Sewer

The Sewer Utility owns and operates 526 miles of sewer trunk and collector lines, 130 miles of side sewer laterals within public rights-of-way, over 13,000 manholes, and 46 pumping and flushing stations throughout its service area. All sewage is conveyed to King County METRO 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 the Points Communities, Beaux Arts, and some areas of unincorporated King County.

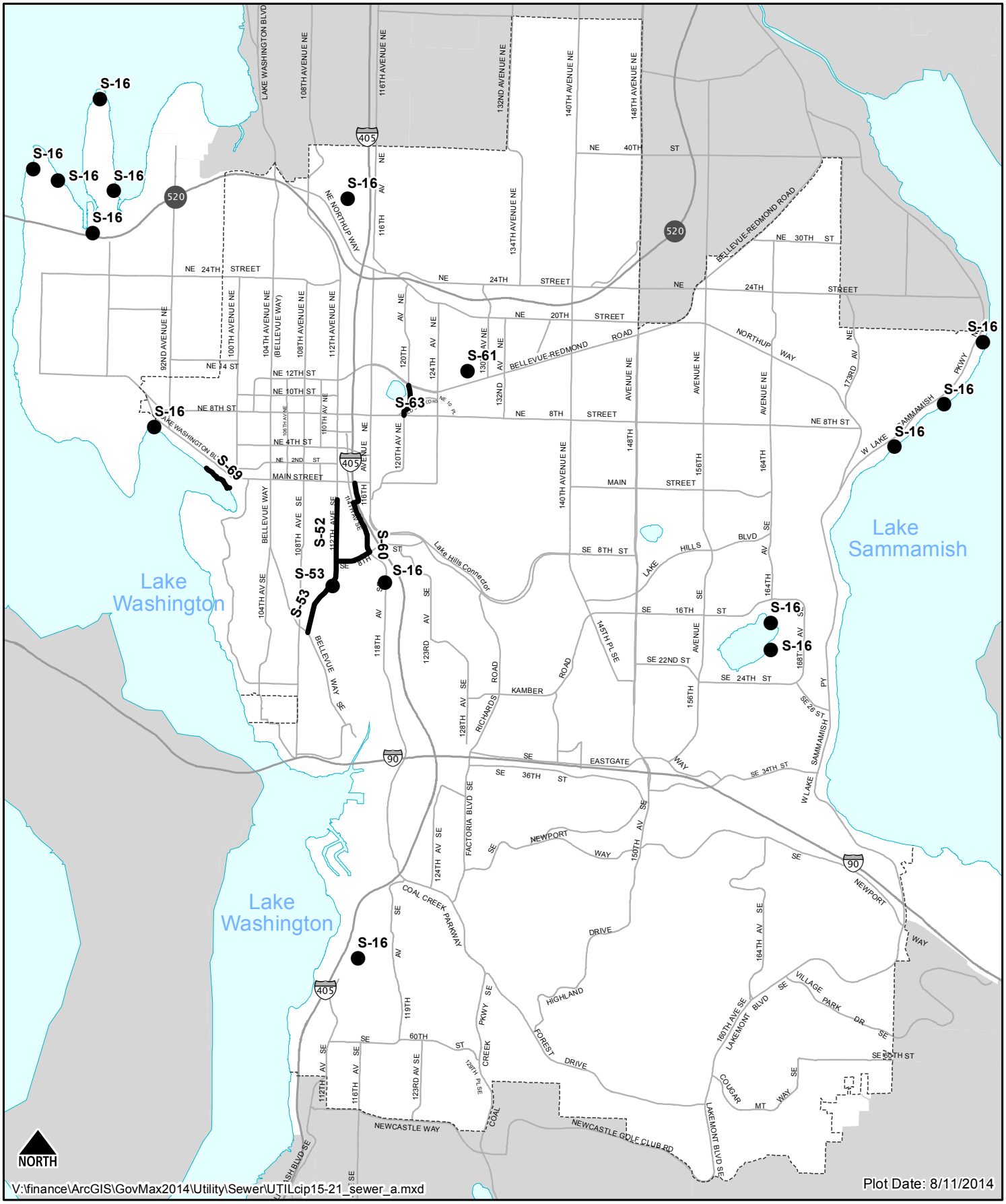
Capital improvements for the Sewer Utility are generally based on the 2014 Wastewater System Plan. The Plan provides a guide for orderly system expansion to undeveloped areas and to those areas served by septic systems, and recommends improvements which increase or maintain system reliability, efficiency, 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 resource required to maintain a high level of service and reliability as the sewer system ages (infrastructure renewal and replacement), and capacity projects to meet anticipated population growth.

The 2015-2021 CIP Plan recognizes that significant investments are needed to maintain aging systems and replace components that are reaching the end of their useful life. The Plan also includes a number of investments that are necessary to meet system capacity and infrastructure renewal needs as a response to growth and demand in the system.

Funded CIP Projects

CIP Plan Number	Project Name	$ in 000s 2015-2021 Project Cost	Total Estimated Cost
S-16	Sewage Pump Station Improvements	8,419	20,600
S-24	Sewer System Pipeline Major Repairs	12,816	30,763
S-32	Minor (Small) Sewer Capital Improvement Projects	771	2,926
S-52	East CBD Sewer Trunkline Improvement	2,224	3,359
S-53	Bellefield Pump Station Capacity Improvement	8,556	10,116
S-58	Lake Washington Sewer Lake Line Assessment Program	492	1,801
S-59	Add on-site Power at Sewer Pump Station	1,169	1,244
S-60	Wilburton Sewer Capacity Upgrade	6,205	7,983
S-61	Midlakes Pump Station Capacity Improvements	3,414	4,070
S-63	Utility Facilities for 120th Ave NE Improv (Seg 2)	902	1,199
S-66	Sewer System Pipeline Replacement	8,242	9,412
S-67	I&I Investigations and Flow Monitoring	1,228	1,228
S-68	Sewer Force Main Condition Assessment	1,348	1,348
S-69	Meydenbauer Bay Park Sewer Line Replacement	2,501	2,501
S-70	East Link Utility Relocations	1,925	1,925
	TOTAL SEWER	$ 60,212	$ 100,475



2015-2021

Sewer CIP Projects

Note: Projects S-24, S-32, S-58, S-59, S-66, S-67, and S-68 are not shown as they will be located throughout the service area. S-70 located throughout the East Link corridor.

S-16 Sewer Pump Station Improvements

Category: **Sewer**
Status: **Ongoing**
Department: **Utilities**
Location: **Pump stations throughout the Sewer Utility's service area**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
20,600,491	12,181,491	512,000	1,340,000	2,310,000	1,075,000	1,097,000	1,090,000	995,000

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 2015-21 include: Lake Heights, Wilberton, Cedar Terrace, Lake Hills #17, Cozy Cove, Parkers, Evergreen East, Evergreen West, Fairweather, Hunt's Point, Lake Hills #6, and Lake Hills #7. Historically this program funded rehabilitation of one station per year. Two stations/year are planned beyond 2017 since the electrical and mechanical equipment in them will have reached their 25-30 year useful life. Analysis of 25 stations is currently underway to improve the forecast needs for schedule and cost, and could result in reprioritization of scheduled stations.

