

Capital Facilities Plan (CFP):

Kitsap County Sanitary Sewer Facilities

Overview

Kitsap County manages five wastewater collection systems: Central Kitsap, Kingston, Manchester, Navy Yard City, and Suquamish, and four treatment plants servicing Central Kitsap, Manchester, Suquamish, and Kingston.

Kitsap County Sewer Utility Division will provide an in depth discussion on all topics and projects discussed within this chapter is much greater detail within the 20-year Kitsap County Sewer Utility General Sewer Plan Updates for each service area covering the years 2024-2044 (under separate cover). These Plans provide rationale for project selection, how the projects play into responsible management of the utility, funding mechanisms for successful delivery of the CIP, and includes a robust public outreach effort for community input.

Inventory of Current Facilities

Exhibit 4-102 Inventory of Current Facilities – Kitsap County Sanitary Sewer Facilities

| Service Area | Miles of Pipe ¹ | 2020 Existing Flow (mgd) ¹ | Design Flow (mgd) ¹ | Surplus/ Deficit, (mgd) | 2020 Population Served | Existing Connections ERU ² |
|----------------|----------------------------|---------------------------------------|--------------------------------|-------------------------|------------------------|---------------------------------------|
| Central Kitsap | 163 | 3.5 | 6.0 | 2.5 | 57,939 | 23,176 |
| Kingston | 15.8 | 0.11 | 0.292 | 0.182 | 2,553 | 1,021 |
| Manchester | 15.2 | 0.19 | 0.46 | 0.27 | 2,613 | 1,045 |
| Suquamish | 12.2 | 0.23 | 0.4 | 0.17 | 2,663 | 1,065 |

Central Kitsap Wastewater Facilities

Kitsap County owns and operates conveyance and treatment facilities in the Central Kitsap service area. This service area is the largest system in Kitsap County and includes the naval facilities at Bangor, Keyport, and the City of Poulsbo along with the Silverdale and Central Kitsap UGAs. The plant also treats septic tank waste hauled to the plant.

The Central Kitsap collection system consists of approximately 45 lift stations and over 163 miles of gravity mains and force mains ranging in size from 2-36 inches in diameter.

Flows from the City of Poulsbo enter the northern portion of the collection system via a gravity siphon crossing from Lemolo to Keyport, across the mouth of Liberty Bay. Some of the collection and transfer systems serving the Meadowdale areas, downtown Silverdale, and northern portion of the Central Kitsap collection system are undersized for existing

wastewater flows. A phased expansion of the conveyance and treatment facilities is planned to repair and replace worn facilities, and to extend service to surrounding areas. Construction to accommodate current and future flows are in progress. Treatment facilities at the Central Kitsap Wastewater Treatment Plant (CKWWTP) are currently rated for an Average Daily Flow (ADF) of 6.0 mgd, with a peak hour flow of 15 mgd. The plant utilizes an activated sludge and filtration process for tertiary treatment of wastewater and an ultraviolet light disinfection system. The existing 68-acre site is expected to accommodate layout of facilities for capacity in excess of 25 mgd ADF.

Treated wastewater from the CKWWTP is discharged into the northern portion of Port Orchard Bay in Puget Sound. The outfall pipe has a maximum hydraulic capacity of approximately 31 mgd. The diffuser has a maximum hydraulic capacity of 16 mgd. Future extension of the existing diffuser is expected to provide sufficient dilution for the increased flow. The Central Kitsap Treatment Plant treats 3.5 mgd average annual flow (2020). The effluent is discharged approximately 3,200 feet offshore at a depth of 46 feet below mean low water.

The CKWWTP is the regional sludge treatment center for all County-owned treatment plants and septage from on-site treatment systems. Approximately 30 to 40 percent of the solids treated at the CKWWTP are derived from septage or sludge from the County's outlying treatment plants. Sludge treatment facilities at the CKWWTP include thickening, anaerobic digestion and dewatering. Currently, dewatered sludge is hauled to eastern or southwestern Washington for composting or land application. Future wastewater collection systems for the Silverdale and Central Kitsap UGAs include a total of 52 new pumping stations, with 135 miles of new gravity sewer and force mains to complete the major sewer collection system of these UGAs.

Kingston Wastewater Facilities

Sewer service in the Kingston area is owned and maintained by Kitsap County. The existing Kingston collection system consists of approximately 57,400 feet of gravity sewer pipe ranging in size from 6 to 12 inches in diameter and approximately 26,000 feet of force main ranging from four to eighteen inches in diameter. 7 pump stations serve the Kingston area, which serves approximately 1021 ERUs.

