

CHAPTER 8

CAPITAL IMPROVEMENT PLAN

INTRODUCTION

This chapter presents a 10-year Capital Improvement Plan (CIP). Wastewater capital improvements have been scheduled and prioritized on the basis of growth, regulatory requirements, component reliability, system benefit, and cost. For the proposed projects identified in this chapter, more detailed project descriptions and preliminary project cost estimates are presented in Appendix G. A wastewater base map illustrating the locations of the proposed improvement projects is included in the back sleeve of this Plan (Figure 8-1).

Other capital improvement projects may arise in the future that are not identified as part of the District's CIP presented in this Chapter. Such projects may be deemed necessary for remedying an emergency situation, accommodating improvements proposed by other agencies, or addressing unforeseen problems with the District's wastewater system. Due to budgetary constraints, the construction of these projects may require that the proposed completion date for projects in the CIP be rescheduled. When new information becomes available, the District retains the flexibility to reschedule, add to, or delete proposed projects, and to expand or reduce the scope of the projects, as best determined by the District's Board of Commissioners. Additionally, future planning efforts by Snohomish County, the City of Everett, and the City of Mill Creek may affect land use zoning and service requirements within the District. Annexation or work performed by these agencies may force the District to construct or relocate wastewater lift stations, force mains, or gravity mains. New developments may create streets or provide alignments and locations of facilities that are different than shown on the Plan. Each capital improvement project will be reevaluated to consider the most recent planning efforts as the proposed completion date for the project approaches.

PROPOSED SYSTEM IMPROVEMENTS FROM 2017 TO 2026

This section lists the capital improvements recommended for the next 10 years. These projects were selected in order to improve or maintain functionality in the District's equipment and infrastructure, to increase capacity based on the flow modeling performed in Chapter 6, or to address safety concerns. These improvements were developed with the input of the District engineer and operators. All costs are presented without adjustment for inflation over time, except for those associated with the Everett Water Pollution Control Facility which assumes an inflation rate of 3 percent.

EVERETT WATER POLLUTION CONTROL FACILITY

The District shares financial responsibility for the Everett Water Pollution Control Facility. The City of Everett has identified four capital projects totaling \$108.8 million between 2017 and 2026, the District's share of which is \$17.8 million.

T-1: WPCF Capacity Expansion Phase C 2 and 3 (2021–2027)

Total Project Cost: \$78,800,000
District Share: \$12,877,000

T-2: WPCF Emergency Generators (2018)

Total Project Cost: \$300,000
District Share: \$49,000

T-3: WPCF Lagoon Capacity Expansion (2018-2024)

Total Project Cost: \$21,500,000
District Share: \$3,513,000

T-4: WPCF North Chlorine Building Replacement and Fen Upgrade (2017-2019)

Total Project Cost: \$7,300,000
District Share: \$1,192,000

T-5: 12th Street NE Dike/Estuary Restoration (2018-2020)

Total Project Cost: \$880,000
District Share: \$143,000

LIFT STATIONS

The following sections provide summarized descriptions of the capital improvements proposed for the District's lift stations. Detailed cost estimates are available in Appendix G.

LS-1: General LS Improvements (2018-2025)

In order to improve lift station safety, security, and operations, the District intends to:

- Conduct new draw-down tests at seven lift stations;
- Install triple-strand barbed wire at five lift stations;
- Install personnel-gates at Highlands East and Creekside;
- Replace all bubblers with transducers at all lift stations;

- Install ladder-ups where not present;
- Install an exhaust pipe extension elbow for the generator at Highlands II;
- Pump grout under undermined wet well top slab at Highlands II;
- Commission a geotechnical evaluation of the hill slopes at Woodlands East and Woodlands North;
- Refinish and recoat the package station base plate at Highlands East.

