

Program 8028 – Blue Lake Interceptor Improvements



Contractor installation of 7071 Forcemain

Description

This project provides improvements to meet the long-term conveyance capacity, reliability, and rehabilitation/replacement needs of the Blue Lake Interceptor System. This system includes gravity sewers, 29 lift stations, and forcemains from each lift station. The major project areas are located in Victoria, Excelsior, Orono, and Deephaven.

Purpose and justification

Evaluation of the Blue Lake Area Interceptor System indicates that the existing facilities cannot convey all the wastewater that will ultimately be generated from within the Blue Lake sewershed due to growth. In addition, many of the sewers, lift stations, and associated forcemains need to be rehabilitated to ensure system reliability and to address odor and corrosion control.

Program location

The active projects within this program are in the following Council districts: 1, 3, and 4

Active projects in program

Project Number	Project Title
802800	Lake Minnetonka Area (Parent Project)
802801	West Area Rehabilitation – Sites 1, 2, 3, 4, and 5
802831	Orono Lift Stations L46 and L49 Improvements
802834	L48 Rehabilitation and 6-DH-645 Forcemain Replacement
802856	Excelsior Area Lift Station L20
802863	8567 Channel Crossings Replacement
802897	Orono Interceptor 7113 Forcemain Replacement

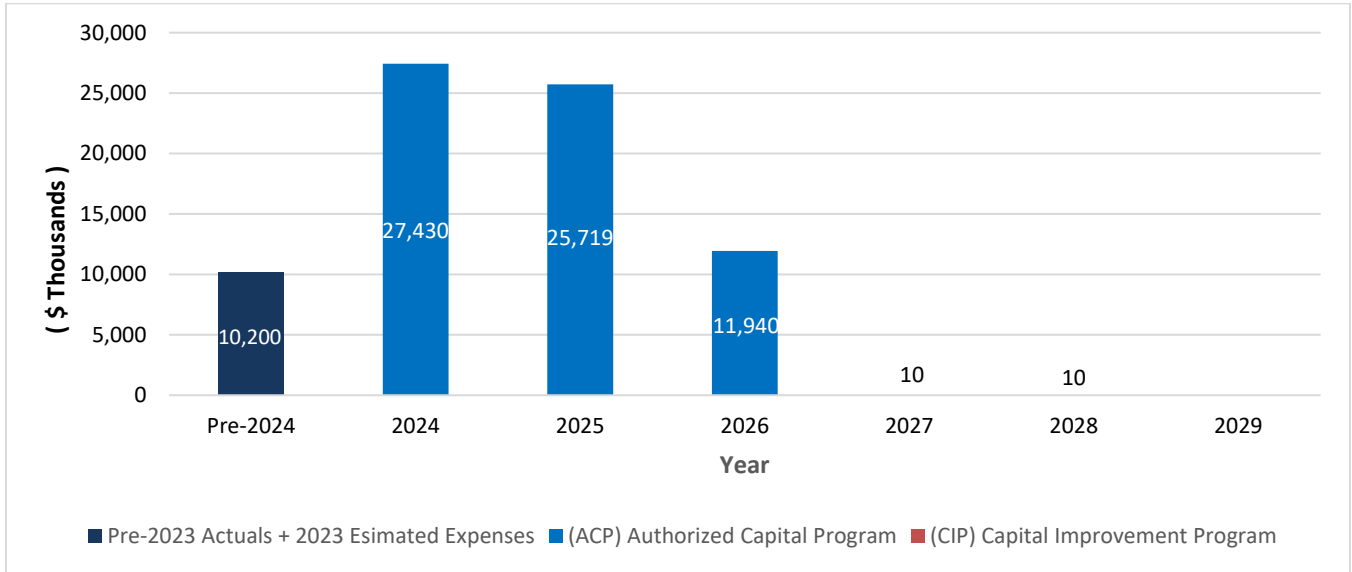
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Environmental Services 2024 through 2029 Capital Program

- Authorized Capital Program (ACP): \$75,289,420
- Capital Improvement Plan (CIP): \$20,000

Estimated program cash flow from 2024 through 2029

Note: the ACP is the total amount of all past and present authorizations including pre-2024 expenses.



