



2023-2029 Adopted Utilities Capital Investment Program (CIP) Plan Sewer

The Sewer Utility owns and operates 516 miles of sewer trunk and collector lines, 127 miles of side sewer laterals within public rights-of-way, 14,000 maintenance holes, and 46 pump and flush stations throughout its service area. All sewage is conveyed to King County trunklines or pump stations, which in turn convey it to the South Treatment Plant in Renton. The Sewer Utility serves all of Bellevue as well as adjacent communities of Beaux Arts, Clyde Hill, Hunts Point, Medina, Yarrow Point, and an area in unincorporated King County.

Capital improvements for the Sewer Utility are generally based on the 2014 Wastewater System Plan and are informed by ongoing asset management analyses and other emerging system operational needs. The Plan provides a guide for orderly system expansion to undeveloped areas and to those areas served by septic systems, and recommends improvements which increase or maintain system reliability, efficiency, and level of service. The Sewer Utility's capital improvements are consistent with the Plan's recommendations.

As part of the Wastewater System Plan's development, the sewer system was analyzed to identify potential capacity problems. Other capital investment projects reflect the increasing need for infrastructure renewal and replacement in order to maintain a high level of service and reliability as the sewer system ages, and capacity projects are necessary to meet anticipated population growth.

The 2023-2029 Utilities CIP Plan recognizes that significant investments are needed to maintain aging systems and replace components that are reaching the end of their useful life.

Funded CIP Projects

CIP Plan Number	Project Title	\$ in 000s	
		2023-2029 Project Cost	Total Estimated Cost
S-16	Sewage Pump Station & Force Main Improvements	\$ 23,297	\$ 47,393
S-24	Sewer System Pipeline Repairs and Replacement	26,844	58,420
S-32	Minor (Small) Sewer Capital Improvements and Projects	258	4,137
S-58	Lake Washington Sewer Lake Line Program	4,304	7,540
S-66	Sewer System Pipeline Repair and Replacement	1,954	18,972
S-111	Maintenance and Operations Yard	6,094	8,761
S-112	Sewer Planning Program	1,763	1,763
S-115	SCADA System Upgrade - Sewer	4,567	6,277
S-116	Permit Compliance Monitoring	291	291
S-117	Septic Systems Sewer Extensions	7,989	7,989
S-120	Project and Portfolio Management System - Sewer	167	167
	Total Sewer	\$ 77,528	\$ 161,709

2023-2029 Adopted CIP: Healthy and Sustainable Environment - Sewer

Combined, Completed Projects

CIP Plan Number	Project Title	\$ in 000s	
		2023-2029 Project Cost	Total Estimated Cost
NONE			
	Total Combined, Completed Projects	-	-

S-16: Sewer Pump Station & Force Main Improvements

Category: High Quality Built & Natural Environment Status: Ongoing
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
47,393,155	24,096,155	1,478,000	5,937,000	3,577,000	3,032,000	5,531,000	1,725,000	2,017,000

Description and Scope

This ongoing program funds rehabilitation of the 36 pump and 10 flush stations in Bellevue's wastewater system. Stations are prioritized based on the risk and consequence of failure, maintenance and operations experience, pump station age, and coordination with other projects. Stations scheduled for work in 2023-2029 include: Wilburton, Newport, Cozy Cove, Pump Station 12, Parkers, South Ridge, Evergreen East, Evergreen West, and Fairweather.

Rationale

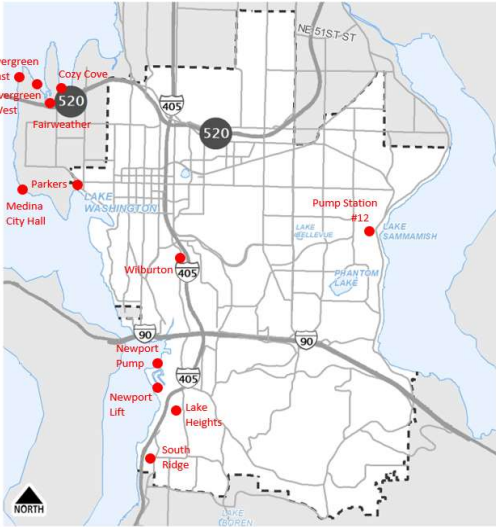
Sewer infrastructure rehabilitation and replacement is based on asset criticality and business risk, per industry best practices. In the short term, this program reduces the likelihood of catastrophic system failures, damage claims, and sharp rate increases to react to failures rather than proactively managing the system. In the long term, timely replacement or repair of wastewater facilities keeps customer rates as low as practical by managing the system at the lowest life-cycle cost, while maintaining service levels and meeting regulatory requirements.