Rationale

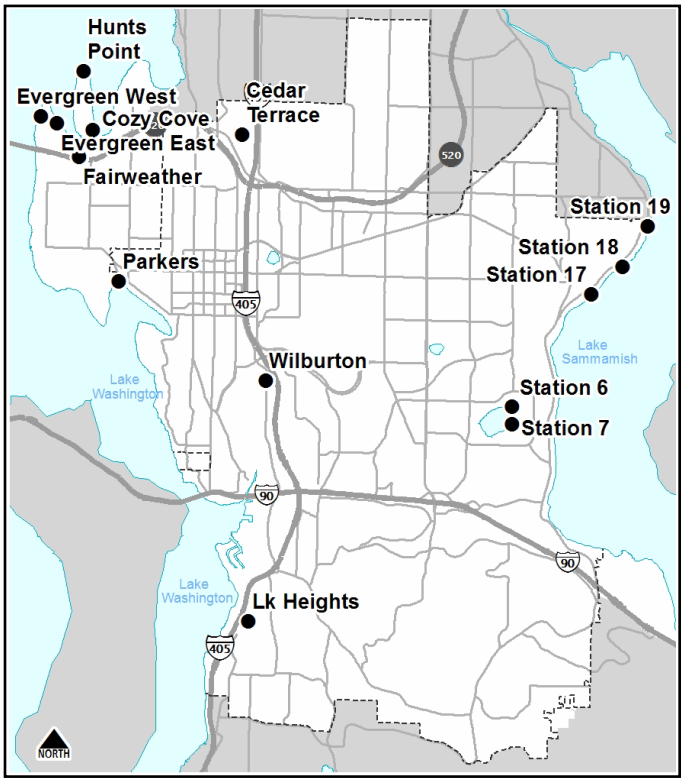
Much of the sewage collected from homes and businesses passes through one or more of 36 pump stations and 10 flush stations (in-lake, low-pressure facilities that periodically 'flush' the nearly-flat sewer lakelines with lake water.) Although some flush station components may last longer than 25 years, pumps and electrical system replacement is needed every 25 years. Complete station replacement is needed every 75 to 100 years. Beyond service life, components fail more frequently, technology becomes obsolete, and parts replacement becomes difficult or impossible. Bellevue's commitment to a healthy environment, as well as state and federal laws require that we minimize pump station overflows; repeated violations can result in sanctions. Station rehabilitation improves reliability and safety, reduces the risk of system overflow and failure, and reduces the liability associated with such failures.

Environmental Impacts

The majority of the improvement work will be within the existing pump stations and no substantial environmental impacts are anticipated. The State Environmental Protection Act (SEPA) determinations (typically Determinations of Non-Significance) and exemptions from Shoreline regulations are obtained as required for each pump station as it is upgraded.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	1985 - 2021	20,600,491
Total Budgetary Cost Estimate:		20,600,491

Means of Financing

Funding Source	Amount
Utility Rates/Fees	20,600,491
Total Programmed Funding:	20,600,491
Future Funding Requirements:	

Comments

S-24 Sewer System Pipeline Major Repairs

Category: **Sewer**
Department: **Utilities**
Status: **Ongoing**
Location: **Throughout Sewer Utility's Service area**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
30,762,785	17,946,785	1,232,000	1,836,000	1,873,000	1,911,000	1,949,000	1,988,000	2,027,000

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

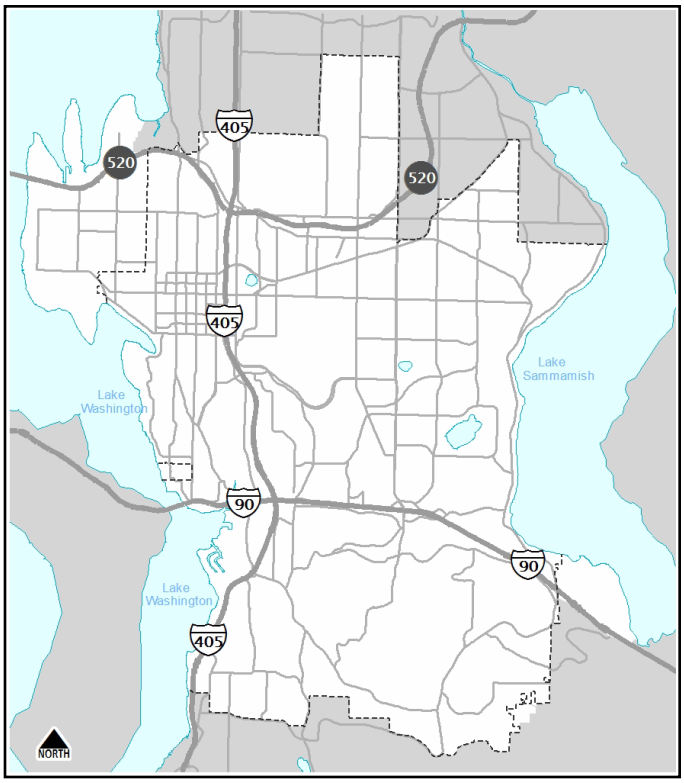
Bellevue's 650+ miles of sewer mains and the stubs that carry wastewater from homes and businesses to the mains are rapidly deteriorating. Most are 35-60 years old, and more than halfway through their expected functional life. As pipes age, cracks become wider and joints between pipes loosen, increasing the likelihood of blockages that cause sewer backups. Repairing these defects reduces pipeline failures, reduces the risk of blockages or collapse that could result in property damage, and reduces the amount of ground water entering the sewer system which in turn reduces the risk of exceeding the system capacity and overflowing sewage into surface waters. In many cases, localized 'spot' repairs are the most cost effective choice and assure maximum total pipe life. Video observations and condition data indicates whether full pipe replacement or relining would be more cost effective.

Environmental Impacts

Point repairs to sewer pipes generally disrupt only a small area, and have minimal environmental impacts. The repair may prevent sewage from escaping the piped system, preventing environmental pollution. The environmental impacts and the State Environmental Protection Act (SEPA) requirements will be determined for each replacement segment, but they are generally SEPA exempt.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	1990 - 2021	30,762,785
Total Budgetary Cost Estimate:		30,762,785

Means of Financing

Funding Source	Amount
Judgements/Settlements	84,000
Miscellaneous Revenue	1,537,000
Utility Rates/Fees	29,141,785
Total Programmed Funding:	30,762,785
Future Funding Requirements:	

Comments

S-32 Minor (Small) Sewer Capital Improvement Projects

Category: **Sewer**
Status: **Ongoing**
Department: **Utilities**
Location: **Various locations throughout Sewer Utility's service area**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
2,926,323	2,155,323	103,000	106,000	108,000	110,000	112,000	115,000	117,000

