

**City of Bellevue  
Utilities Department  
2019-2025 Proposed CIP**

- |   |  |
|---|--|
| <b>System Need</b>                                  | <b>Type of Change</b>                        |
| <input checked="" type="checkbox"/> Replacement     | <input checked="" type="checkbox"/> Scope    |
| <input type="checkbox"/> Growth                     | <input checked="" type="checkbox"/> Schedule |
| <input type="checkbox"/> Regulatory                 | <input checked="" type="checkbox"/> Cost     |
| <input type="checkbox"/> Cust. Enhancement          | <input type="checkbox"/> New Project         |
| <input type="checkbox"/> Environmental Preservation |  |

**Project Name:** S-16 Sewage Pump Station Improvements

**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. The current funding strategy replaces or rehabilitates 2 stations per year.

**PROPOSED CHANGE:**

New analysis by consultants have helped refine the need in this program. Station improvements and timing have been aligned with the consultant's recommendations. New costs have been developed in alignment with the recommended changes. Projects were added in the outer years.

**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**

Minimizing wastewater system failures means reduced environmental damage that results from failures, such as sewage backups and pollution to surface waters. Sewage overflows present human health and environmental hazards that threaten a community and can result in beach closures. Timely replacement or rehabilitation of aging sewer infrastructure minimizes this hazard.

**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$40,664	\$1,815,000	\$1,095,000	\$1,118,000	\$1,110,000	\$1,013,000	\$1,212,000			<b>\$7,403,664</b>
2019-2025 Proposed CIP			1,307,000	815,000	1,204,000	1,402,000	1,212,000	839,000	1,014,000	<b>7,793,000</b>
Difference			\$212,000	-\$303,000	\$94,000	\$389,000	\$0			<b>\$389,336</b>

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- |   |   |
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| <p><b>System Need</b></p> <p><input checked="" type="checkbox"/> Replacement</p> <p><input type="checkbox"/> Growth</p> <p><input type="checkbox"/> Regulatory</p> <p><input type="checkbox"/> Cust. Enhancement</p> <p><input type="checkbox"/> Environmental Preservation</p> | <p><b>Type of Change</b></p> <p><input type="checkbox"/> Scope</p> <p><input type="checkbox"/> Schedule</p> <p><input checked="" type="checkbox"/> Cost</p> <p><input type="checkbox"/> New Project</p> |
|---|---|

**Project Name:** S-24 Sewer System Pipeline Major Repairs

**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.

**PROPOSED CHANGE:**

The program has been reviewed for anticipated cost increases for inflation. Projects have been added in the outer years.

**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.

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<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$1,890,000	\$1,952,000	\$1,991,000	\$2,031,000	\$2,072,000	\$2,113,000	\$2,155,000			<b>\$14,204,000</b>
2019-2025 Proposed CIP			0	689,000	2,070,000	2,115,000	2,152,000	2,199,000	2,242,000	<b>11,467,000</b>
Difference			-\$1,991,000	-\$1,342,000	-\$2,000	\$2,000	-\$3,000			<b>-\$2,737,000</b>

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|--|---|

**Project Name:** 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.

**PROPOSED CHANGE:**

The program was reviewed for anticipated cost increases from inflation. New projects were added in the outer years.

**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**

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**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$102,000	\$110,000	\$112,000	\$115,000	\$117,000	\$119,000	\$122,000			<b>\$797,000</b>
2019-2025 Proposed CIP			0	0	6,000	137,000	142,000	144,000	147,000	<b>576,000</b>
Difference			<b>-\$112,000</b>	<b>-\$115,000</b>	<b>-\$111,000</b>	<b>\$18,000</b>	<b>\$20,000</b>			<b>-\$221,000</b>

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|---|---|

**Project Name:** S-58 Lake Washington Sewer Lake Line Assessment Program

**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.

**PROPOSED CHANGE:**

Additional funding was allocated in 2019 to increase the project's public outreach when evaluating potential solutions along the shorelines.

**Rationale**

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**Environmental Impacts**

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**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$117,555	\$0	\$0	\$0	\$0	\$0	\$0			<b>\$117,555</b>
2019-2025 Proposed CIP			156,000	0	0	0	0	0	0	<b>156,000</b>
Difference			\$156,000	\$0	\$0	\$0	\$0			<b>\$38,445</b>

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- Type of Change**
- Scope
  - Schedule
  - Cost
  - New Project

**Project Name:** S-59 Add On-site Power at Sewer Pump Stations

**Description and Scope**

This project was recommended in the 2013 Wastewater System Plan, to add on-site power generation capability at three wastewater pumping stations that currently rely on portable generators during power outages.

**PROPOSED CHANGE:**

This project will shift to an alternative management strategy to address the primary drivers: power reliability, sewer overflows resulting from loss of power. An alternative strategy will be used that eliminates the need for permanent on-site power and reduces the costs significantly. After 2018, this program will no longer be needed.