Project location: Council district #3, Cities of Shorewood and Chanhassen



Map of Project #802801 Site 1 location north of Lake Minnewashta

Project type

Interceptor Improvements

Objectives

Asset Preservation and Quality Improvements

Scope

Rehabilitate forcemain due to pipe corrosion and improve system reliability.

Project need

Forcemain 8253-327 was built in 1988 and runs from L21 in the City of Shorewood to the discharge approximately 3 miles to the east. An external ultrasonic thickness gauge survey conducted in 2021 found locations of pipe loss. Additional planning will be conducted to recommend reliability improvements.

Project schedule:



Planning: 2022 through 2023



Design: 2023 through 2024



Construction: 2025 through 2026

Financial analysis

2024 cash flow:	\$300,000
Current ACP:	\$6,800,000
2024 through 2029 cash flow:	\$6,800,000
Total project cost:	\$6,800,000

Project location: Council districts #1 and #3, Cities of Maple Plain, Orono, Medina, and Long Lake



Map of Project #802801 Site 2 locations in north Orono and southwest Medina

Project type

Interceptor Improvements

Objectives

Asset Preservation and Quality Improvements

Scope

Site 2 of the West Area Improvements. This project includes rehabilitation and/or replacement of approximately 4.1 miles of forcemain due to deterioration of pipe walls.

Project need

Forcemain 8352 was constructed in 1985 as a single-barrel, 12-inch ductile iron pipe which runs approximately 5.1 miles from L63 in the City of Maple Plain to the discharge MH 172 in Long Lake. A one-mile segment of the forcemain at the intersection of Mn Hwy 12 and County Rd 6 was replaced in 2011 with dual barrel 14-inch HDPE pipes. Forcemain 8352 was evaluated using ultrasonic testing in 2021 and determined to have wall thickness loss. This reduction in wall thickness will require rehabilitation to extend forcemain service life. Reliability and future flow needs will be evaluated as part of this project.

Project schedule:



Planning: 2022 through 2023



Design: 2023 through 2024



Construction: 2025 through 2026

Financial analysis

2024 cash flow:	\$300,000
Current ACP:	\$3,900,000
2024 through 2029 cash flow:	\$3,900,000
Total project cost:	\$3,900,000

Project location: Council district #3, City of Minnetrista



Map of Project #802801 Site 3 location south of Phelps Bay

Project type

Interceptor Improvements

Objectives

Asset Preservation

Scope

Rehabilitate forcemains due to a significant sag in the pipe profile.

Project need

Gravity interceptor 6-MT-647 is 8” DIP and was built in 1973. It serves the area of the Minnetrista peninsula in Lake Minnetonka upstream of Lift Station L51. Between 2009 and 2017, CCTV-based inspection downgraded the pipe from condition 3 to 4 between MH25-17 and MH25-18 due to a sag in the pipe. This defect requires further investigation, and, if warranted, repair.

Project schedule:



Planning: 2022 through 2023



Design: 2023 through 2024



Construction: 2025 through 2026

Financial analysis

2024 cash flow:	\$100,000
Current ACP:	\$1,900,000
2024 through 2029 cash flow:	\$1,900,000
Total project cost:	\$1,900,000

Project location: Council district #3, City of St. Bonifacius



Map of Project #802801 Site 4 location near Main Street and Highway 7 in St. Bonifacius

Project type

Interceptor Improvements

Objectives

Asset Preservation

Scope

Rehabilitate gravity pipe due to sag and joint separation under Highway 7.

Project need

Gravity Interceptor 7020 is both 15” ABS pipe and 16” DIP and was built in 1971. It serves the area of Minnetrista and St. Bonifacius. In 2020, CCTV-based inspection rated the pipe condition 4 due to joint offsets in the pipe, joint separation, and corrosion in the pipe. These defects require further investigation and will require significant coordination with MNDOT to work in the Highway 7 corridor.