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

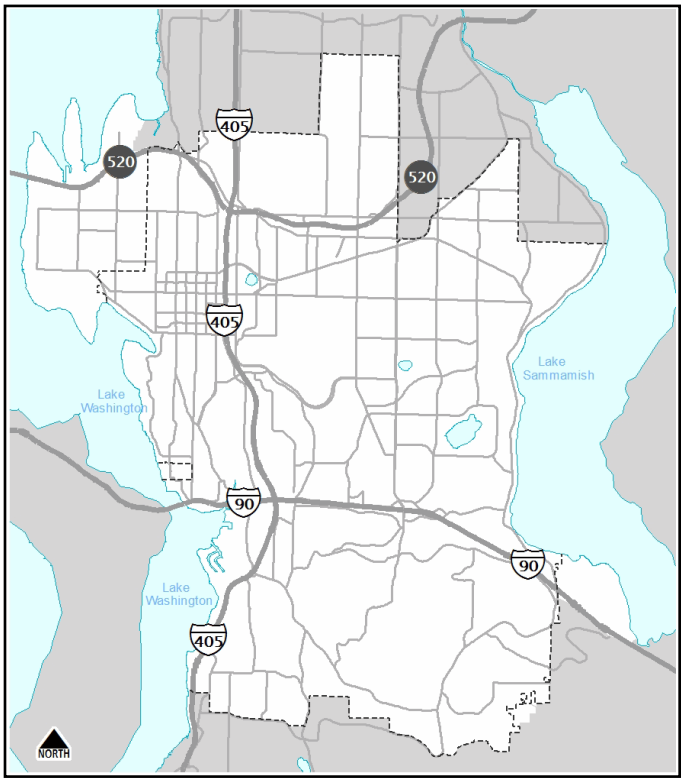
These improvements correct unanticipated minor deficiencies or maintenance problems of the existing system. This program allows the City to efficiently maintain and upgrade its sewer system by coordinating minor improvements with other City projects and maintenance activities. These projects are too small to justify their own CIP projects, don't fit within the scope of other sewer CIP programs, and sometimes cannot be anticipated. The annual program budget for 2015 and beyond has been reduced to align with historical need.

Environmental Impacts

The minor improvements completed under this program generally have little to no environmental impact. In some cases they resolve deficiencies that could otherwise have led to environmental damage as a result of sewage spills.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	1990 - 2021	2,926,323
Total Budgetary Cost Estimate:		2,926,323

Means of Financing

Funding Source	Amount
Utility Rates/Fees	2,926,323
Total Programmed Funding:	2,926,323
Future Funding Requirements:	

Comments

S-52 East CBD Sewer Trunkline Improvements

Category: **Sewer**
Department: **Utilities**
Status: **Approved and Begun**
Location: **112th Ave SE: Bellefield P.S. to 500 ft north of SE 8th St**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
3,359,045	1,135,045	2,203,000	21,000	-	-	-	-	-

Description and Scope

This project will replace approximately 1,600 feet of sewer pipe with larger diameter pipelines, to convey sewage generated from planned growth in the east part of downtown Bellevue, generally east of 110th Ave NE. This project schedule and alignment has been adjusted to accommodate the Sound Transit EastLink Light Rail project. Project costs were increased based on 30% design plan engineering estimates.

Rationale

The project is needed to provide sufficient sewer capacity to allow planned development in the eastern part of downtown. Sufficient capacity will reduce the likelihood and occurrence of sewer overflows which pollute surface waters and create potential health and safety hazards. The capacity is required now as every new development that drains to this pipe increases the risk of sewer overflows to Sturtevant Creek and Mercer Slough. To avoid conflicts and accommodate maintenance access, the pipes and associated facilities need to be located outside of the East Link light rail right-of-way. Final design and construction will be closely coordinated with Sound Transit.

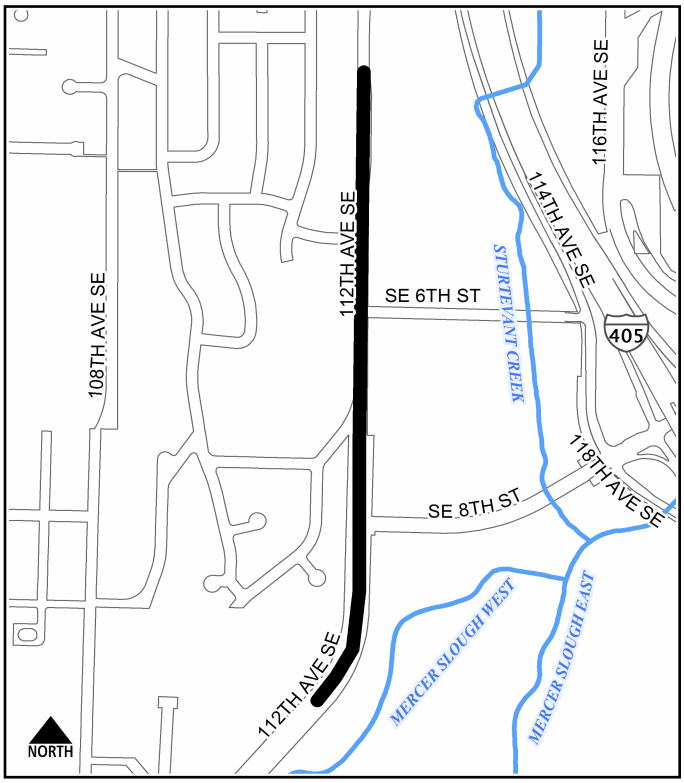
The project is consistent with City Comprehensive Plan Policy UT-5, which indicates utility system capacity should not determine land use. The current wastewater system capacity would limit downtown redevelopment.

Environmental Impacts

An environmental determination will be made in conjunction with preliminary design of this project. SEPA review will be required. Construction impacts will be mitigated during construction; the additional capacity will reduce the potential for sewer overflow and consequent negative environmental impacts.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2009 - 2016	3,359,045
Total Budgetary Cost Estimate:		3,359,045

Means of Financing

Funding Source	Amount
Utility Rates/Fees	3,359,045
Total Programmed Funding:	3,359,045
Future Funding Requirements:	

Comments

S-53 Bellefield Pump Station Capacity Improvement

Category: **Sewer**
Department: **Utilities**
Status: **Approved and Begun**
Location: **1300 Blk 112th Ave SE, and 112th south toward BelWay**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
10,115,681	1,559,681	7,488,000	1,068,000	-	-	-	-	-

Description and Scope

This project will replace the existing Bellfield Pump Station and pressurized discharge pipe with larger facilities of sufficient capacity to meet the needs of planned growth in the eastern side of downtown Bellevue (generally east of 110th Ave NE) and the Wilburton area. Station design capacity is approximately 8000gpm. The project schedule has been adjusted to accommodate the construction schedule of the Sound Transit EastLink Light Rail.

Rationale

The project is needed to provide sufficient sewer capacity to allow planned development in the eastern part of downtown and Wilburton. Sufficient capacity will reduce the likelihood and occurrence of sewer overflows which pollute surface waters and create potential health and safety hazards. The need for this project was identified in Comprehensive Wastewater Plans ever since the downtown was re-zoned for high density development in the 1980s. Interim capacity improvements were made in 2002; more capacity is needed by 2015. The current station capacity of 2800 gpm was sufficient for 30 years of early downtown growth. The required ultimate capacity of 8000 gpm is needed to serve approximately 40,000 people who will live and work downtown and in Wilburton areas. Without the project, sewage would overflow from the pump station into Mercer Slough, initially just during peak sewage flows such as major rain events, and eventually because daily flows would exceed the station capacity.