**Rationale**

23 of Bellevue's 36 wastewater pump and lift stations rely on a limited pool of portable power generation equipment during extended power outages, which requires hauling and continual operation by a wastewater crew. Some of these locations are challenging or hazardous to access with a trailer-mounted generator unit. As a result, staff and equipment resources have been stretched during large storm events, such as the December 2006 windstorm, when continuous 24-hour rotation from station to station was required simply to maintain service. Providing on-site power at hard-to-reach pump stations would improve safety, reduce risk of overflow, and allow crews to address other urgent needs.

**Environmental Impacts**

This project would provide an environmental benefit through reduced risk of wastewater overflows. The primary environmental impact of on-site generation equipment is noise and exhaust during weekly generator testing and exercise.

**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$1,013	\$77,000	\$587,000	\$270,000	\$0	\$0	\$0			<b>\$935,013</b>
2019-2025 Proposed CIP			0	0	0	0	0	0	0	<b>0</b>
Difference			-\$587,000	-\$270,000	\$0	\$0	\$0			<b>-\$935,013</b>

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  - Schedule
  - Cost
  - New Project

**Project Name:** S-60 Wilburton Sewer Capacity Upgrade

**Description and Scope**

This project will replace approximately 2,000 feet of 12-inch diameter pipe with larger diameter pipe to provide sufficient capacity for anticipated upstream development.

**PROPOSED CHANGE:**

Added costs for monitoring of plantings.

**Rationale**

In the short term, utility capacity will be available without delaying development and redevelopment projects. In the long term, recovering the cost of projects from growth will reduce future rate increases to pay for utility system replacement.

**Environmental Impacts**

This project ensures safe and reliable removal of wastewater from homes and businesses as Bellevue grows.

**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$568,000	\$11,000	\$11,000	\$11,000	\$11,000	\$12,000	\$0			<b>\$624,000</b>
2019-2025 Proposed CIP			11,000	48,000	49,000	50,000	0	0	0	<b>158,000</b>
Difference			\$0	\$37,000	\$38,000	\$38,000	\$0			<b>-\$466,000</b>

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- Scope
  - Schedule
  - Cost
  - New Project

**Project Name:** S-61 Midlakes Pump Station Capacity Improvements

**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.

**PROPOSED CHANGE:**

Additional funding is required to construct project based on the engineers estimate. The scheduled construction has been shifted by one year to allow for additional investigation, design, and permitting.

**Rationale**

Site design revealed extensive groundwater and potential impacts on future Park development plans. Siting of the facility has resulted in an increased depth to the wetwell. Identification of an artesian aquifer has increased the design and construction costs.

**Environmental Impacts**

None

**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$301,980	\$0	\$0	\$0	\$0	\$0	\$0			<b>\$301,980</b>
2019-2025 Proposed CIP			2,819,000	11,000	11,000	11,000	11,000	11,000	0	<b>2,874,000</b>
Difference			\$2,819,000	\$11,000	\$11,000	\$11,000	\$11,000			<b>\$2,572,020</b>

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|---|--|

**Project Name:** S-66 Sewer System Pipeline Replacement

**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.

**PROPOSED CHANGE:**

Based on experience with similar projects, the Ballpark project has been delayed to account for anticipated additional design and permitting needs. Additionally, the project has been recosted to account for environmental sensitive areas and poor soils. Increased costs for the Newport Shores project based on preliminary evaluations and a final selected alternative have been added. Additional projects have been added in outer years.

**Rationale**

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**Environmental Impacts**

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**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$2,732,789	\$677,000	\$2,419,000	\$1,745,000	\$1,219,000	\$1,157,000	\$1,770,000			<b>\$11,719,789</b>
2019-2025 Proposed CIP			4,328,000	1,784,000	1,219,000	1,708,000	1,770,000	1,805,000	1,841,000	<b>14,455,000</b>
Difference			\$1,909,000	\$39,000	\$0	\$551,000	\$0			<b>\$2,735,211</b>



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| <input checked="" type="checkbox"/> Replacement     | <input type="checkbox"/> Scope               |
| <input type="checkbox"/> Growth                     | <input checked="" type="checkbox"/> Schedule |
| <input type="checkbox"/> Regulatory                 | <input type="checkbox"/> Cost                |
| <input type="checkbox"/> Cust. Enhancement          | <input type="checkbox"/> New Project         |
| <input type="checkbox"/> Environmental Preservation |  |

**Project Name:** S-67 I&I Investigations and Flow Monitoring

**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 recommends 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 Medina is planned for 2018. I&I investigation of three basins is planned for 2018 and 2019: Fairweather, Somerset, and Medina.

**PROPOSED CHANGE:**

Accelerated work planned in 2020 to 2019 to better align with needs for next CIP update.