Project schedule:



Planning: 2023



Design: 2024



Construction: 2024 through 2025

Financial analysis

2024 cash flow:	\$100,000
Current ACP:	\$1,900,000
2024 through 2029 cash flow:	\$1,900,000
Total project cost:	\$1,900,000

Project location: Council district #4, City of Shakopee



Map of Project #802801 Site 5 location west of Quarry Lake

Project type

Interceptor Improvements

Objectives

Asset Preservation

Scope

Rehabilitate interceptors 9206-1 and 7120.

Project need

Environmental Services (ES) owns and operates the Interceptors 9206-1 and 7120 in Shakopee, which were built in 1975. A 2020 condition assessment revealed over 3,500 linear feet (LF) of 72-inch piping with a condition rating of 4, between MH 1 and the junction vault between 9206-1 and 7120. There is also a 31 LF section of 72-inch piping between a previous lining project and the junction vault. This section of piping has a condition 5 rating. The junction vault will also need to be inspected and potentially rehabilitated.

Project schedule:



Planning: 2023



Design: 2023



Construction: 2024

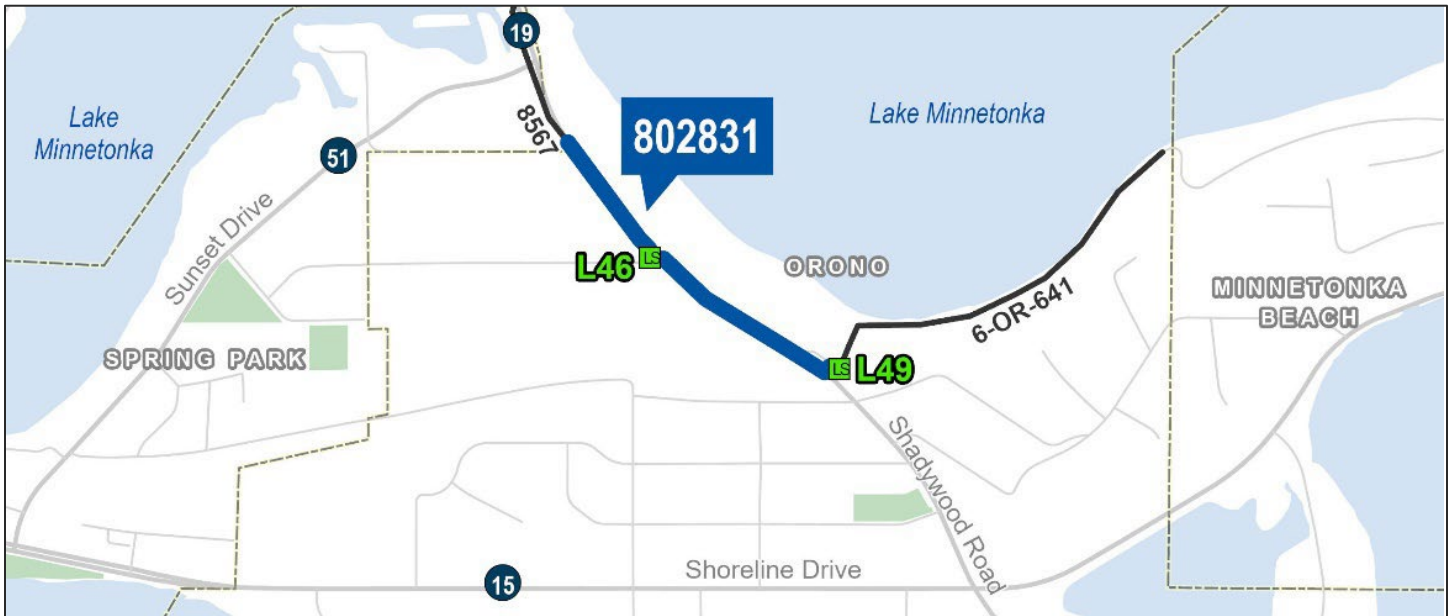
Financial analysis

2024 cash flow:	\$120,000
Current ACP:	\$3,900,000
2024 through 2029 cash flow:	\$3,900,000
Total project cost:	\$3,900,000

Orono Lift Stations L46 and L49 Improvements
Program family 8028

Project #802831

Project location: Council District #3, City of Orono



Map of Project #802831 location along Shadywood Road in Orono

Project type

Lift Station Improvements

Objectives

Asset Preservation and Quality Improvements

Scope

Replace L49 at neighboring property, and fully rehabilitate L46 through replacement of pumps, mechanical equipment, and site improvements for safety.