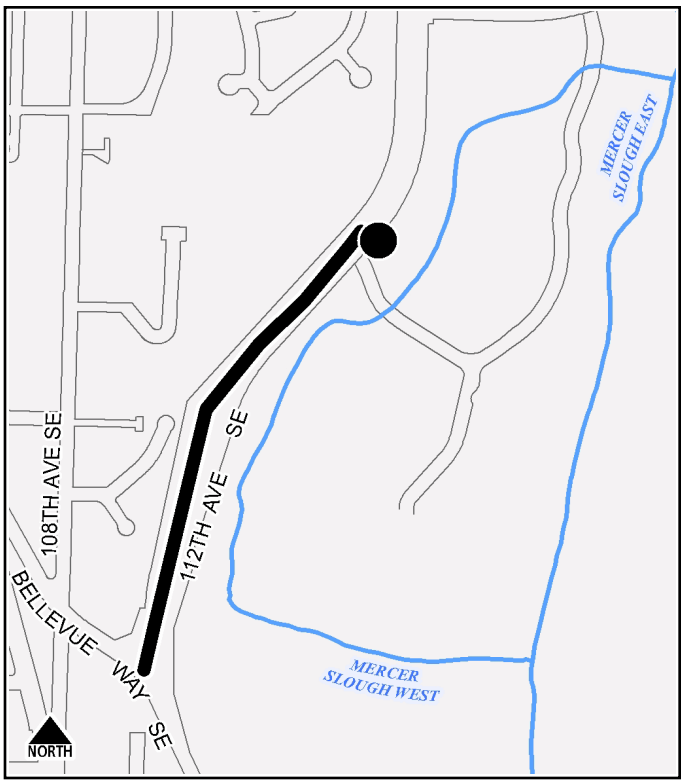
Benefited properties have paid connection charges toward this project since the 1980s, when they redeveloped. The intent is that downtown growth pay for their capacity portion of this project. The capacity required to serve the large tributary basin is paid by the entire rate base. The project is consistent with City Comprehensive Plan Policy UT-5, which indicates utility system capacity should not determine land use. The current pump station capacity would limit downtown redevelopment.

Environmental Impacts

The additional capacity provided by the new station will reduce the potential for sewer overflow and consequent negative environmental impacts. Construction impacts will be mitigated during construction.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2014 - 2016	10,115,681
Total Budgetary Cost Estimate:		10,115,681

Means of Financing

Funding Source	Amount
Utility Rates/Fees	10,115,681
Total Programmed Funding:	10,115,681
Future Funding Requirements:	

Comments

S-58 Lake Washington Sewer Lake Line Assessment Program

Category: **Sewer**
Department: **Utilities**
Status: **Approved and Begun**
Location: **Along Lake Washington & Lake Sammamish shorelines**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
1,801,400	1,309,400	360,000	132,000	-	-	-	-	-

Description and Scope

This program is focused on assessing the 14.5 miles of sewer pipe along the Lake Washington shoreline; predicting its remaining life, and developing a strategy for its replacement. It includes condition assessment to collect pipe samples of asbestos cement and cast iron pipes in and analysis of viable alternatives for replacement of logical pipe reaches. Replacement of some of the sewer lake lines will likely be required just beyond this CIP Window.

Replacement of the Meydenbauer Bay Park sewer lake line was formerly included in this project; it has been moved to its own project, S-69. Assessment of sewer lines along the Lake Sammamish shoreline is not included, since those pipes are newer and likely to last longer.

Rationale

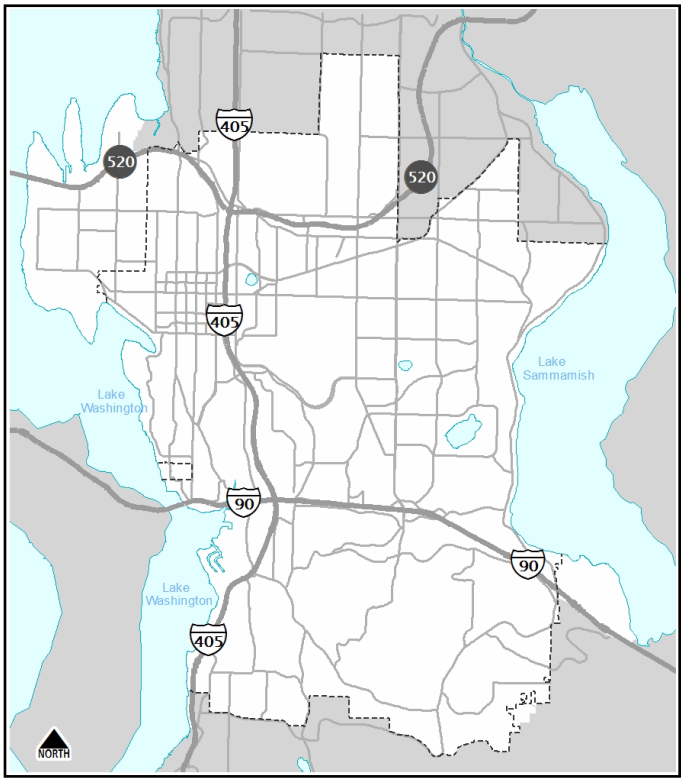
Bellevue has 19+ miles of sewer pipes buried under water near the shorelines of Lakes Washington and Sammamish, known as “lakelines.” The pipes were built in the 1950s and 1960s to convey sewage primarily from lakefront properties. Their underwater location makes them difficult to access and maintain, which is increasingly problematic as they age. Pipe failures or blockages cause sewage releases directly into the lakes, threatening sensitive shoreline habitat, closing beaches and interrupting service to homeowners. The program will include condition assessment to determine remaining life expectancies and maintenance recommendations, and will include preliminary engineering studies to identify and evaluate replacement options.

Environmental Impacts

Specific environmental impacts of pipe replacement in various reaches have not been determined. However, failure of a pipe line in Lake Washington could result in sewage spills and significant environmental damage. Proactive replacement of pipelines as they approach the end of their useful life will avoid that damage. The environmental impacts of construction will be evaluated and mitigated as each project is recommended.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2009 - 2016	1,801,400
Total Budgetary Cost Estimate:		1,801,400

Means of Financing

Funding Source	Amount
Utility Rates/Fees	1,801,400
Total Programmed Funding:	1,801,400
Future Funding Requirements:	

Comments

S-59 Add On-site Power at Sewer Pump Stations

Category: **Sewer**
Department: **Utilities**
Status: **Approved and Begun**
Location: **Three Wastewater Pumping Stations to be determined**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
1,243,981	74,981	74,000	76,000	312,000	417,000	290,000	-	-

Description and Scope

This project will add on-site power generation capability at three high priority pumping stations which currently rely on portable generators during power outages. Specific locations would be selected based on a study evaluating the likelihood and consequence of sewage overflows, giving consideration to volume of base flow versus wet well capacity; proximity to surface water bodies; geographic distance from portable equipment.

Rationale

Twenty-three of Bellevue's thirty-eight pump and lift stations rely on portable power generation equipment during extended power outages. As a result, staff and equipment are stretched to capacity during large storm events with massive losses of power, such as during and following the December 2006 windstorm.