Environmental Impacts

Operating Budget Impacts

This program will have no significant impact on operating revenues and/or expenditures.

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	47,393,155

Total Budgetary Cost Estimate: 47,393,155

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	47,393,155
Total Programmed Funding:	47,393,155
Future Funding Requirements:	-

FY2023-2029

Comments

S-24: Sewer System Pipeline Repairs and Replacement

Category: High Quality Built & Natural Environment Status: Ongoing
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
58,419,785	31,575,785	3,590,000	2,799,000	7,330,000	3,773,000	3,281,000	3,370,000	2,701,000

Description and Scope

This program funds major repairs to sewer pipes where there is a cost-effective solution to extend the pipe's service life. Most defects are identified from the Utility's infrastructure condition assessment (video) program. 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.

Rationale

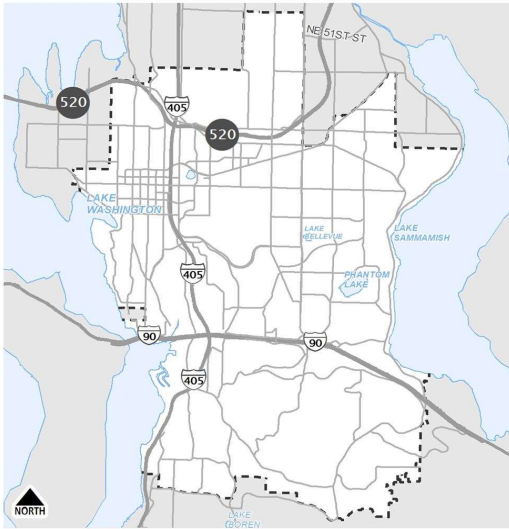
Sewer infrastructure rehabilitation and replacement is based on asset criticality and business risk, per industry best practices. In the short term, this program reduces the likelihood of catastrophic system failures, damage claims, and sharp rate increases to react to failures rather than proactively managing the system. In the long term, timely replacement or repair of wastewater facilities keeps customer rates as low as practical by managing the system at the lowest life-cycle cost, while maintaining service levels and meeting regulatory requirements.

Environmental Impacts

Operating Budget Impacts

This program will have no significant impact on operating revenues and/or expenditures.

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	58,419,785

Total Budgetary Cost Estimate: 58,419,785

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	58,419,785

Total Programmed Funding: 58,419,785

Future Funding Requirements: -

FY2023-2029

Comments

S-32: Minor (Small) Sewer Capital Improvements and Projects

Category: High Quality Built & Natural Environment Status: Ongoing
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
4,136,530	3,878,530	258,000	-	-	-	-	-	-

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.

Rationale

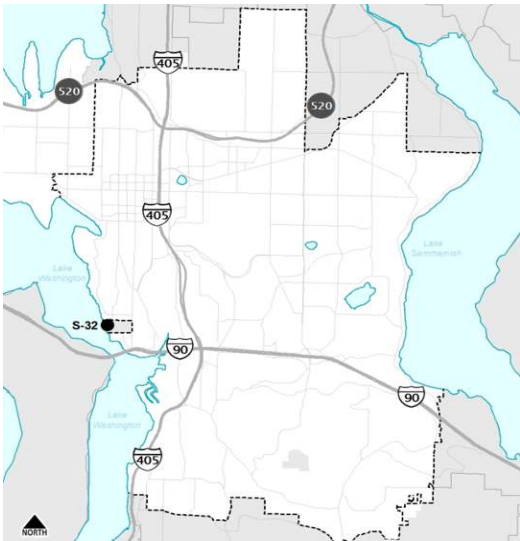
Sewer infrastructure rehabilitation and replacement is based on asset criticality and business risk, per industry best practices. In the short term, this program reduces the likelihood of catastrophic system failures, damage claims, and sharp rate increases to react to failures rather than proactively managing the system. In the long term, timely replacement or repair of wastewater facilities keeps customer rates as low as practical by managing the system at the lowest life-cycle cost, while maintaining service levels and meeting regulatory requirements.