Completed in May 2005, the Kingston wastewater treatment facility is designed to treat an average daily flow of 292,000 gallons per day. This is a 95 percent increase in capacity from the previous facility and will accommodate residential and commercial growth in the Kingston area for the next 20 years. The plant utilizes an oxidation ditch, with fine-bubble diffused aeration, for biological treatment. Two oxidation ditches were constructed; one for current flows and one to accommodate future growth (500,000 gallons per day). Only the active ditch contains rotating brushes.

Built in conjunction with the new treatment plant and located on the old plant grounds, Pump Station 71 pumps all of the sewage generated in Kingston approximately 1.8 miles to the new plant.

Construction of a new outfall into Puget Sound was included in the improvements. Since the previous outfall was damaged during dredging operations by the State ferry system, the new pipe was located well outside the ferry corridor and extended to 165 feet below

sea level to limit impacts on shellfish harvesting areas. Waste sludge from the Kingston WWTP is currently trucked to the Central Kitsap WWTP for digestion and treatment.

Suquamish Wastewater Facilities

Kitsap County owns and operates the Suquamish wastewater conveyance and treatment facilities that provide sewer service to approximately 2,663 residents in the Suquamish area with sewer service available within the LAMIRD. The newest extension of the existing service area beyond the LAMIRD covers about 37 acres and lies west of Urban Avenue between Geneva Street and South Street. The plant serves the Suquamish Tribal Casino. The Tribal Casino pump station and collection system consist of approximately 64,400 linear feet of pipeline.

The McKinstry Street pumping station and the Division Street pump station are the pumping stations in the collection system. All wastewater in the system flows by gravity to these stations for transfer to the Suquamish WWTP. Existing sewers are sufficient to accommodate additional growth within the existing service area.

The Suquamish WWTP is a secondary plant with an ADF capacity of 0.4 mgd. The U.S. Environmental Protection Agency (EPA) is responsible for issuing the required National Pollutant Discharge Elimination System (NPDES) permit since the treatment plant is located within the Port Madison Tribal Reservation boundary. The County upgraded the existing facilities in 1997, expanding the plant from 0.2 to 0.4 mgd ADF capacity. Sludge from the plant is hauled for further treatment at the Central Kitsap WWTP.

Manchester Wastewater Facilities

Kitsap County owns and operates a small sewer collection and treatment system in Manchester. This system serves a population of approximately 2,613 people and treats an average flow of 0.19 mgd. The Manchester collection system consists of 7 pumping stations and approximately 80,000 linear feet of pipeline. Public sewers now serve approximately 25 percent of the land within the LAMIRD boundary, although the remaining area is subdivided into smaller parcels and much of it is built out.

The current service area includes the EPA laboratory at Clam Bay and the Manchester Naval Fuel Depot. Waste flows from the Manchester Naval Fuel Depot originate from ships discharging sewage at the facility. Kitsap County has an agreement with the Navy that requires the County to be notified when the Navy plans to discharge wastewater to the County's system. The Navy has storage facilities at the depot to allow holding of wastewater if the County does not permit immediate discharge.

The plant provides for an ADF capacity of 0.46 mgd. Sludge from the Manchester WWTP is thickened, temporarily stored on the plant site and then hauled to the Central Kitsap WWTP for treatment. The outfall provides sufficient capacity for discharge of the projected future wastewater flows. Sludge from the plant is hauled for further treatment at the Central Kitsap WWTP.

Navy Yard City Sanitary Sewer Facilities (Sewer District 1)

Kitsap County owns and maintains a sewage collection system in the area commonly referred to as Navy Yard City within the West Bremerton UGA. The collection system

consists of two pump stations and 9.2 miles of pipeline and serves approximately 970 residential and commercial units.

Over the years, Kitsap County and the City of Bremerton have discussed the possibility of transferring a collection system. Currently, the County contracts with the City for treatment capacity at the West Bremerton treatment facility. Kitsap County and the City of Bremerton expect to continue to discuss the timing of transferring the collection system to the city through an ILA and Resolution.