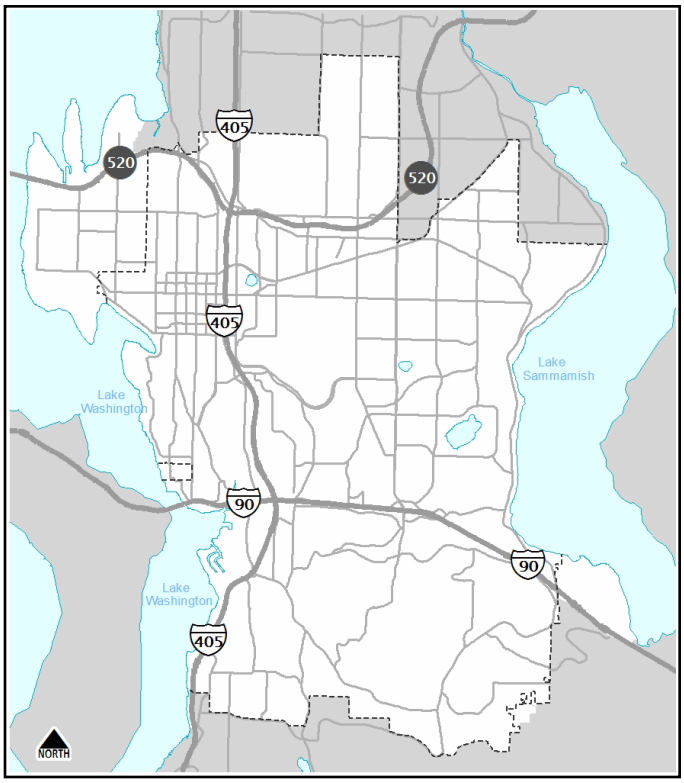
On-site generation would more easily prevent sewage overflows, comply with DOE and DOH regulations, protect the City from violations of the NPDES Municipal Stormwater Permit, minimize closures of public and private beaches, minimize public health and safety risks, and free up staff for other storm response.

Environmental Impacts

Equipment will be installed within existing facilities, so no environmental impacts are anticipated. The on-site generation will reduce the likelihood of sewage overflows, and reducing pollution of surface waters.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2014 - 2019	1,243,981
Total Budgetary Cost Estimate:		1,243,981

Means of Financing

Funding Source	Amount
Utility Rates/Fees	1,243,981
Total Programmed Funding:	1,243,981
Future Funding Requirements:	

Comments

S-60 Wilburton Sewer Capacity Upgrade

Category: **Sewer**
Department: **Utilities**
Status: **Approved and Begun**
Location: **North & West of intersection at 114th Ave SE & SE 8th**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
7,982,599	1,777,599	5,253,000	952,000	-	-	-	-	-

Description and Scope

This project will replace approximately 4,300 feet of 10", 12" and 16" diameter pipe with larger diameter pipe to provide sufficient capacity for anticipated upstream development. During predesign alternatives assessment, the project scope changed to accommodate increased anticipated density in the Wilburton area, which required increasing the size and length of the sewer line, and requires a larger sewer pipe crossing under I-405. Record drawings suggest that an existing casing pipe under I-405 is sufficently large to accommodate the new freeway crossing. The new system capacity will meet design criteria and anticipated needs based on proposed zoning changes.

Rationale

This project is needed to provide sufficient sewer capacity to allow planned re-development within the Wilburton area. This redevelopment will occur based on land-use changes from existing uses to office, retail, multi-family residential, and hotels, that will require more sewer capacity. Portions of the existing trunk are currently at capacity. Redevelopment of the area is dependent on increased sewer capacity. Project expansion costs will be recovered from benefiting properties as redevelopment occurs.

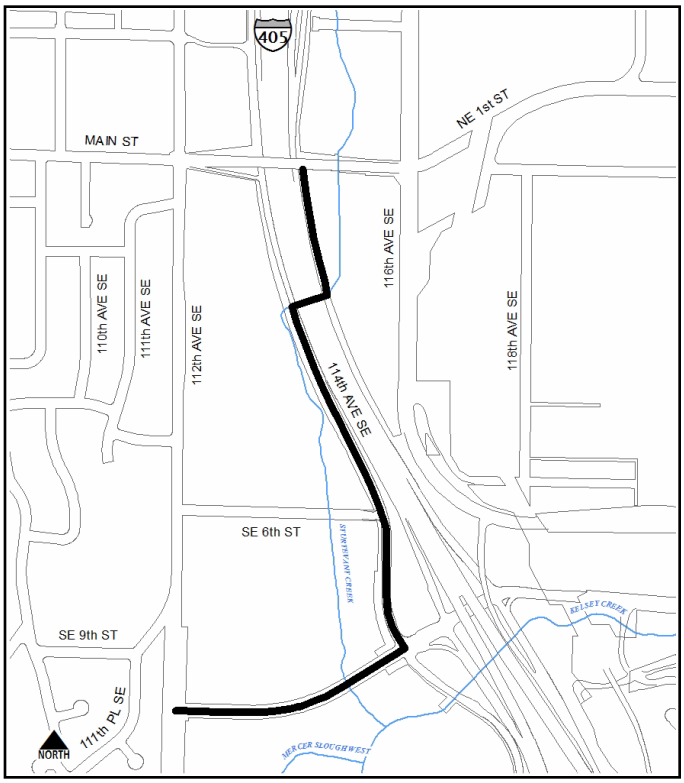
The project is consistent with City Comprehensive Plan Policy UT-5, which indicates utility system capacity should not determine land use. The current wastewater system capacity would limit Wilburton redevelopment.

Environmental Impacts

Environmental impacts would be evaluated during SEPA review of the project, but are not expected to be significant.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2013 - 2016	7,982,599
Total Budgetary Cost Estimate:		7,982,599

Means of Financing

Funding Source	Amount
Utility Rates/Fees	7,982,599
Total Programmed Funding:	7,982,599
Future Funding Requirements:	

Comments

S-61 Midlakes Pump Station Capacity Improvements

Category: **Sewer**
Department: **Utilities**
Status: **Approved and Begun**
Location: **North of Bel-Red Rd and west of 130th Ave NE**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
4,069,715	655,715	1,684,000	1,730,000	-	-	-	-	-

Description and Scope

This project will replace the existing Midlakes sewer pump station with a larger one, to provide capacity for planned growth in the Bel-Red Corridor through 2030.

Rationale

The existing station can pump 800 gallons of sewage/minute (gpm), just sufficient for the light industrial zoning in the area it has served since its original construction in 1968. Planned development in the Bel-Red Corridor includes residential housing and retail shops which will generate much more sewage. A very limited amount of redevelopment can occur before the pump station capacity must be increased, to avoid significant risk of sewage overflow to the West Tributary of Kelsey Creek.

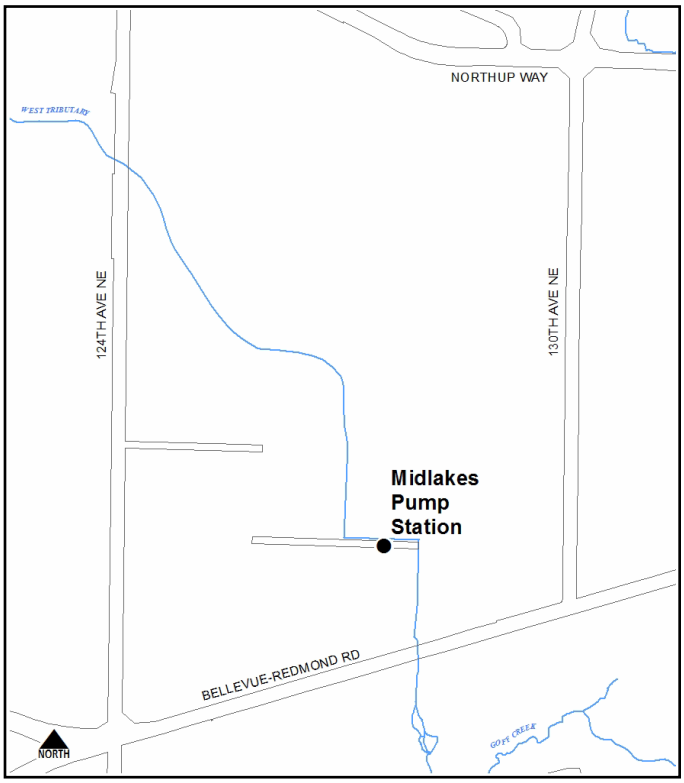
This project will increase the station capacity to ~1,700 gpm. Construction is proposed for 2015 and 2016 to accommodate Sound Transit construction. Costs for the added capacity would be recovered through connection charges. Costs for replacing the existing capacity would not be collected from connection charges to re-developing properties, since the station would require significant retrofit to replace old facilities and equipment even without expansion.