Environmental Impacts

Operating Budget Impacts

This program will have no significant impact on operating revenues and/or expenditures.

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	4,136,530

Total Budgetary Cost Estimate: 4,136,530

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	4,136,530
Total Programmed Funding:	4,136,530
Future Funding Requirements:	-

FY2023-2029

Comments

S-58: Lake Washington Sewer Lake Line Program

Category: High Quality Built & Natural Environment Status: Ongoing
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
7,539,603	3,235,603	675,000	41,000	119,000	219,000	945,000	1,159,000	1,146,000

Description and Scope

This program is for the development of the Lake Lines 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 lines.

Rationale

Sewer infrastructure rehabilitation and replacement is based on asset criticality and business risk, per industry best practices. In the short term, this program reduces the likelihood of catastrophic system failures, damage claims, and sharp rate increases to react to failures rather than proactively managing the system. In the long term, timely replacement or repair of wastewater facilities keeps customer rates as low as practical by managing the system at the lowest life-cycle cost, while maintaining service levels and meeting regulatory requirements.

Environmental Impacts

Operating Budget Impacts

This program will have no significant impact on operating revenues and/or expenditures.

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	7,539,603

Total Budgetary Cost Estimate: 7,539,603

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Beginning Fund Balance	890,000
Transfers from Other City Funds	6,649,603
Total Programmed Funding:	7,539,603
Future Funding Requirements:	-

FY2023-2029

Comments

S-66: Sewer System Pipeline Repair and Replacement

Category: High Quality Built & Natural Environment Status: Ongoing
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
18,972,333	17,018,333	558,000	71,000	270,000	839,000	216,000	-	-

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.

Rationale

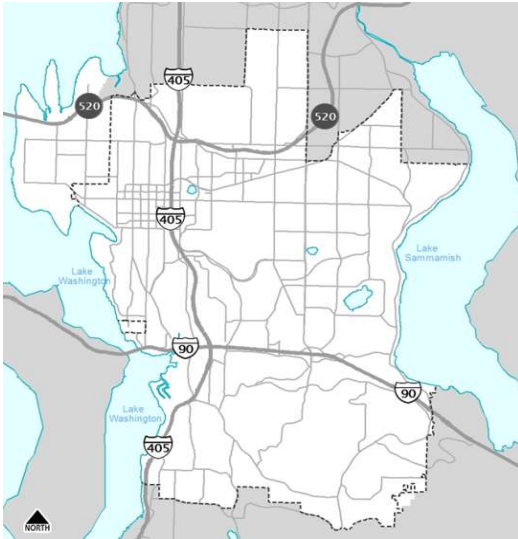
Sewer infrastructure rehabilitation and replacement is based on asset criticality and business risk, per industry best practices. In the short term, this program reduces the likelihood of catastrophic system failures, damage claims, and sharp rate increases to react to failures rather than proactively managing the system. In the long term, timely replacement or repair of wastewater facilities keeps customer rates as low as practical by managing the system at the lowest life-cycle cost, while maintaining service levels and meeting regulatory requirements.

Environmental Impacts

Operating Budget Impacts

This program will have no significant impact on operating revenues and/or expenditures.

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	18,972,333

Total Budgetary Cost Estimate: 18,972,333

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	18,972,333

Total Programmed Funding: 18,972,333

Future Funding Requirements: -

FY2023-2029

Comments

S-111: Maintenance and Operations Yard

Category: High Quality Built & Natural Environment Status: Ongoing
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
8,761,000	2,667,000	-	-	3,315,000	2,779,000	-	-	-

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 initiated the development of 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). Programs included in this proposal are:

- W-111 Operations and Maintenance Land Acquisition - Water
- S-111 Operations and Maintenance Land Acquisition - Sewer

Rationale

The Utilities Operations and Maintenance Facilities Plan outlines strategic, 20-year investments to address vulnerabilities caused by inadequate, poorly positioned, and deteriorating facilities. Land acquisition and development of the Utilities North End Yard will start the Utility on the path to:

