

BELLEVUE UTILITIES
2023-2029 CAPITAL INVESTMENT PROGRAM PLAN (CIP)
SEWER FUND
PROPOSED BUDGET BY PROGRAM



SEWER FUND
2023-2029 CIP Proposed Changes
(Updated March 2, 2022)

Program Number	Description	Continued Program	2023-2029 Budget Request	New Proposed Program
S-16	Sewer Pump Station & Force Main Improvements	Yes	Yes	
S-24	Sewer System Pipeline Repair & Replacement	Yes	Yes	
S-32	Minor CIP (Small) Sewer Capital Improvement Projects	Yes	Yes	
S-58	Lake Washington Sewer Lake Line Program	Yes	Yes	
S-66	Sewer System Pipeline Replacement	Yes	Yes	
S-111	Maintenance and Operations Yard	Yes	Yes	
S-112	Sewer Planning Program	Yes	Yes	
S-115	SCADA System Upgrade	Yes	Yes	
S-116	Permit Compliance Monitoring		Yes	Yes
S-117	Septic Systems Sewer Extensions		Yes	Yes

S- 16 Sewer Pump Station & Force Main Improvements

Description and Scope

This ongoing program funds rehabilitation of the 36 pump and 10 flush stations and associated force mains in Bellevue's wastewater system. Stations are prioritized based on the risk and consequence of failure, maintenance and operations experience, age of pump station, and coordination with other projects.

PROJECT NEED: System Renewal and Replacement

Proposed Budget (includes inflation)

S-16	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	\$5.260	\$2.010	\$.600	\$1.800	\$3.340	\$1.230	\$1.060	–	–	\$15.300
Proposed (\$M)	–	–	\$1.847	\$7.423	\$3.206	\$2.661	\$5.160	\$1.354	\$1.646	\$23.297
Difference (\$M)	\$(5.260)	\$(2.010)	\$1.247	\$5.623	\$(.134)	\$1.431	\$4.100	\$1.354	\$1.646	\$7.997

Proposed Changes

The total proposed budget for the 7 years includes the rehabilitation and/or replacement of 10 wastewater pressure system (pump station and force main) projects and a pump station condition assessment project. The proposed budget is an increase over the adopted budget, due to both the additional of force mains with the pump station projects, and the addition of two of Bellevue's largest and most complex pump and force main systems projects: Pump Station #12 & Force Main and Newport Pump Station & Force Main.

Scope

- 5 new pump and force main system projects are proposed to start in the 7 years.
- One proposed pump and force main system project is Newport Pump Station & Force main. This is a highly complex project proposed to start in 2024. Newport pump station is one of Bellevue's highest capacity stations and is anticipated to be completely replaced. Newport Pump Station's force main is one of Bellevue's largest diameter and longest wastewater force mains at 8" diameter and approximately 4,600 Feet long. The force main currently runs under I-405. A study will need to be performed to analyze the best option and location for replacement of this system.
- Pump Station #12 is an existing project that was newly scoped and added to the CIP in 2019 due to 2 emergencies in the system, that identified a need to prioritize the rehabilitation of the pump station and replacement of the force main. This project is anticipated to be in construction in 2024-2025.
- Evergreen East Lift Station was previously included in the 2019-2027 budget to perform a Business Case Analysis to determine the recommendation for the rehabilitation/replacement of the lift station. Additional Scope has been added to include the BCA of two associated pump stations and force mains that are linked into the Evergreen East system: Fairweather and Evergreen West systems. The design and construction of the Evergreen East lift station has also been added to the scope.
- The Pump Station Condition Assessment Update is proposing a more comprehensive assessment to include Failure Modes, Effects, and Criticality Analyses (FEMCA) and Wet Well Assessments of the pump stations selected, in addition to updating the information on the 2015 Murray Smith Pump Station Assessment.