Environmental Impacts

Constructing sufficient capacity will reduce the opportunity of sewage overflows, which pollute surface waters. The environmental impacts of construction will be evaluated during SEPA review of the project, but are not expected to be significant.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2011 - 2016	4,069,715
Total Budgetary Cost Estimate:		4,069,715

Means of Financing

Funding Source	Amount
Utility Rates/Fees	4,069,715
Total Programmed Funding:	4,069,715
Future Funding Requirements:	

Comments

S-63 Sewer Facilities for 120th Ave NE Improvements (Segment 2)

Category: **Sewer**
Department: **Utilities**
Status: **Approved and Begun**
Location: **120th Ave NE: NE 8th St to NE 12th Street**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
1,198,914	296,914	751,000	151,000	-	-	-	-	-

Description and Scope

This project will design and construct new sewer pipe in 120th Ave NE in conjunction with street improvements, and where needed to provide sewer service for redevelopment of adjacent properties consistent with the Bel-Red Corridor Final Report. The project is broken down into segments. Segment 2 is from NE 8th St to NE 12th St and will construct approximately 1000 feet of new 15-inch pipe, and 580 feet of 18-inch pipe which requires relocation and upsizing to accommodate the new street design.

Rationale

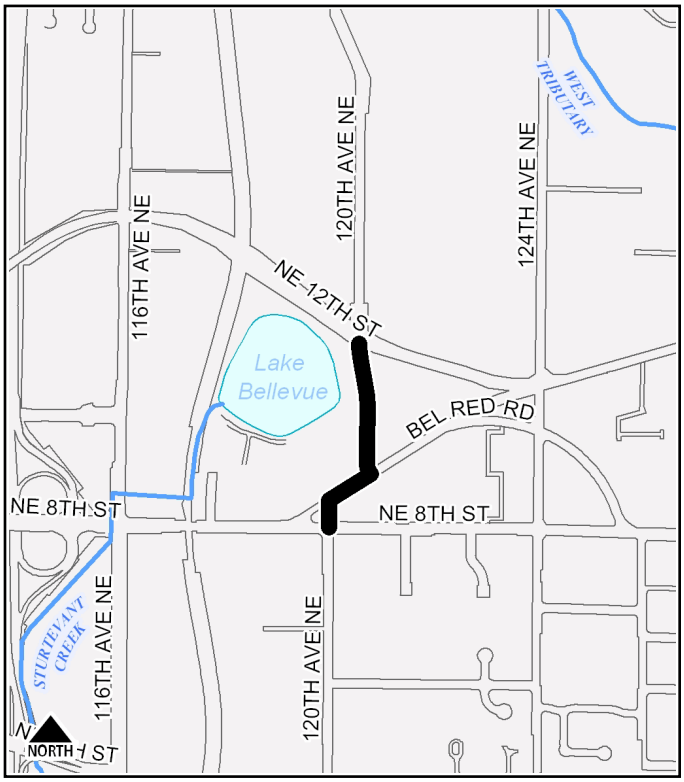
Much of 120th Avenue NE is currently without sewer facilities. Commercial and residential development along the street will require sewer facilities be constructed in the street, to obtain sewer service. Collaboration with the Transportation Department will occur to ensure the design is completed in coordination with the street design. This project will ensure sewer facilities are ready for construction when resources to construct this project are secured and approved. Costs associated with expanded capacity of the sewer system will be recovered from benefited properties.

Environmental Impacts

The environmental impacts and State Environmental Protection Act (SEPA) requirements will be determined during the design process with the Transportation Department, but are expected to be minimal and incidental to the street improvement project.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2011 - 2016	1,198,914
Total Budgetary Cost Estimate:		1,198,914

Means of Financing

Funding Source	Amount
Utility Rates/Fees	1,198,914
Total Programmed Funding:	1,198,914
Future Funding Requirements:	

Comments

S-66 Sewer System Pipeline Replacement

Category: **Sewer**
Status: **Ongoing**
Department: **Utilities**
Location: **Various locations throughout Sewer Utility's service area**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
9,412,100	1,170,100	1,102,000	1,132,000	1,154,000	1,178,000	1,201,000	1,225,000	1,250,000

Description and Scope

This program replaces poor condition sewer pipe throughout the service area. The current budget is estimated to replace sewer pipe at a rate of 0.5 to 0.75 miles per year. 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. This program compliments S-24, 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

Many sewer pipes are over 60 years old, approaching their useful life. Many have required multiple repairs to prevent new and/or respond to reported sewage overflows. The cost to repair and maintain aged, cracked pipes and keep them free of roots and other debris eventually exceeds the cost to replace the pipeline. Several miles of sewer pipe have been identified as candidates for rehabilitation/replacement. As the system ages more will be identified. The program helps manage the number of sewer failures, reduce damage claims and emergency repairs (reactive repairs generally cost at least 50% more than proactive replacement), and allows improved coordination with planned street work.

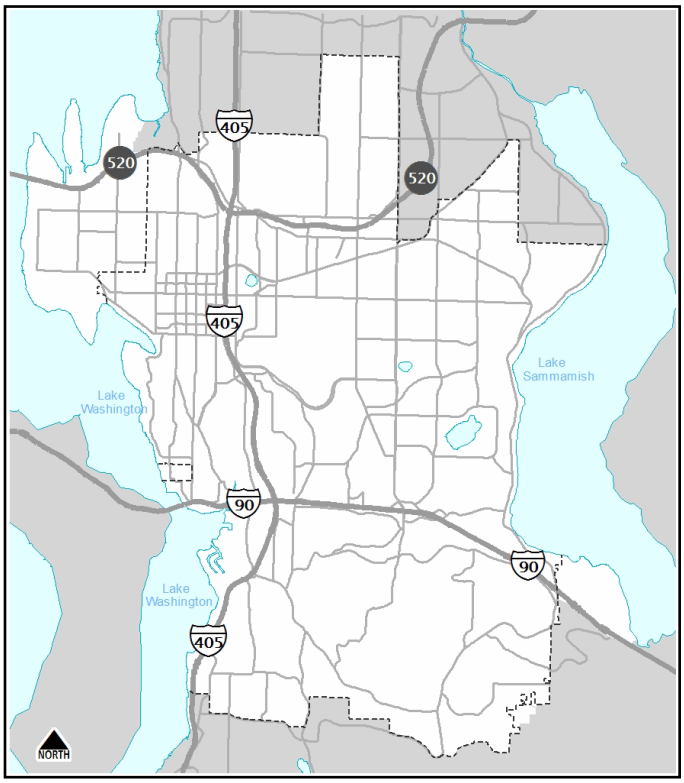
Although this program's funding levels do not provide the resources for a long term sustainable level of pipeline replacement, it allows Bellevue Utilities to replace some pipelines that have clearly reached the end of their useful economic life. The proposed replacement rate of up to 0.75 miles of pipe per year implies that sewer pipe system-wide would need to last an average of more than 650 years, much longer than the EPA's recommendation of 100 years. While sufficient for now, the annual program budget will need to increase as the system ages, to continue to meet asset management program goals.