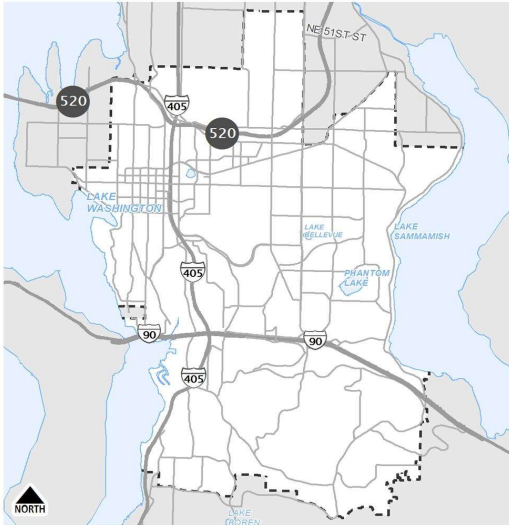
- Build capacity for yard functions and equipment storage on the north end of Bellevue,
- Build right-sized facilities capable of supporting today's operations and future growth, and
- Position facilities so crews can respond efficiently to routine work orders and emergencies

Environmental Impacts

Operating Budget Impacts

TBD

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	8,761,000

Total Budgetary Cost Estimate: 8,761,000

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Beginning Fund Balance	2,667,000
Transfers from Other City Funds	6,094,000
Total Programmed Funding:	8,761,000
Future Funding Requirements:	-

FY2023-2029

Comments

S-112: Sewer Planning Program

Category: High Quality Built & Natural Environment

Status: New

Department: Utilities

Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
1,763,000	-	-	-	1,366,000	397,000	-	-	-

Description and Scope

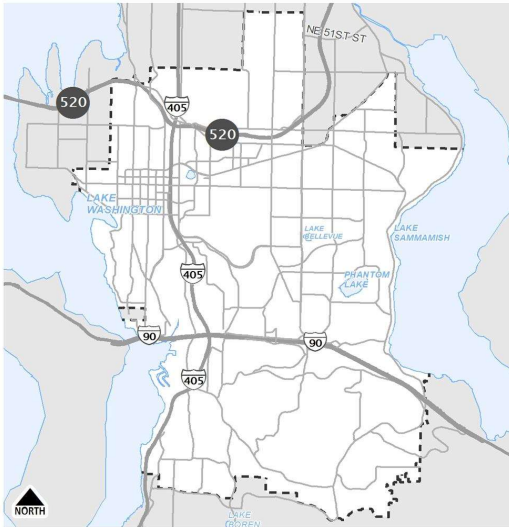
This program is for sewer planning projects, including alternatives analyses and programmatic planning for the wastewater sewer system, and an update to the Wastewater System Plan.

Rationale

Environmental Impacts

Operating Budget Impacts

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	1/1/2023-	1,763,000

Total Budgetary Cost Estimate: 1,763,000

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	1,763,000
Total Programmed Funding:	1,763,000
Future Funding Requirements:	-

FY2023-2029

Comments

S-115: SCADA System Upgrade - Sewer

Category: High Quality Built & Natural Environment Status: Ongoing
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
6,277,000	1,710,000	1,120,000	-	2,190,000	1,257,000	-	-	-

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. Any break in communications within our SCADA network increases the risk and cost of providing essential Utility services to our customers.

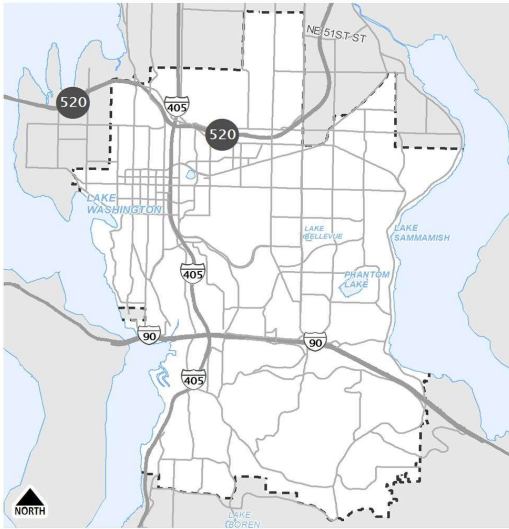
The family of projects under the SCADA Infrastructure Upgrades program will improve the reliability and security of the SCADA system across 32 potable water sites, 48 wastewater sites and 11 storm water sites. These projects will install a private, secure cellular and fiber-optic communications network and optimize the operation of the cities three utilities.

