

Appendix C. Alternative Sewer Costs

The following tables provides a list of improvements for Alternative 2 and Alternative 3; improvements differ based on different Urban Growth Area boundaries and patterns of development.

C-1. Sanitary Sewer -- Kitsap County Systems Capital Facilities Projects 2016-2036 – Alternative 2 (All Amounts in \$1,000)

Category / Project Description	Cost 2016- 2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
Category I (Capacity Projects Required to Meet LOS)				
STP Solids Handling Upgrades (4103004) The project is to replace the outdated and inefficient solids handling process at the Suquamish Treatment Plant. The project will include upgrades to the obsolete instrumentation and controls software and hardware in order to run on current Windows operating system.	\$1,450			\$1,450
CKTP Primaries and Aeration Tanks 5 & 6 This project will address primary treatment effectiveness, nitrification capacity, hydraulic capacity, updating outdated equipment.		\$3,305	\$25,338	\$28,643
CKTP Screw Press This project will provide redundancy in solids dewatering system.		\$1,000		\$1,000
PS's 1, 6, 8, & 18, and Collection System Improvements (4101019 & 4101030) The project is to upgrade the pump station components at Pump Stations 1, 6, 8, and 18 in the Silverdale and E. Bremerton area, and to increase associated forcemain and gravity pipe capacity. Also the forcemain from PS 38 will be replaced. There will be separate contracts for the pump station and conveyance line portions.	\$19,230			\$19,230
PS's 16 & 67 Improvements (4101033*) The project in Keyport is to change the hydraulics on the Poulsbo side of the piping system in order to eliminate PS16 on the water and reroute all the Poulsbo flow to PS 67. Upgrades to PS67 are needed to handle the increase in flow. Joint project with the Stormwater Division.	\$3,448			\$3,448
PS 3 and 4 Collection System Improvements (4101037) The project is to replace equipment and upsize the capacity at Pump Station 3 and 4 in Silverdale including collection system upgrades including replacing lower Anderson Hill gravity sewer across Silverdale Way to PS3, 1,600 ft. of PS4 fm along Waaga Way, and Fredrickson Rd. gravity sewer.	\$13,575	\$10,000		\$23,575
PS 19 Upgrades (4101038)	\$2,300			\$2,300

Category / Project Description	Cost 2016- 2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
The project is to replace equipment at Pump Station 19 including collection system upgrades in the vicinity of Waaga Way and Stampede Blvd.				
PS's 45, 46, & 47 and Gravity Pipe Improvements (4105002) The project is to rebuild Pump Stations 45, 46, & 47 in Manchester due to outdated infrastructure. The project includes replacing or upgrading the gravity pipe along the beach between the pump stations.	\$5,460			\$5,460
PS 12 and Provost Rd. Conveyance Upgrade to replace outdated infrastructure and increase capacity in Chico Way area of Silverdale, including replacing 3,750 ft. of gravity sewer along Provost Rd.			\$8,580	\$8,580
PS 21, PS 22, and PS 22 Conveyance Upgrade to replace outdated infrastructure and increase capacity in north Silverdale area in the vicinity of Island Lake, including 1,050 ft. of forcemain west of PS 22.			\$6,600	\$6,600
PS 32, PS 33, PS 69, PS 32 FM, PS69 Conveyance (4105002) Upgrade to replace outdated infrastructure and increase capacity near the southern edge of the CK UGA west of Hwy. 303 between Riddell Rd. and McWilliams Rd.			\$10,560	\$10,560
PS 34 (4105002) Upgrade to replace outdated infrastructure and increase capacity in vicinity of Central Valley and McWilliams Rd.			\$4,703	\$4,703
PS 36 and PS 36 FM (4105002) Upgrade to replace outdated infrastructure and increase capacity south of Fairgrounds Rd. between Hwy. 303 and Central Valley Rd.			\$1,825	\$1,825
PS 62, PS 65 and PS 65 FM (4105002) Upgrade to replace outdated infrastructure and increase capacity serving the Illahee area of the CK UGA			\$8,600	\$8,600
PS 10 Upgrade to replace outdated infrastructure and increase capacity in the Meadowdale West area.			\$2,925	\$2,925
Bay Shore Drive Gravity Pipe Upgrade (4101029) The project is to replace and upsize the existing outdated gravity pipe along Bay Shore Dr. and Washington Ave. in Silverdale. Joint project with Roads & Stormwater Divisions.	\$1,678			\$1,678
Yukon Harbor This project provides sewer service along Colchester Drive in Manchester to 121 homes currently on septic.	\$7,255			\$7,255
Lemolo Shores Pipeline Upgrade (4101036*) This project replaces the existing forcemain with a new upsized pipe for capacity and replace outdated material.	\$1,140	\$8,740		\$9,880