Estimated Construction Cost: \$148,000

Construction Management: \$22,000

Estimated Total Project Cost: \$170,000

LS-2: Waldenwood Lift Station Improvements (2018-2019)

In order to address future capacity requirements and improve station operations, the District intends to:

- Perform a station, pump, and force main evaluation and predesign report;
- Upgrade pumps and motors to 1,200 gpm capacity;
- Replace VFDs and mount above grade;
- Install a new wet well and convert existing wet well into a rock catch;
- Install an air vent with carbon filter;
- Replace an isolation valve;
- Evaluate bearing wear/pump run frequency;
- Install generator with sound-attenuated enclosure;
- Install flow meter;
- Perform a surge analysis.

Estimated Construction Cost: \$2,027,000

Engineering, CM, Permitting, and Administration: \$608,000

Estimated Total Project Cost: \$2,635,000

LS-3: Pioneer Trails Lift Station Improvements (2018-2019)

In order to address future capacity requirements, replace aging equipment and improve system operation, the District intends to:

- Perform a station and force main evaluation and predesign report;
- Replace the generator (175kW) and install sound-attenuated enclosure;
- Install a new wet well with submersible pumps;
- Install flow meter;
- Replace the transfer switch;
- Replace the roof on the electrical rack.

Estimated Construction Cost: \$1,886,000

Engineering, CM, Permitting, and Administration: \$566,000
Estimated Total Project Cost: \$2,452,000

LS-4: Thomas Lake Lift Station Improvements (2019-2020)

In order to address future capacity requirements and improve lift station operation, the District intends to:

- Perform a station and force main evaluation and predesign report;
- Install new 12-foot wet well;
- Install new submersible pumps (1,200 gpm station capacity);
- Install check valve vault and flow meter vault;
- Rehab existing wet well and convert to rock catch;
- Test for hydrogen sulfide formation;
- Install a forced-air odor control vent;
- Replace propane generator with a diesel generator with sound-attenuating enclosure.

Estimated Construction Cost: \$1,641,000
Engineering, CM, Permitting, and Administration: \$492,000
Estimated Total Project Cost: \$2,133,000

LS-5: Lowell-Larimer 1 Improvements (2020-2021)

In order to improve lift station operations, the District intends to:

- Relocate the existing surge valve out of the wet well into a new surge vault;
- Install a new flow meter vault;
- Install a sound-attenuating enclosure for the generator.

Estimated Construction Cost: \$378,000
Engineering, CM, Permitting, and Administration: \$113,000
Estimated Total Project Cost: \$491,000

LS-6: Lift Station 3 Improvements (2020)

In order to address future capacity requirements and extend the useful life of the lift station, the District intends to:

- Rehab existing wet well;
- Upsize the motors to 100 hp;
- Replace transfer switch;
- Replace suction inlet isolation valve.

Wet well resurfacing will occur during summer months to avoid bypass pumping.

Estimated Construction Cost: \$270,000
Engineering, CM, and Administration: \$81,000
Estimated Total Project Cost: \$351,000

LS-7: Woodlands North Rehab (2022)

In order to extend the useful life of the lift station, the District intends to:

- Replace the existing pumps and motor starters (installed in 1979);
- Perform a wet well rehabilitation.

Estimated Construction Cost: \$134,000
Engineering, CM, and Administration: \$40,000
Estimated Total Project Cost: \$174,000

LS-8: Silver Firs Rehab (2022-2023)

In order to extend the useful life of the lift station, the District intends to:

- Replace the existing pumps and motor starters (installed in 1994);
- Perform a wet well rehabilitation;
- Install a diesel generator with a sound-attenuating enclosure.

Estimated Construction Cost: \$665,000
Engineering, CM, and Administration: \$200,000
Estimated Total Project Cost: \$865,000

LS-9: Lift Station 4 Improvements (2020, 2025-2026)

In order to extend the useful life of the lift station, the District intends to:

- Install a valve vault and replace the existing impellers (2020);
- Replace the existing pumps and motor starters (installed in 2005) with submersible pumps;
- Perform a wet well rehabilitation;
- Install a flow meter vault;
- Install a diesel generator with a sound-attenuating enclosure.