Schedule

- 5 projects are current Pump Station and/or FM projects that are continuing the 2023-2029 CIP from prior years. 3 projects had a delayed start and are anticipated to finish in the 2023-2029 years. (Evergreen East Lift Station, South Ridge Pump Station & Force Main and Cozy Cove Pump Station & Force Main).

S-24 Sewer System Pipeline Repair and Replacement

Description and Scope

This program funds repairs or replacements to sewer pipes. Wastewater main defects are identified from the Utility's infrastructure condition assessment (video) program and problem areas identified from operations and maintenance efforts. Projects are also added to address utilities needing replacement or relocation driven by projects being done by groups outside of Bellevue Utilities. These groups include WSDOT, Sound transit, Developers, etc... Pipes are prioritized for repair based on risk of failure (likelihood and consequence), failure history, and to coordinate with other construction such as planned street overlays, which reduces restoration costs.

PROJECT NEED: System Renewal and Replacement

Proposed Budget (includes Inflation)

S-24	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	\$2.720	\$3.310	\$3.480	\$3.310	\$3.180	\$4.540	\$5.170	–	–	\$25.710
Proposed (\$M)	–	–	\$ 4.489	\$3.500	\$5.883	\$4.958	\$4.512	\$3.042	\$2.381	\$28.765
Difference (\$M)	\$(2.720)	\$(3.310)	\$1.009	\$0.190	\$2.703	\$.418	\$(.658)	\$3.042	\$2.381	\$3.055

Proposed Changes

Scope

- Additional annual program years for 2024-2030 have been added for the Annual Sanitary Sewer Defect Repair and Utility Overlay Annual Programs.
- Six new projects have been added:
 - Four new projects have been added to address utilities needing replacement or relocation driven by projects being done by groups outside of Bellevue Utilities: WSDOT, Bellevue Storm Fund Project and Bellevue Transportation projects: Bellevue Way HOV, WSDOT Sunset Creek Sewer Relocation, Vasa Creek Mitigation Sewer Main Relocation, Transportation 120th Avenue Stage 4 Relocation and Sandpiper East. These projects are anticipated to be in construction between 2025-2027.
 - Two projects added to address and resolve operational needs.

Schedule

- Three projects previously identified in the CIP to address defects identified by the Operations staff as projects to meet level of service and operational need will continue: Bellefield office Sewer Siphon Alternatives Analysis and Sewer Lateral Replacement on 152nd and Aqua Vista. All three are anticipated to go into construction in 2023-2024.

S-32 Minor (Small) Sewer Capital Improvement Projects

Description and Scope

This ongoing program pays for minor improvements to Bellevue's sewer system to resolve deficiencies, improve efficiencies, or resolve maintenance problems, often in conjunction with other programs such as the Transportation overlay program. The program also investigates the feasibility of possible sewer extensions. Projects are prioritized based on criteria including public safety/property damage, maintenance frequency, operator safety, environmental risk, reliability and efficiency gains, coordination with other city projects or development activity, and level of service impact.

PROJECT NEED: System Renewal and Replacement

Proposed Budget (includes inflation)

S-32	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	\$.040	–	–	–	–	–	\$.020	–	–	\$.060
Proposed (\$M)	–	–	\$.258	–	–	–	–	–	–	\$.258
Difference (\$M)	\$(.040)	–	\$.258	–	–	–	\$(.020)	–	–	\$.198

Proposed Changes

Schedule

- 2 Enatai was included in the 2021-2027 CIP Budget. This project has been delayed due to real property issues and is anticipated to complete construction in 2023.

S-58 Lake Washington Sewer Lake Line Program

Description and Scope

This program is for the development of the Lake Line Management Plan that will analyze the condition assessment and other available data on the Lake Washington lake lines, to develop a strategy for the rehabilitation, replacement, or continued condition assessment of the Lake Washington Lake Lines. This management plan will also perform alternatives analysis and evaluation of projects for the 14.5 miles of sewer pipe along Lake Washington Shoreline and in future years, design, and construction for portions of the lake line.