**Rationale**

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2017-2023 Adopted CIP	\$256,382	\$230,000	\$223,000	\$96,000	\$0	\$0	\$0			<b>\$805,382</b>
2019-2025 Proposed CIP			316,000	0	0	0	0	0	0	<b>316,000</b>
Difference			\$93,000	-\$96,000	\$0	\$0	\$0			<b>-\$489,382</b>

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- Type of Change**
- Scope
  - Schedule
  - Cost
  - New Project

**Project Name:** S-68 Sewer Force Main Condition Assessment

**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 information 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 5.5 miles of the 516 total miles of public sewer pipe.

PROPOSED CHANGE:  
None.

**Rationale**

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2017-2023 Adopted CIP	\$236,879	\$20,000	\$0	\$0	\$0	\$0	\$0			<b>\$256,879</b>
2019-2025 Proposed CIP			0	0	0	0	0	0	0	<b>0</b>
Difference			\$0	\$0	\$0	\$0	\$0			<b>-\$256,879</b>

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  - Cost
  - New Project

**Project Name:** S-69 Meydenbauer Bay Park Sewer Line Replacement

**Description and Scope**

This project will replace the poor condition sewer line currently under Meydenbauer Bay with a new pipe 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 to better coordinate with Meydenbauer Bay Park development. The project cost has been revised based on improved engineering estimates.

PROPOSED CHANGE:

**Rationale**

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2017-2023 Adopted CIP	\$3,832,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	<b>\$3,832,000</b>
2019-2025 Proposed CIP			0	0	0	0	0	0	0	<b>0</b>
Difference			\$0	\$0	\$0	\$0	\$0	\$0	\$0	<b>-\$3,832,000</b>

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  - Cost
  - New Project

**Project Name:** S-71 - Lakeline Sewer Replacement Total

**Description and Scope**

Alternatives analysis of the replacement, rehabilitation, or reconfiguration of 4,700 linear feet of pipe along the north peninsula of Evergreen Point in Medina. The alternatives analysis is needed to determine the future scope, schedule, and budget needed to replace this conveyance system.

PROPOSED CHANGE:  
N/A

**Rationale**

The existing conveyance system consists of pipe that is predominantly 8-inch Asbestos Cement with a small amount of Cast Iron. Both pipe materials for the lakeline were built in the 1950s and 1960s. The Sewer Lake Line Condition Assessment 2016 Phase 2 report took pipe samples on 18 locations along the Lake Washington lake line. Along the proposed project alignment three samples were taken. The prioritization ranking based on risk (consequence times probability of failure) of these samples were 6,7, and 8. These samples had the highest probability of failure ranking compared to all other samples. The results of the alternatives analysis will result in a budget request for the proposed solution at a later date.

**Environmental Impacts**

Failure of the Lakeline in this location will adversely effect the aquatic environment in Lake Washington and in Fairweather Cove (a part of the Lake) by discharging sanitary sewage into the lake. Not only a human health risk, but a potential adverse impact to the nearshore spawning habitat for salmonids in Lake Washington.

**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$0	\$0	\$0	\$0	\$0	\$0	\$0			\$0
2019-2025 Proposed CIP			260,000	159,000	162,000	0	0	0	0	581,000
Difference			\$260,000	\$159,000	\$162,000	\$0	\$0			\$581,000

**City of Bellevue  
 Utilities Department  
 2019-2025 Proposed CIP**

- System Need**
- Replacement
  - Growth
  - Regulatory
  - Cust. Enhancement
  - Environmental Preservation

- Type of Change**
- Scope
  - Schedule
  - Cost
  - New Project

**Project Name:** S-108 Advanced Metering Infrastructure (AMI) Implementation

**Description and Scope**

This proposal is for a new Utilities CIP Program. Implementation involves: Replacing almost all Utilities meters, total of 39,436 out of 40,804; Replacing half of the meter boxes, approximately 20,000 out of 40,804; Replacing the lids for the other half of the meter boxes, approximately 20,000 lids; Installing Meter Interface Units (MIU); Installing Communication equipment, 100 collectors and 25 repeaters; Implementation of an AMI Meter Data Management Software (MDMS); Systems Integration and Implementation services. This project will be funded 70% by water and 30% by sewer rates. The budget is based on a 2015 AMI feasibility study. Rapid implementation is planned to realize the maximum benefit from labor savings that will be realized by replacing the current manually-read meters, to minimize the time two systems need to be supported, and to deliver a common service level to all customers as rapidly as possible.

PROPOSED CHANGE:

**Rationale**

N/A

**Environmental Impacts**

N/A

**Financial Detail (Inflated to year of construction)**

<b>BUDGET 2017-2023 VS 2019-2025</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
2017-2023 Adopted CIP	\$90,000	\$2,419,200	\$4,417,500	\$0	\$0	\$0	\$0			<b>\$6,926,700</b>
2019-2025 Proposed CIP			3,518,000	900,000	0	0	0	0	0	<b>4,418,000</b>
Difference			-\$899,500	\$900,000	\$0	\$0	\$0			<b>-\$2,508,700</b>