Project need

A 2009 study evaluating L46 and L49 revealed L49 is at the end of its useful life and has inadequate capacity to meet current peak flow rates. Its current location is also difficult to access for maintenance. Land has been purchased adjacent to the existing lift station to provide easier access. L46 requires pump and valve replacement, electrical panel upgrades, and site improvements to protect existing equipment from traffic.

Project schedule:



Planning: 2019 through 2020



Design: 2020 through 2023



Construction: 2024 through 2026

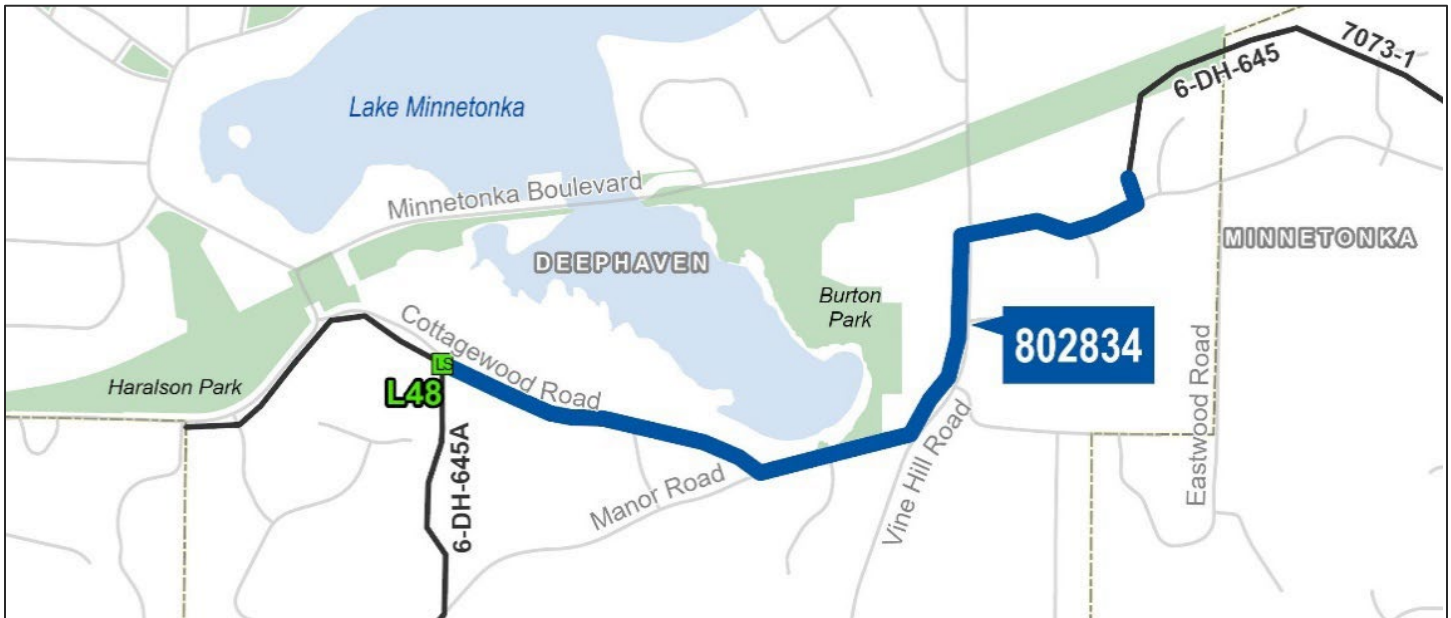
Financial analysis

2024 cash flow:	\$1,120,000
Current ACP:	\$5,573,000
2024 through 2029 cash flow:	\$4,820,000
Total project cost:	\$5,573,000