PROJECT NEED: System Renewal and Replacement

Proposed Budget (includes inflation)

S-58	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	\$.250	-	-	-	-	-	-	-	-	\$.250
Proposed (\$M)	-	-	\$.675	\$.041	\$.119	\$.219	\$.945	\$1.159	\$1.146	\$4.304
Difference (\$M)	\$(-.250)	-	\$.675	\$.041	\$.119	\$.219	\$.945	\$1.159	\$1.146	\$4.054

Proposed Changes

Scope

- Initiation of 5 new Lake Line Projects to study and prepare a business case analysis and determine the methodology for Lake Line Replacement for the 5 highest priority Lake Line reaches.
- A program Wide Environment Impact Statement will be prepared for the Lake Line Management Plan. This is anticipated to be complete in 2021.

S-66 Sewer System Pipeline Repair and Replacement

Description and Scope

This program replaces poor condition sewer pipe throughout the service area. Pipes are replaced when life cycle cost analysis indicates replacement is more economical than continuing to make point repairs. Replacement methods may include trenchless rehabilitation techniques such as cured-in-place pipe, and pipe bursting, and/or open trench replacement. Sewer System Pipeline Repair, which repairs pipes to extend their service life. This program implements Bellevue's asset management program strategy to meet expected and required customer service levels at the lowest life cycle cost.

PROJECT NEED: System Renewal and Replacement

Proposed Budget (includes Inflation)

S-66	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	\$2.920	\$.650	\$1.030	\$1.120	–	–	–	–	–	\$5.720
Proposed (\$M)	–	–	\$.698	\$.089	\$.112	\$.839	\$.216	–	–	\$1.954
Difference (\$M)	\$(2.920)	\$(.650)	\$(.332)	\$(1.031)	\$.112	\$.839	\$.216	–	–	\$(3.766)

Proposed Changes

Scope

- The Ballfield-Outfield Sewer Replacement project is anticipated to go into construction in 2026.

Schedule

- Newport Capacity Improvement project and the Ballpark Outfield Sewer Replacement projects have had schedule delays and are anticipated to finish in the 2023-2029 years.

S-111 Maintenance and Operations Yard

Description and Scope

As the City of Bellevue continues to grow, there is a critical need for long range operational facilities planning to ensure that the Utilities Department (Utilities) can meet the community's current and future needs in an efficient and timely manner. The current service locations are functioning at or near capacity, and there is significant risk that they will not be sufficient to meet Utilities' growing operational needs. To address this, Utilities developed a long range Operations and Maintenance (O&M) Facilities Plan.

Based on the recommendation of the O&M Facilities Plan, property acquisition, design, and construction were funded through the Council adopted 2019-2025 and 2021-2027 CIP budgets, with \$16M of funding split between the water and sewer funds (\$8M each).

PROJECT NEED: Operations & Maintenance/Service Enhancement

Proposed Budget (includes inflation)

S-111	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	–	–	\$2.667	\$2.667	–	–	–	–	–	\$5.334
Proposed (\$M)	–	–	–	–	\$3.315	\$2.779	–	–	–	\$6.094
Difference (\$M)	–	–	\$(2.667)	\$(2.667)	\$3.315	\$2.779	–	–	–	\$.760

Proposed Changes

Due to delay in selecting a site, the construction funding has moved to 2025 and 2026. Additional funding is proposed to account for inflationary increases for the design/construction and original land acquisition.

S-112 Sewer Planning Program

Description and Scope

This program is for sewer planning projects, condition assessments of the sewer facilities and systems, alternatives analyses and programmatic capital planning for the wastewater sewer system.

PROJECT NEED: System Renewal and Replacement

Proposed Budget (includes inflation)

S-112	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	–	–	\$.360	\$.370	–	–	–	–	–	\$0.730
Proposed (\$M)	–	–	–	–	\$1.366	\$.397	–	–	–	\$1.763
Difference (\$M)	–	–	\$.360	\$.370	\$1.366	\$.397	–	–	–	\$1.033

Proposed Changes

Scope

- Two new projects have been added to this program: Sewer System Plan Update and WSDOT I-90 Franchise Consolidation.