Environmental Impacts

The environmental impacts and the State Environmental Protection Act (SEPA) requirements will be determined for each replacement segment, but they are generally SEPA exempt. Replacing pipe that is in poor condition will reduce the likelihood of sewage escaping the piped system, and the associated harmful environmental impacts.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2013 - 2021	9,412,100
Total Budgetary Cost Estimate:		9,412,100

Means of Financing

Funding Source	Amount
Utility Rates/Fees	9,412,100
Total Programmed Funding:	9,412,100
Future Funding Requirements:	

Comments

S-67 I&I Investigations and Flow Monitoring

Category: **Sewer**
Department: **Utilities**
Status: **New**
Location: **Various locations throughout Sewer Utility's service area**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
1,228,000	-	211,000	259,000	313,000	220,000	225,000	-	-

Description and Scope

This program will investigate the source and magnitude of inflow and infiltration (I&I) of storm and groundwater into the wastewater system at locations where suspected high I&I is currently or is forecast to exceed conveyance and/or pump station capacity. The 2014 (Draft) Wastewater System Plan recomends this work with a goal of identifying and removing non-sewage flow where that would reduce surcharging such that costly capacity improvements might be avoided. Flow monitoring in five sewer basins is planned for 2015 and 2016. I&I investigation of eight basins is planned, in priority order: Newport, Fairweather and Cozy Cove, Wilburton, Lake Heights, Eastgate, Somerset, and Factoria.

Rationale

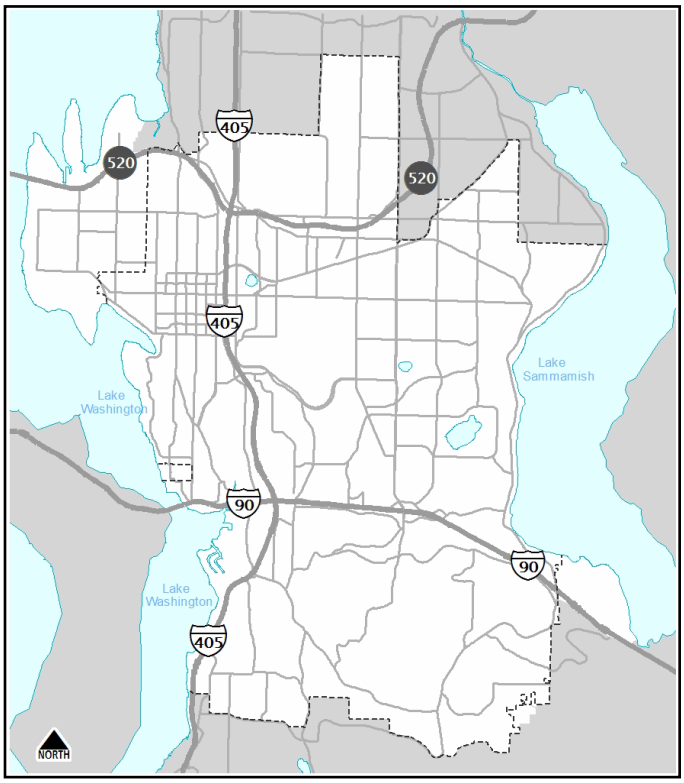
If unaddressed, I&I results in wet weather sewage overflows to surface water and land, including private property, leading to damage claims, public health hazards, and pollution. Overflows into Lake Washington from Yarrow Pt, Cozy Cove, Evergreen East Pump Stations and Newport Lift Station were documented during or following major storm or snowmelt events in 2006, 2007, and 2010. Operations staff note sharp increases in flow rates during and after rain events at other dates as well, exceeding pump station capacity. If I&I can be reduced, cost savings will be realized by reducing the scope of required capacity improvements. Per Wastewater System Plan policy, I&I reduction is required where it is a cost effective means of resolving a capacity problem. The effectiveness of investigative approach would be evaluated after each basin before proceeding to the next.

Environmental Impacts

The environmental impacts associated with I&I analysis and flow monitoring are minimal; the work is exempt from SEPA.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2015 - 2019	1,228,000
Total Budgetary Cost Estimate:		1,228,000

Means of Financing

Funding Source	Amount
Utility Rates/Fees	1,228,000
Total Programmed Funding:	1,228,000
Future Funding Requirements:	

Comments

S-68 Sewer Force Main Condition Assessment

Category: **Sewer**
Department: **Utilities**
Status: **New**
Location: **Various locations throughout Sewer Utility's service area**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
1,348,000	-	258,000	264,000	270,000	275,000	281,000	-	-

Description and Scope

This project will assess the structural condition of pressurized sewer mains (known as 'force mains') that are more than 30 years old, and use that informaiton to develop a force main renewal and replacement plan. Representative pipe samples will be collected from asbestos cement (AC) force mains; specialized pipe assessment equipment will be used for cast iron force mains. Condition will be evaluated and remaining useful life estimated. Force mains comprise 5.8 miles of the 526 total miles of public sewer pipe.

Rationale

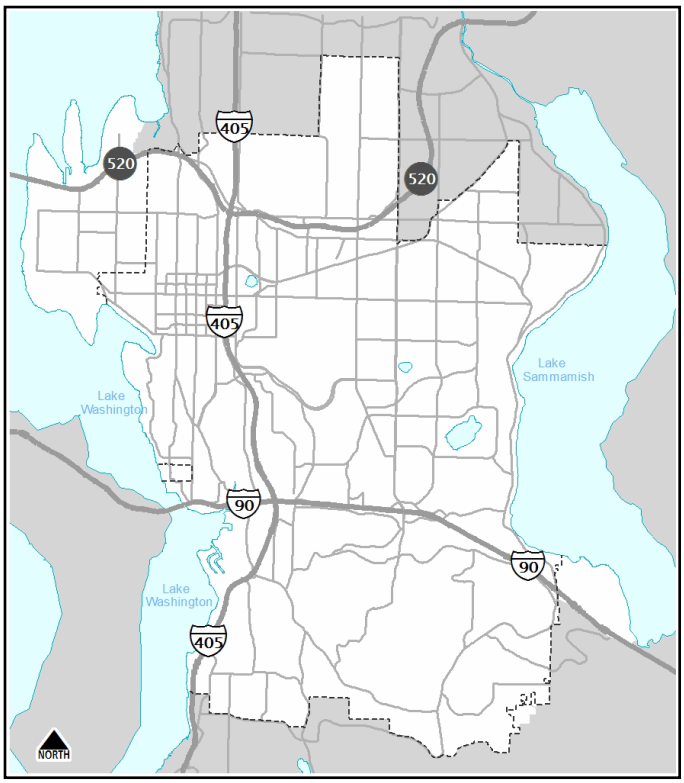
In areas that cannot be served by gravity flow, pump stations pump sewage through pressurized pipes called force mains. As with any pipe, deterioration occurs over time. Because the sewage is pressurized, failure consequences can be severe. Most force mains in Bellevue were installed in the 1960s and 1970s; some are even older. Asbestos cement (AC) pipes can fail in as little as 30-40 years; cast iron generally lasts longer. Both often fail catastrophically. Consequences are typically more severe than for gravity sewer main breaks, and include damage and disruption to neighborhoods, transportation routes, and the environment. This project is recommended in the 2014 (Draft) Wastewater System Plan.