Estimated Construction Cost: \$1,008,000
Engineering, CM, and Administration: \$178,000
Estimated Total Project Cost: \$1,186,000

LS-10: Lift Station 3 Force Main Replacement (2024-2025)

In order to address future growth and improve force main reliability, the District intends to replace the existing 10-inch cast iron force main with a 16-inch ductile iron force main.

Estimated Construction Cost: \$2,460,000
Engineering, CM, and Administration: \$435,000
Estimated Total Project Cost: \$2,895,000

GRAVITY IMPROVEMENTS

The following sections provide summarized descriptions of the capital improvements proposed for the District's gravity mains. Detailed cost estimates are available in Appendix G.

GV-1: Concrete Sewer Rehabilitation (2019–2038)

The District intends to replace or line 7,000-foot sections of concrete sewer every 2 years, utilizing TV inspections in the intermediate years to identify and prioritize sections for repair or replacement. This schedule will allow for the District's 109,000 feet of concrete sewer main to be lined or replaced over a period of approximately 30 years.

Estimated Project Cost: \$500,000 (every two years)
Estimated Total Cost: \$2,500,000 (first 10 years)

GV-2: Annual Manhole Grade Adjustments (2018–2028)

This project performs sewer manhole ring and cover adjustments after developers, the cities, or the county perform road improvement projects. Although the actual cost depends on the amount of road reconstruction and pavement overlays, the District intends to budget \$75,000 annually for this type of work.

Estimated Annual Cost: \$75,000
Estimated Total Cost: \$750,000 (first 10 years)

GV-3: Enlarge Sector 7 Gravity Mains (2025)

The District intends to upsize a section of 8-inch gravity main to 12-inch to increase capacity, as shown on Figure 8-1.

Estimated Construction Cost: \$334,000
Engineering, CM, and Administration: \$100,000
Estimated Total Project Cost: \$434,000

GV-4: Windsong Terrace Lift Station Abandonment (2018-2019)

In order to reduce future labor costs associated with the upkeep of the lift station, the District intends to:

- Install a new gravity sewer from the existing Windsong Terrace Lift Station wet well to the Waldenwood sewer basin;
- Acquire easements as needed;
- Demolish existing Windsong Terrace Lift Station.

Estimated Construction Cost: \$543,000
Engineering, CM, and Administration: \$163,000
Estimated Total Project Cost: \$706,000

GENERAL PROJECTS

The following sections provide summarized descriptions of the capital improvements proposed for the District’s centralized equipment and infrastructure.

G-1: Headquarters Improvements (2017-2018)

The District is constructing a new storage building, extending an existing shop bay, modifying the driveway and parking lot, and constructing drainage improvements. Project costs will be funded by both the water and sewer system funds.

Estimated Total Project Cost: \$4,800,000
Estimated Sewer System Project Cost: \$2,100,000

G-2: Wastewater Comprehensive Plan (2027)

The District updates its Sewer Comprehensive Plan every 10 years to determine the required improvements.

Estimated Project Cost: \$100,000

G-3: Vactor Truck Replacement (2019, 2021)

The District plans replace its two existing Vactor trucks.

Total Estimated Sewer System Project Cost: \$300,000 (2019), \$300,000 (2021)

G-4: GFC/Rate Study (2018)

The District plans to conduct a rate study for the purpose of updating the General Facilities Charge and sewer rates.

Estimated Total Project Cost: \$100,000
Estimated Sewer System Project Cost: \$50,000

G-5: Asset Management System (2018)

The District plans to utilize an asset management system and software to better maintain the water system and high level of service. Project costs will be funded by both the water and sewer system funds.

Estimated Total Project Cost: \$200,000
Estimated Sewer System Project Cost: \$100,000

G-6: Financial Management System (2018)

The District plans to purchase new billing software to improve utility billing. The funding cost of this software will be split between the District's water and wastewater utilities. The cost shown is only for the sewer utility's portion, 47 percent of the total cost.