Rationale

Environmental Impacts

Operating Budget Impacts

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	6,277,000
Total Budgetary Cost Estimate:		6,277,000
Means of Financing		
Funding Source		Amount
Transfers from Other City Funds		6,277,000
Total Programmed Funding:		6,277,000
Future Funding Requirements:		-

FY2023-2029

Comments

S-116: Permit Compliance Monitoring

Category: High Quality Built & Natural Environment

Status: New

Department: Utilities

Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
291,000	-	51,000	37,000	38,000	39,000	41,000	42,000	43,000

Description and Scope

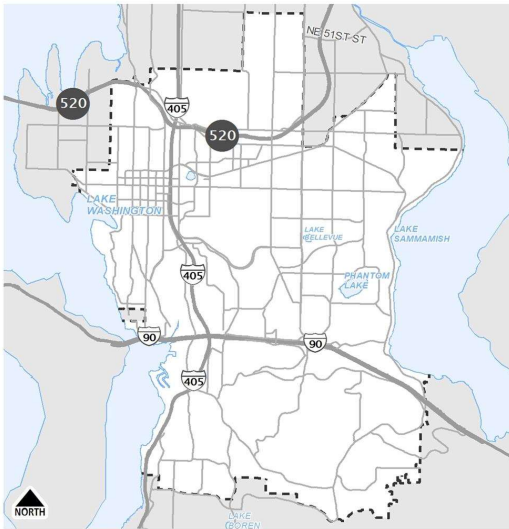
This program is for projects that are constructed in critical areas (streams, wetland, steep slopes or floodplains) or critical area buffers. The projects require, by permit from a variety of natural resource agencies, re-planting of native vegetation after construction and monitoring of capital projects to ensure the vegetation survives. Some stream projects require monitoring of the streambed after construction. Compliance with permitting requirements ensures the City maintains strong relationships with environmental permitting agencies that can benefit future projects. The adopted CIP funds the current monitoring and maintenance activities on 17 separate sites throughout the City

Rationale

Environmental Impacts

Operating Budget Impacts

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	291,000

Total Budgetary Cost Estimate: 291,000

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	291,000

Total Programmed Funding: 291,000

Future Funding Requirements: -

FY2023-2029

Comments

S-117: Septic Systems Sewer Extensions

Category: High Quality Built & Natural Environment

Status: New

Department: Utilities

Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
7,989,000	-	-	211,000	1,226,000	4,505,000	1,463,000	292,000	292,000

Description and Scope

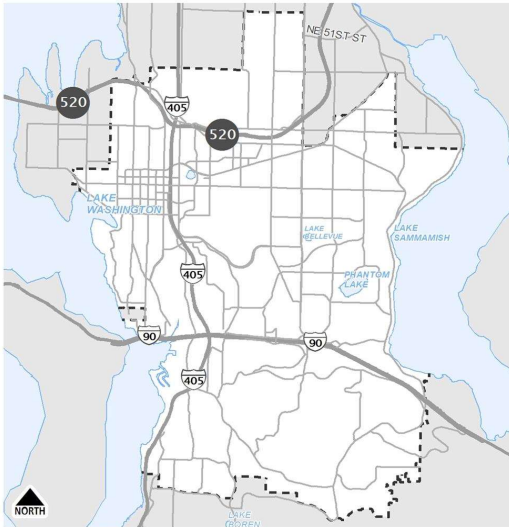
This program is to evaluate, design and construct wastewater sewer extensions in locations in the Bellevue Utilities service area, where customers are still on septic systems. This program is driven by customer requests for future sewer service in certain neighborhoods.

