biogas

**Project at a Glance**

**Project Type:** CIP-CAPITAL MAINTENANCE

**Department:** PW/WASTEWATER UTILITY

**Subcommunity:** AREA III

**Project Number:** 610WW62900

**BVCP Area:** AREA III

**CEAP Required:** No

**CEAP Status:** NA

**Project Description**

This project was historically used to provide funding for major overhauls of the two cogeneration (electrical power and heat) engines at the Boulder WRRF. $4M 2019 was to implement a new beneficial end-use for biogas, moving away from cogeneration and implementing a renewable natural gas (RNG) solution for vehicle fuel. The new funding is for a gas treatment system to clean the biogas to XCEL pipeline standards, measure and monitor, and then deliver to an offsite end-user via local pipeline. Because of higher-than-anticipated costs, including electrical and mechanical costs, a higher Xcel interconnect fee, and Xcel-mandated insurance costs, $1.1M was added to the 2020 budget.

**Project Phasing**

Design/Build: 2019 - 2020

**Public Process**

none

**DET/Impact Fees**

none

**Interdepartmental and Interagency Collaboration**

Boulder County (approval entity), Western Disposal (end user of RNG), XCEL (transport via pipeline).

**Change From Past CIP**

Addition of $1.1M to cover increases in project costs.

**Capital Funding Plan**

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Funding to Completion $0

Future Unfunded $0

**Total Funding Plan:** $5,730,760

**Additional Annual Operating and Maintenance**

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<th>Additional Annual O&amp;M:</th>
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</thead>
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**Funding Source for O&M:**

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

<table>
<thead>
<tr>
<th>Phase</th>
<th>Completion</th>
<th>Design</th>
<th>Construction</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>2018</td>
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<tr>
<td>II</td>
<td>2019-2020</td>
<td>2025</td>
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</table>

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

none

Interdepartmental and Interagency Collaboration

none

Change From Past CIP
Incr. Phase II by $1.6M and decreased & delayed Phase III.

Capital Funding Plan

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<tr>
<td>Wastewater Utility</td>
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Total Funding Plan: $3,587,087

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
DET/Impact Fees
none

Interdepartmental and Interagency Collaboration
Change From Past CIP
none

Capital Funding Plan

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Funding to Completion $0
Future Unfunded $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
Project Number: 610WW66000
CEAP Required: No

Subcommunity: AREA III
BVCP Area: AREA III
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

Interdepartmental and Interagency Collaboration

EPA, CDPHE, Boulder County

DET/Impact Fees

None

Change From Past CIP

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

Capital Funding Plan

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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

**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
- Construction: 2022-2023

**Public Process**

**DET/Impact Fees**

**Interdepartmental and Interagency Collaboration**

- none

**Change From Past CIP**

- Funds moved to 2022

**Capital Funding Plan**

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- Funding to Completion: $0
- Future Unfunded: $0

**Total Funding Plan:** $23,688,966

**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