Schedule

- The Collection System Seismic Vulnerability Assessment was approved in the 2019-2027 budget and is now scheduled to start in 2025. This project will perform an assessment of wastewater collection system seismic vulnerabilities, develop post-event level of service goals, and recommend mitigation actions.

S-115 SCADA System Upgrade

Description and Scope

The City of Bellevue Utilities Department utilizes a supervisory control and data acquisition (SCADA) system to control and monitor the potable water, wastewater and storm water systems. Since the initial installation in the 1970s, this system has utilized leased copper telephone lines as the SCADA communications media. With age, the copper phone lines used for communicating vital control logic and retrieving precious data have become increasingly unreliable. As the telecommunication providers transition their core business away from copper telephone lines towards fiber-optic cable and cellular networks, the City faces increasing communications outages. Any break in communications within our SCADA network increases the risk and cost of providing essential Utility services to our customers. More than ever, it is incumbent upon the Utility to modernize our SCADA communications network to a more reliable medium.

The family of projects under the SCADA Infrastructure Upgrades program will improve the reliability and security of the SCADA system across 32 potable water sites, 48 wastewater sites and 11 storm water sites. These projects will install a private, secure cellular and fiber-optic communications network and optimize the operation of the cities three utilities. Additionally, these upgrades will allow SCADA operators to leverage cutting-edge technology to improve the quality of service and reduce risks to the environment.

PROJECT NEED: System Renewal and Replacement

Proposed Budget (includes inflation)

S-115	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Adopted (\$M)	\$1.500	\$.210	\$1.000	–	\$1.200	\$.950	–	–	–	\$4.860
Proposed (\$M)	–	–	\$1.400	–	\$1.910	\$1.257	–	–	–	\$4.567
Difference (\$M)	\$(1.500)	\$(.210)	\$.400	–	\$.710	\$.307	–	–	–	\$(0.293)

Proposed Changes

Due to global supply chain shortages in the microprocessor industry, the SCADA projects have experienced schedule delays and cost increases.

S-116 (NEW) Permit Compliance Monitoring

Proposed Description and Scope

This program is for projects that are constructed in or near critical areas (streams, wetlands, steep slopes or floodplains) or critical area buffers. The projects require, by permit from a variety of natural resource agencies, re-planting and monitoring of native vegetation after construction of capital projects

PROJECT NEED: Regulatory Compliance/Mandate

Proposed Budget (includes inflation)

S-116 (NEW)	2023	2024	2025	2026	2027	2028	2029	Total
Proposed (\$M)	\$0.051	\$0.037	\$0.038	\$0.039	\$0.041	\$0.042	\$0.043	\$0.291

Scope

- Three new project sites are added to this program over the next seven years for the following completed to near-completed construction.
 - Cedar Terrace Pump Station Rehabilitation
 - Woodridge Sewer
 - Bogline Sanitary Sewer Rehabilitation

S-117 (NEW) Septic Systems Sewer Extensions

Description and Scope

This program is to evaluate, design and construct wastewater sewer extensions in locations in the Bellevue Utilities service area, where customers are still on septic systems. This program is driven by customer requests for future sewer service in certain neighborhoods.

PROJECT NEED: Environmental, Health and Safety, Service Enhancement

Proposed Budget (includes inflation)

S-117 (NEW)	2023	2024	2025	2026	2027	2028	2029	Total
Proposed (\$M)	–	\$1.211	\$3.917	\$1.918	\$.359	\$.292	\$.292	\$7.989

Scope

- Four new project sites are added to this program over the next seven years.
 - SE 42nd Street & 120th Ave NE
 - Mockingbird Hill
 - 161st Ave Sewer Extension
 - Eastgate SE 42nd Street