

Program 8097 – Blue Lake WRRF Improvements



Blue Lake Water Resource Recovery Facility (WRRF)

Description

This program provides funding for planning and implementation of projects to address renewal, capacity, and future permit needs at the Blue Lake Water WRRF.

Purpose and justification

Planning work is documented in the Blue Lake WRRF Improvements Facility Plan (February 10, 2021).

Projects in this program address renewal, capacity, and quality needs for continued reliable and sustainable wastewater service at the Blue Lake WRRF through the year 2050.

Program location

The active projects within this program are in the following Council district: 4

Active projects in program

| Project Number | Project Title |
|----------------|---|
| 809710 | Blue Lake WRRF Dryer Renewal |
| 809720 | Blue Lake WRRF Digester 5 |
| 8097xx | Blue Lake WRRF Liquids Process Upgrades |
| 8097xx | Blue Lake WRRF Dewatering and Drying |

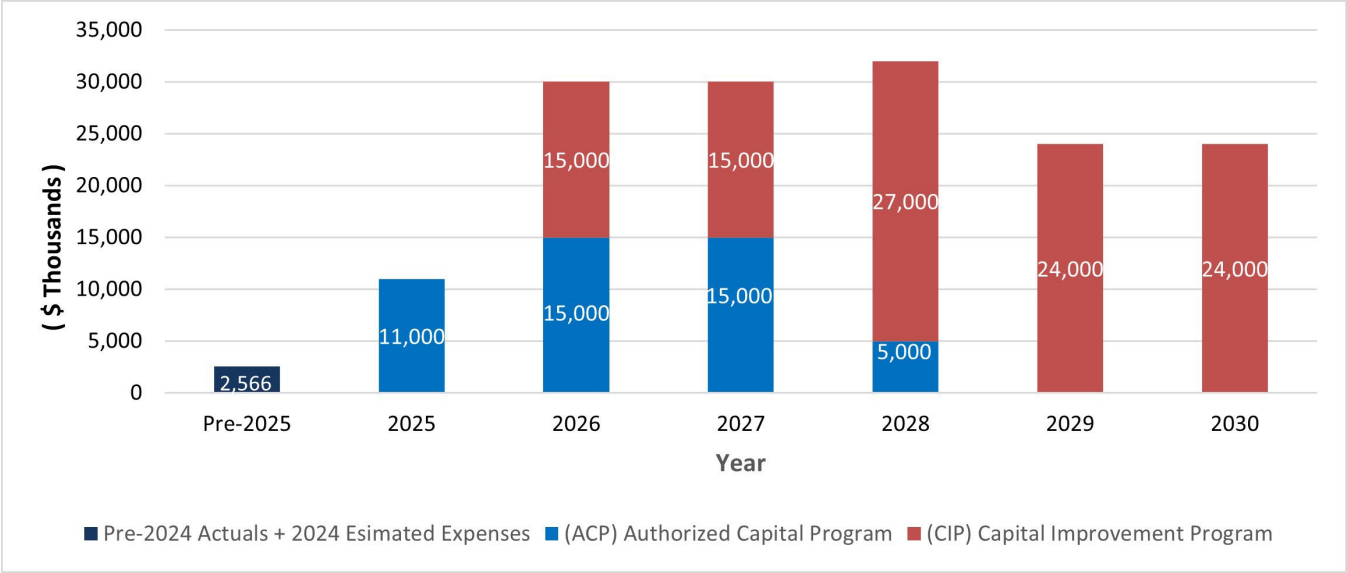
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Environmental Services 2025 through 2030 Capital Program

- Authorized Capital Program (ACP): \$48,565,885
- Capital Improvement Plan (CIP): \$105,000,000

Estimated program cash flow from 2025 through 2030

Note: the ACP is the total amount of all past and present authorizations including pre-2025 expenses.



Project location: Council District #4, City of Shakopee, Blue Lake WRRF



Delivery of new dryer drum to the Blue Lake Water Resource Recovery Facility (WRRF)

Project type
Plants

Objectives
Asset Preservation

Scope
Replace the dryer drum. Modify the Final Stabilization Facility (FSF) Building structurally and electrically as needed to install the new drum.

Project need
The recent condition assessment of the current drum showed a dramatic loss in wall thickness, and pieces of the drum have been found in the outlet duct, showing that the dryer drum is at its end of life.



Planning: 2020 through 2022



Design: 2023 through 2024



Construction: 2025 through 2026

Financial analysis

| | |
|------------------------------|-------------|
| 2025 cash flow: | \$1,000,000 |
| Current ACP: | \$1,000,000 |
| 2025 through 2030 cash flow: | \$1,000,000 |
| Total project cost: | \$1,000,000 |

Project location: Council District #4, City of Shakopee, Blue Lake WRRF



Blue Lake Water Resource Recovery Facility (WRRF) digester complex

Project type
Facility

Objectives
System Expansion

Scope
There are currently three digesters and a sludge storage tank for regulating gas production. This project will add a fourth digester to increase capacity. This project will also install plant-wide electrical improvements and install stream bank erosion control at the outfall.

Project need
The recommended minimum 15-day solids retention time (SRT) cannot be met at the current flows during digester maintenance or at future flows during normal operation.

Project schedule:



Planning: 2020 through 2022



Design: 2024 through 2025



Construction: 2026 through 2027

Financial analysis

| | |
|------------------------------|--------------|
| 2025 cash flow: | \$33,000,000 |
| Current ACP: | \$33,000,000 |
| 2025 through 2030 cash flow: | \$33,000,000 |
| Total project cost: | \$33,000,000 |

Project location: Council District #4, City of Shakopee, Blue Lake WRRF



Blue Lake Water Resource Recovery Facility (WRRF) liquid treatment

Project type
Facility

Objectives
System Expansion, Quality Improvements

Scope
The project includes aeration basin improvements for improved Dissolved Oxygen (DO) control and air distribution. The secondary clarification process will also be expanded with two new tanks and improved baffling for flow distribution.

Project need
The aeration system is near the end of its service life and the plant is having difficulty maintaining DO while reducing energy in the system. The secondary clarifiers have reached design capacity, and more tanks are needed to accommodate growth in the region.

Project schedule:



Planning: 2020 through 2022



Design: 2024 through 2025



Construction: 2025 through 2027

| | |
|------------------------------|--------------|
| Financial analysis | |
| 2025 cash flow: | \$0 |
| Current ACP: | \$0 |
| 2025 through 2030 cash flow: | \$50,000,000 |
| Total project cost: | \$50,000,000 |

Project location: Council District #4, City of Shakopee, Blue Lake WRRF



Blue Lake Water Resource Recovery Facility (WRRF) solids treatment area

Project type
Facility

Objectives
System Expansion

Scope
A second building with a second dryer train and dewatering equipment will be added to provide capacity for regional growth.

Project need
A second dryer will be needed in 2032 and will meet capacity needs through the year 2050.

Project schedule:



Planning: 2020 through 2022



Design: 2023 through 2026



Construction: 2026 through 2030

Financial analysis

| | |
|------------------------------|--------------|
| 2025 cash flow: | \$0 |
| Current ACP: | \$0 |
| 2025 through 2030 cash flow: | \$33,000,000 |
| Total project cost: | \$42,000,000 |