Category / Project Description	Cost 2016- 2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
Silverdale Way to PS 1 and Levin Rd. This project upsizes the existing sewer main from Waaga Way south along Levin Rd. to PS 1.	\$6,787			\$6,787
North Old Military Rd. Replacing existing sewer on North Old Military to the CKTP to increase capacity.	\$1,115	\$8,533		\$9,648
Upper Anderson Hill Rd. Replacing existing sewer on Upper Anderson Hill Rd. to increase capacity.		\$218	\$1,670	\$1,888
Sewer System Expansion – Central Kitsap UGA New medium PS (2) New small PS (13) New forcemain (33,000 LF) New gravity pipe (69,800 LF)			\$4,900 \$12,200 \$7,100 \$29,900	\$4,900 \$12,200 \$7,100 \$29,900
Sewer System Expansion – Silverdale UGA New medium PS (6) New small PS (16) New forcemain (31,000 LF) New gravity pipe (122,000 LF)			\$14,500 \$15,000 \$3,400 \$48,000	\$14,500 \$15,000 \$3,400 \$48,000
Sewer System Expansion – Kingston UGA New PS (5) New forcemain (12,000 LF) New gravity pipe (36,000 LF)			\$6,600 \$4,400 \$17,000	\$6,600 \$4,400 \$17,000
Category II (Non-Capacity Projects Needed for Maintenance and Operations)				
KTP Water Reclamation and Reuse (4102007) The project would upgrade the Kingston Treatment Plant from secondary to tertiary to provide reclaimed water for irrigation use.	\$3,550			\$3,550
KTP Oxidation Ditch Upgrades The project would upgrade the secondary treatment processes to replace outdated equipment and improve nutrient removal.	\$750			\$750
CKTP UltraViolet Disinfection Upgrade This project will replace the outdated and inefficient UV Disinfection System.	\$2,000			\$2,000
CKTP Campus Buildings Replace and upgrade admin building, laboratory, storage/maintenance building to improve energy efficiency and capacity.		\$1,400	\$10,400	\$11,800
Bucklin Hill Bridge Project (4101035) The project is to replace the existing fm along Bucklin Hill in conjunction with the Road's Div. building the new bridge in Silverdale. Joint project with Roads Division.	\$423			\$423
Manchester Gravity Pipe Replacement Replace gravity pipe in Basins 49 and E per the 2014 Manchester Sewer Strategy Plan. Work includes replacement of 3 tees within these basins.		\$378		\$378

Category / Project Description	Cost 2016- 2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
West Kingston Road Replace existing culvert with bridge. Joint project with Roads Division	\$480			\$480

Source: BHC 2015

C-2. Sanitary Sewer -- Kitsap County Systems Capital Facilities Project Costs 2016-2036 – Alternative 2 (All Amounts in \$1,000)

Category Summary	Cost 2016-2021	Cost 2022-2036	Total Cost
Capacity	\$95,234	\$233,801	\$329,035
Non-Capacity*	\$8,981	\$10,400	\$19,381
Sum	\$104,215	\$244,201	\$348,416

Source: BHC 2015

C-3. Sanitary Sewer -- Kitsap County Systems Capital Facilities Project Revenues 2016-2036 – Alternative 2 (All Amounts in \$1,000)