Environmental Impacts

The environmental impacts associated with pipe condition assessment are minimal; the work is exempt from SEPA.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2015 - 2019	1,348,000
Total Budgetary Cost Estimate:		1,348,000

Means of Financing

Funding Source	Amount
Utility Rates/Fees	1,348,000
Total Programmed Funding:	1,348,000
Future Funding Requirements:	

Comments

S-69 Meydenbauer Bay Park Sewer Line Replacement

Category: **Sewer** Status: **New**
Department: **Utilities** Location: **Meydenbauer Beach Park**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
2,501,000	-	62,000	286,000	1,888,000	265,000	-	-	-

Description and Scope

This project will replace the poor condition sewer line currently under Meydenbauer Bay with a new pipe located on land through the Meydenbauer Bay Park. This project was previously included in the scope of S-58; it has been separated for improved transparency and accountability. The project schedule has been delayed until 2017 to better coordinate with Meydenbauer Bay Park development. The project cost has been revised based on improved engineering estimates.

Rationale

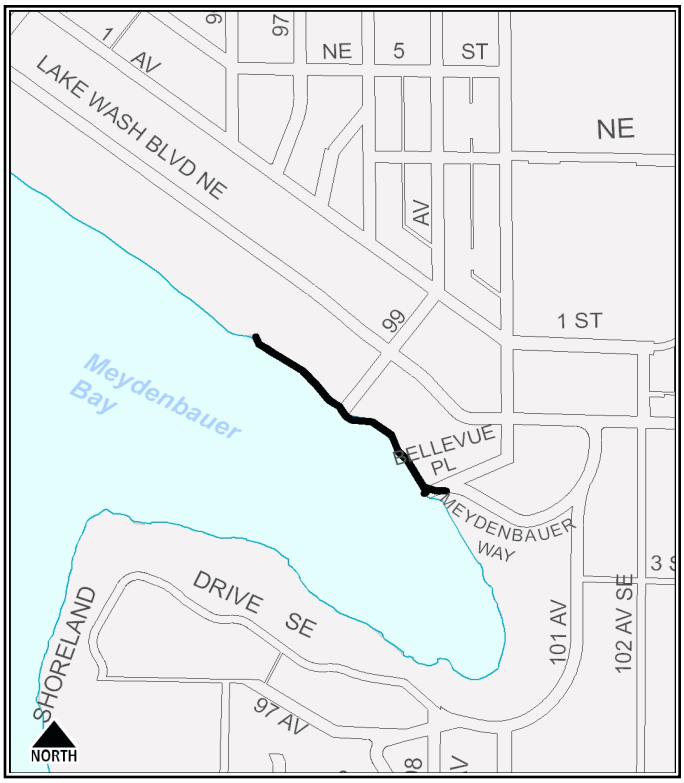
The Meydenbauer Bay sewer pipe is some of Bellevue's oldest sewer lake-line, and is constructed primarily of Asbestos Cement (AC) pipe, which is known to deteriorate more rapidly than cast iron pipe, which comprises the bulk of in-lake pipe. Video inspection in 2007 of an on-shore portion near Meydenbauer Bay revealed a large hole in the crown of the pipe, and showed that cleaning operations have thinned the AC pipe walls and/or broken off pieces of the pipe. The opportunity to replace the pipe on city-owned land minimized environmental impacts and simplifies construction.

Environmental Impacts

This project will replace a pipe under Meydenbauer Bay that is in poor condition. If the pipe failed, sewage would spill into the lake. The new pipe will have a much lower likelihood of failure, and less likelihood of harming lake water quality. This project requires SEPA determination (received a DNS), together with Shoreline Substantial Development permit, Corp permit, and Hydraulic Project Approval, a Washington State cultural resources review, in addition to local permits.

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2015 - 2018	2,501,000
Total Budgetary Cost Estimate:		2,501,000

Means of Financing

Funding Source	Amount
Utility Rates/Fees	2,501,000
Total Programmed Funding:	2,501,000
Future Funding Requirements:	

Comments

S-70 Sound Transit East Link Corridor within Bellevue City Limits

Category: **Sewer** Status: **New**
Department: **Utilities** Location: **East Link Corridor**

Programmed Expenditures

Programmed Expenditures	Appropriated To Date	FY 2015 Budget	FY 2016 Budget	FY 2017 Budget	FY 2018 Budget	FY 2019 Budget	FY 2020 Budget	FY 2021 Budget
1,925,000	-	1,925,000	-	-	-	-	-	-

Description and Scope

This proposal is for funding to pay the depreciated value of aging infrastructure replaced by new facilities as a result of the need to relocate water, wastewater, and stormwater pipelines to accommodate Sound Transit's (ST) East Link light rail project.

Rationale

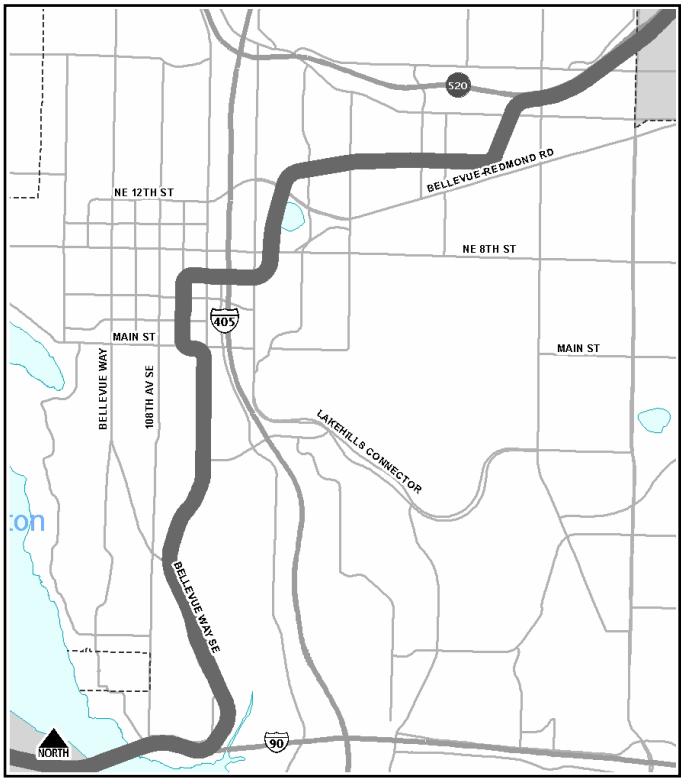
East Link is a voter approved $2.5 billion extension of light rail transit that will connect Bellevue with Overlake, Mercer Island, and Seattle. This proposal is for the Utility Fund cost associated with relocating water, wastewater, and stormwater pipelines that will conflict with the East Link rail system construction.

Environmental Impacts

This proposal supports a Healthy and Sustainable Environment by designing facilities that will ensure a continued supply of clean drinking water; reliable, safe wastewater removal; and that surface water run-off from rain and storms is controlled to minimize the impacts of high flows and flooding on people, property, and the environment. (Water and Natural Environment). Well-designed utility facilities minimize the opportunities for wastewater and stormwater pipe failures, protecting streams, wetlands, and lakes from pollution and erosion. (Natural Environment).

Operating Budget Impacts

Project Map



Schedule of Activities

Project Activities	From - To	Amount
Project Costs	2015 - 2015	1,925,000
Total Budgetary Cost Estimate:		1,925,000

Means of Financing

Funding Source	Amount
Utility Rates/Fees	1,925,000
Total Programmed Funding:	1,925,000
Future Funding Requirements:	

Comments