Estimated Total Project Cost: \$250,000
Estimated Sewer System Project Cost: \$125,000

G-7: Security Upgrades (2017-2021)

The District identified a number for security upgrades as part of its Vulnerability Assessment.

Total Project Cost: \$500,000

G-8: Contract TV Inspection (2018-2028)

The District intends to contract for TV inspection work to identify sewer mains for rehabilitation. The District intends to inspect all its concrete sewers in 2018 and 2019 and spend approximately \$50,000 annually from then on.

Total Project Cost: \$550,000

G-9: Portable Emergency Pump (2018-2019)

The District plans to purchase a trailer-mounted portable sewage pump for the purpose of providing reliability in the event of multiple pump failures at any of its lift stations. The pump will be sized to provide full capacity to all of the District’s dual-pump stations, and single-pump capacity to the District’s three-pump stations.

Total Project Cost: \$100,000

DEVELOPER EXTENSION PROJECTS

The District is currently aware of several projects that will be designed, constructed, and financed by developers. Table 8-1 provides a list of known developer extensions, their location and the project number. Changes to the projects may occur in the future.

TABLE 8-1

Developer Extension Projects

Project Number	Name	Location
DE-1	Lowell Larimer 3	Lowell Larimer Road
DE-2	Lowell Larimer 4	Lowell Larimer Road
DE-3	G.O. East/Bakerview	South of “The Point” subdivision

CAPITAL IMPROVEMENTS PLAN SCHEDULE

Table 8-2 provides a summary of each capital improvement project and the proposed schedule for implementation. Table 8-3 provides a schedule recommending the amount each project should be financed each year. Several projects span multiple years. The District can reschedule its capital improvement projects as needed to accommodate unanticipated projects in the future.

TABLE 8-2

Capital Improvement Project Summary

Project Number	Project Title	Years Active	Total Estimated Cost⁽¹⁾
T-1	WPCF Capacity Expansion – Phase C 2 and 3	2021-2026	\$12,877,000
T-2	WPCF Emergency Generators	2018	\$49,000
T-3	WPCF Lagoon Capacity Expansion/Facility Plan	2018-2024	\$3,513,000
T-4	WPCF North Chlorine Building Replacement and Fen Upgrade	2017-2019	\$1,192,000
T-5	12 th Street NE Dike/Estuary Restoration	2018-2020	\$143,000
LS-1	General LS Improvements	2018-2025	\$170,000
LS-2	Waldenwood LS Improvements	2018-2019	\$2,635,000
LS-3	Pioneer Trails LS Improvements	2018-2019	\$2,452,000
LS-4	Thomas Lake LS Improvements	2019-2020	\$2,133,000
LS-5	Lowell Larimer I LS Improvements	2021	\$491,000
LS-6	Lift Station 3 Improvements	2019	\$351,000
LS-7	Woodlands North Rehab	2022	\$174,000
LS-8	Silver Firs Rehab	2023	\$865,000
LS-9	Lift Station 4 Improvements	2020-2026	\$1,186,000
LS-10	Lift Station 3 Force Main Replacement	2024-2025	\$2,895,000
GV-1	Concrete Main Rehabilitation	2026 ⁽²⁾	\$2,500,000
GV-2	Annual Manhole Grade Adjustments	2026 ⁽²⁾	\$750,000
GV-3	Sector 7 Gravity Main	2025	\$434,000
GV-4	Windsong Terrace Lift Station Abandonment	2018-2019	\$706,000
G-1	Headquarters Upgrade	2018, 2020	\$2,210,000
G-2	Wastewater Comprehensive Plan	-- ⁽³⁾	-- ⁽³⁾
G-3	Vactor Truck Replacement	2018	\$600,000
G-4	GFC/Rate Study	2018	\$50,000
G-5	Asset Management System	2018	\$50,000
G-6	Financial Management System	2018	\$125,000
G-7	Security Upgrades	2021	\$500,000
G-8	Contract TV Inspection	2018-2028	\$550,000
G-9	Portable Emergency Pump	2018-2019	\$100,000
		Total	\$39,701,000

- (1) All project costs in 2017 dollars (ENR CCI = 10720).
- (2) Annual project with total costs over a 10-year period.
- (3) Project is scheduled in 2027 for \$100,000.