Revenue Source	Revenues 2016- 2021	Revenues 2022- 2036	Total Cost
Revenue Bonds	\$28,000	\$0	\$28,000
Potential State Grants & Loans	\$10,241	\$0	\$10,241
Utility Fees, ULID, Developer, and Poulsbo share *	\$65,974	\$244,201	\$310,175
Sum	\$104,215	\$244,201	\$348,416

Note: *The Poulsbo share of costs for all improvements at CKTP is 15.8%, for PS 16&67 improvements is 93.6% and for the Lemolo Shores Upgrade project is 100%

Source: BHC 2015

C-4. Sanitary Sewer -- Kitsap County Systems Capital Facilities Projects 2016-2036 (All Amounts in \$1,000) – Alternative 3

Category / Project Description	Cost 2016- 2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
Category I (Capacity Projects Required to Meet LOS)				
STP Solids Handling Upgrades (4103004) The project is to replace the outdated and inefficient solids handling process at the Suquamish Treatment Plant. The project will include upgrades to the obsolete instrumentation and controls software and hardware in order to run on current Windows operating system.	\$1,450			\$1,450
CKTP Primaries and Aeration Tanks 5 & 6 This project will address primary treatment effectiveness, nitrification capacity, hydraulic capacity, updating outdated equipment.		\$3,305	\$25,338	\$28,643
CKTP Screw Press This project will provide redundancy in solids dewatering system.		\$1,000		\$1,000
PS's 1, 6, 8, & 18, and Collection System Improvements (4101019 & 4101030)	\$19,230			\$19,230

Category / Project Description	Cost 2016- 2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
The project is to upgrade the pump station components at Pump Stations 1, 6, 8, and 18 in the Silverdale and E. Bremerton area, and to increase associated forcemain and gravity pipe capacity. Also the forcemain from PS 38 will be replaced. There will be separate contracts for the pump station and conveyance line portions.				
PS's 16 & 67 Improvements (4101033*) The project in Keyport is to change the hydraulics on the Poulsbo side of the piping system in order to eliminate PS16 on the water and reroute all the Poulsbo flow to PS 67. Upgrades to PS67 are needed to handle the increase in flow. Joint project with the Stormwater Division.	\$3,448			\$3,448
PS 3 and 4 Collection System Improvements (4101037) The project is to replace equipment and upsize the capacity at Pump Station 3 and 4 in Silverdale including collection system upgrades including replacing lower Anderson Hill gravity sewer across Silverdale Way to PS3, 1,600 ft. of PS4 fm along Waaga Way, and Fredrickson Rd. gravity sewer.	\$13,575	\$10,000		\$23,575
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PS 12 and Provost Rd. Conveyance Upgrade to replace outdated infrastructure and increase capacity in Chico Way area of Silverdale, including replacing 3,750 ft. of gravity sewer along Provost Rd.			\$8,580	\$8,580
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PS 34 (4105002) Upgrade to replace outdated infrastructure and increase capacity in vicinity of Central Valley and McWilliams Rd.			\$4,703	\$4,703
PS 36 and PS 36 FM (4105002) Upgrade to replace outdated infrastructure and increase capacity south of Fairgrounds Rd. between Hwy. 303 and Central Valley Rd.			\$1,825	\$1,825
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Sewer System Expansion – Silverdale UGA New medium PS (6) New small PS (17) New forcemain (31,700 LF) New gravity pipe (130,700 LF)			\$14,500 \$15,700 \$3,600 \$50,500	\$14,500 \$15,700 \$3,600 \$50,500
Sewer System Expansion – Kingston UGA New PS (7) New forcemain (18,000 LF) New gravity pipe (36,000 LF)			\$8,600 \$5,800 \$17,000	\$8,600 \$5,800 \$17,000
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Source: BHC 2015

Exhibit C-1-2. Sanitary Sewer -- Kitsap County Systems Capital Facilities Project Revenues 2016-2036 – Alternative 3 (All Amounts in \$1,000)

Revenue Source-	Revenues 2016-2021	Revenues 2022-2036	Total Cost
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