L48 Rehabilitation and 6-DH-645 Forcemain Replacement
Program family 8028

Project #802834

Project location: Council district #3, City of Deephaven



Map of Project #802834 location in the Burton Park area in Deephaven

Project type

Lift Station and Interceptor Improvements

Objectives

Asset Preservation and System Expansion

Scope

The rehabilitation of L48 will include a new valve vault, pumps and valves, electrical and site work, forcemain replacement and replacement of the gravity discharge pipe.

Project need

The 16-foot-deep buried valves are broken outside of the station. A buried temporary conveyance system was installed to convey around the broken valves. The forcemain was built in 1970, is over 50 years old. and is reaching the end of its service life.

Project schedule:



Planning: N/A



Design: 2021 through 2022



Construction: 2023 through 2025

Financial analysis

2024 cash flow:	\$5,000,000
Current ACP:	\$8,780,000
2024 through 2029 cash flow:	\$7,600,000
Total project cost:	\$8,780,000

Excelsior Area Lift Station L20

Program family 8028

Project #802856

Project location: Council district #3, City of Excelsior



Map of Project #802856 in Excelsior showing new and rehabilitated gravity sewer and forcemain abandonment

Project type

Interceptor Improvements

Objectives

Asset Preservation and Quality Improvements

Scope

Remove existing lift station L20 and install a gravity pipe to lift station L19.

Project need

The existing L20 was constructed in 1970 and is at the end of its service life. The 2021 Lake Minnetonka Facility Plan determined that L20 should be abandoned and replaced with a gravity pipe connection to L19.

Project schedule:



Planning: 2008 through 2019



Design: 2019 through 2022



Construction: 2023 through 2025

Financial analysis

2024 cash flow:	\$7,000,000
Current ACP:	\$13,433,000
2024 through 2029 cash flow:	\$11,460,000
Total project cost:	\$13,433,000

Project location: Council district #3, City of Orono



Map of Project #802863 location at the Hendrickson and Noerenberg Bridges in Orono

Project type

Interceptor Improvements

Objectives

Asset Preservation and Quality Improvements

Scope

To minimize future risk, redundant parallel HDPE pipes are proposed. Directional drilling is proposed for the parallel pipes.

Project need

In 2022, Hennepin County replaced the Noerenberg and Hendrickson bridges on North Shore Drive. Interceptor Forcemain 8567 was suspended on the bridges and partially relocated under the Lake Minnetonka channels. This project will finish the relocation installing a parallel crossing on each channel and four structures.

Project schedule:



Planning: 2020



Design: 2021



Construction: 2022 through 2023

Financial analysis

2024 cash flow:	\$2,750,000
Current ACP:	\$3,451,000
2024 through 2029 cash flow:	\$2,750,000
Total project cost:	\$3,451,000

Orono Interceptor 7113 Forcemain Replacement

Program family 8028

Project #802897

Project location: Council district #3, City of Orono



Map of Project #802831 location along Shadywood Road in Orono

Project type

Interceptor Improvements

Objectives

Asset Preservation and Quality Improvements

Scope

Construction of a redundant forcemain along 7113 and the HCRAA trail corridor and rehabilitation of the existing forcemain.

Project need

Forcemain 7113 was built in 1979 and runs from L59 in the City of Orono to the junction with forcemain 7113A approximately 3 miles to the east. Forcemain 7113 is approaching the end of its service life and needs replacement or rehabilitation. A new redundant forcemain is proposed to increase reliability and allow the existing forcemain in Shoreline Drive to be inspected and rehabilitated or replaced.

Project schedule:



Planning: 2019 through 2022



Design: 2022 through 2024



Construction: 2024 through 2025

Financial analysis

2024 cash flow:	\$850,000
Current ACP:	\$15,534,000
2024 through 2029 cash flow:	\$14,839,000
Total project cost:	\$15,534,000