TABLE 8-3

Capital Improvement Project Schedule

Project Number	Total Project Cost ⁽¹⁾	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
LS-1	\$170,000	-	\$30,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	-
LS-2	\$2,635,000	-	\$2,035,000	\$600,000	-	-	-	-	-	-	-
LS-3	\$2,452,000	-	\$368,000	\$2,084,000	-	-	-	-	-	-	-
LS-4	\$2,133,000	-	-	\$320,000	\$1,813,000	-	-	-	-	-	-
LS-5	\$491,000	-	-	-	\$74,000	\$417,000	-	-	-	-	-
LS-6	\$351,000	-	-	-	\$351,000	-	-	-	-	-	-
LS-7	\$174,000	-	-	-	-	-	\$174,000	-	-	-	-
LS-8	\$865,000	-	-	-	\$130,000	\$735,000	-	-	-	-	-
LS-9	\$1,186,000	-	-	-	\$120,000	-	-	-	-	\$160,000	\$906,000
LS-10	\$2,895,000	-	-	-	-	-	-	-	\$434,000	\$2,461,000	-
GV-1	\$2,500,000	-	-	\$500,000	\$500,000	-	\$500,000	-	\$500,000	-	\$500,000
GV-2	\$750,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
GV-3	\$434,000	-	-	-	-	-	-	-	-	\$434,000	-
GV-4	\$706,000	\$106,000	\$600,000	-	-	-	-	-	-	-	-
G-1	\$2,210,000	\$442,000	\$1,768,000	-	-	-	-	-	-	-	-
G-2 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-
G-3	\$600,000	-	\$300,000	-	\$300,000	-	-	-	-	-	-
G-4	\$50,000	-	\$50,000	-	-	-	-	-	-	-	-
G-5	\$50,000	-	\$50,000	-	-	-	-	-	-	-	-
G-6	\$125,000	-	\$125,000	-	-	-	-	-	-	-	-
G-7	\$500,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	-	-	-	-	-
G-8	\$550,000	-	\$100,000	\$100,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
G-9	\$100,000	-	\$50,000	\$50,000	-	-	-	-	-	-	-
Subtotal	\$21,927,000	\$723,000	\$5,651,000	\$3,849,000	\$3,533,000	\$1,397,000	\$819,000	\$145,000	\$1,079,000	\$3,200,000	\$1,531,000
T-1	\$12,877,000	-	-	-	-	\$327,000	\$2,190,000	\$2,190,000	\$3,268,000	\$3,268,000	\$1,634,000
T-2	\$49,000	-	\$49,000	-	-	-	-	-	-	-	-
T-3	\$3,513,000	-	\$41,000	\$41,000	-	-	-	\$817,000	\$2,614,000	-	-
T-4	\$1,192,000	\$49,000	\$792,000	\$351,000	-	-	-	-	-	-	-
T-5	\$143,000	-	\$42,000	-	\$101,000	-	-	-	-	-	-
Subtotal	\$17,774,000	\$49,000	\$924,000	\$392,000	\$101,000	\$327,000	\$2,190,000	\$3,007,000	\$5,882,000	\$3,268,000	\$1,634,000
Total	\$39,701,000	\$772,000	\$6,575,000	\$4,241,000	\$3,634,000	\$1,724,000	\$3,009,000	\$3,152,000	\$6,961,000	\$6,468,000	\$3,165,000

(1) All project costs in 2017 dollars (ENR CCI = 10720).

(2) Project is scheduled in 2027 for \$100,000.

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