Rationale

Environmental Impacts

Operating Budget Impacts

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	7,989,000

Total Budgetary Cost Estimate: 7,989,000

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	7,989,000
Total Programmed Funding:	7,989,000
Future Funding Requirements:	-

FY2023-2029

Comments

S-120: Project and Portfolio Management System-Sewer

Category: High Quality Built & Natural Environment Status: New
 Department: Utilities Location: Citywide

Programmed Expenditures

<u>Programmed Expenditures</u>	<u>Appropriated To Date</u>	<u>FY 2023 Budget</u>	<u>FY 2024 Budget</u>	<u>FY 2025 Budget</u>	<u>FY 2026 Budget</u>	<u>FY 2027 Budget</u>	<u>FY 2028 Budget</u>	<u>FY 2029 Budget</u>
167,000	-	133,000	34,000	-	-	-	-	-

Description and Scope

This proposal is a collaboration between the Utilities and Transportation Departments to purchase and implement a modern tracking and reporting system to support the management and delivery of both departments' Capital Investment Programs and Projects. Upon funding approval, both departments will finalize the Request for Proposals for a new Project and Portfolio Management System that will support CIP delivery through improved management tools, tracking and reporting functionality. The draft RFP for this project has already been developed collaboratively between Utilities, Transportation, I.T.D., and FAM (Procurement). Once finalized, the departments will review RFP vendor submissions, which will include evaluation of written proposals and software demonstrations. Upon satisfactory results of a preferred vendor, the negotiations and resulting contract development and execution are finalized, the Departments will proceed with software configuration, implementation, and staff training.

Rationale

Currently, the work of delivering the CIP is supported through use of the Project Reporting System (PRS), which is a software solution built by Bellevue's Information Technology Department (ITD) more than a decade ago to track and report on financial status of individual CIP projects. It is the only software system currently available for Transportation and Utilities to track project expenditures compared to cost projections and adopted budgets for CIP projects. PRS suffers from poor performance and instability and lacks analysis and reporting functionality. Staff tasked with delivering the CIP currently utilize PRS and numerous different Excel spreadsheets to track project delivery and budget elements. These spreadsheets are not connected to each other and there is risk that data between the spreadsheets may not be consistent or correct. This requires ongoing quality checking and correction, which takes staff time away from other important tasks.

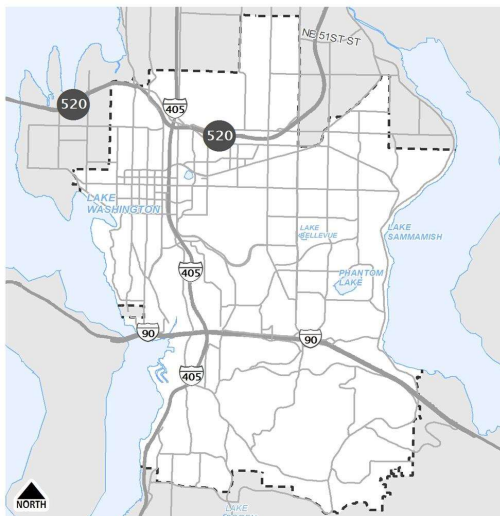
In 2017, a business case was developed by Utilities and Transportation Departments to seek a better system to support project and program management and a request for information (RFI) process was undertaken to garner input from the industry on available systems. Due to City budget constraints, the formal procurement of a new system was put on hold.

Since 2017, the need for an enterprise Project and Portfolio Management System has increased due to the size and complexity of both department's Capital Investment Programs. Therefore, this proposal will resume work started in 2017 and fund implementation and ongoing maintenance of a new project tracking and reporting system that will improve functionality for management of CIP Program delivery over the current model of using PRS in conjunction with numerous, disconnected and difficult to manage excel spreadsheets. Implementation of a new system is expected to yield improved tracking and management of project scopes, schedules, budgets and risks to better achieve project delivery goals and contribute to meeting program and portfolio accomplishment targets as well.

Environmental Impacts

Operating Budget Impacts

Project Map



Schedule of Activities

<u>Project Activities</u>	<u>From - To</u>	<u>Amount</u>
Project Costs	Ongoing	167,000

Total Budgetary Cost Estimate: 167,000

Means of Financing

<u>Funding Source</u>	<u>Amount</u>
Transfers from Other City Funds	167,000

Total Programmed Funding: 167,000

Future Funding Requirements: -

FY2023-2029

Comments