Capital Projects and Funding

Exhibit 4-103 Kitsap County Sewer Capital Projects (All numbers are in 2024 \$1000s)

| Category/Project Description | Revenue Source | Cost 2024-2029 | Cost 2030-2044 |
|---|----------------|----------------|----------------|
| Category I: Capacity Increasing Projects | | | |
| CKTP Solids and Liquid Hauled Waste Upgrades | Multiple | 140,000 | |
| LS-4 and Forcemain Replacement | Multiple | 13,200 | |
| LS-24 Upgrade | Multiple | 7,300 | |
| Suquamish TP Influent Equalization Basin | Multiple | 9,650 | |
| Replace LS-41 and Upsize Force Main | Multiple | 3,700 | |
| Anderson Hill Sewer Upgrades | Multiple | | 5,500 |
| Northern Old Military Road Sewer Upgrades | Multiple | | 12,200 |
| Dickey Road Sewer Upgrades | Multiple | | 3,800 |
| Myhre Road Sewer Upgrades | Multiple | | 3,700 |
| LS-3 | Multiple | | 7,800 |
| LS-12 | Multiple | | 7,600 |
| LS-34 | Multiple | | 7,600 |
| LS-53 and Upsize Force Main | Multiple | | 7,200 |
| LS-54 and Upsize Force Main | Multiple | | 7,000 |
| LS-69 | Multiple | | 1,900 |
| LS-71 and Upsize Force Main | Multiple | | 7,400 |
| CKTP Third Primary Clarifier | Multiple | | 12,400 |
| CKTP Third Secondary Clarifier | Multiple | | 9,900 |
| Manchester TP Upgrades | Multiple | | 200 |
| CKTP Aeration Basins 5 & 6 | Multiple | | 23,900 |
| CKTP Long Term Recycled Water Improvements | Multiple | | 4,700 |
| Category II: Capital Replacement, Maintenance and Operations | | | |
| CKTP HVAC Upgrades | Multiple | 2,200 | |
| Suquamish TP Upgrades | Multiple | | 10,240 |
| Kingston TP UV System Replacement | Multiple | | 880 |
| Manchester TP UV System Replacement | Multiple | | 1,100 |
| Suquamish TP UV System Replacement | Multiple | | 760 |

| | | | |
|--|----------|--|--------|
| CKTP Obselecence Projects | Multiple | | 1,750 |
| Kingston TP Obselecence Projects | Multiple | | 480 |
| Manchester TP Obselecence Projects | Multiple | | 4,300 |
| CKTP Regulatory Projects | Multiple | | 5,500 |
| Kingston Regulatory Projects | Multiple | | 100 |
| Manchester Regulatory Projects | Multiple | | 5,000 |
| LS Operation and Maint. Projects | Multiple | | 20,960 |
| Kingston TP Class A Recycled Water | Multiple | | 33,600 |
| CKTP Long Term Recycled Water Improvements | Multiple | | 4,700 |

Source: Kitsap County, 2024

Exhibit 4-104 Kitsap County Sewer Capital Project Costs (All numbers are in 2024 \$1000s)

| Category Summary | Cost Years 2024-2029 | Cost Years 2030-2044 | Total Cost |
|---|----------------------|----------------------|------------|
| Category I (Capacity Projects Required to Meet LOS) | 173,850 | 122,800 | 296,650 |
| Category II (Other Projects Needed for Maintenance and Operations) | 2,200 | 89,370 | 91,570 |
| Total | 176,050 | 212,170 | 388,220 |

Source: Kitsap County, 2024

Exhibit 4-105 Kitsap County Sewer Capital Project Revenues (All numbers are in 2024 \$1000s)

| Revenue Source | Revenue Years 2024-2029 | Revenue Years 2030-2044 | Total Revenue |
|---|-------------------------|-------------------------|---------------|
| Sewer Revenue Bonds | TBD | TBD | TBD |
| DOE State Revolving Fund Loan | 9,850 | TBD | TBD |
| DOE Puget Sound Nutrient Reduction Grant | TBD | TBD | TBD |
| Public Works Trust Fund Loan | TBD | TBD | TBD |
| City of Poulsbo Proportionate Share per Interlocal Agreement | TBD | TBD | TBD |
| USN Keyport Proportionate Share per Interlocal Agreement | TBD | TBD | TBD |
| Strategic Loan and Grant Pursuit | TBD | TBD | TBD |
| Sewer Fees/Construction Fund | 66,735 | TBD | 66,735 |
| Total | 66,735 | 0 | 66,735 |

Source: Kitsap County, 2024

Environmental Impact Statement (EIS):

Wastewater/Sewer

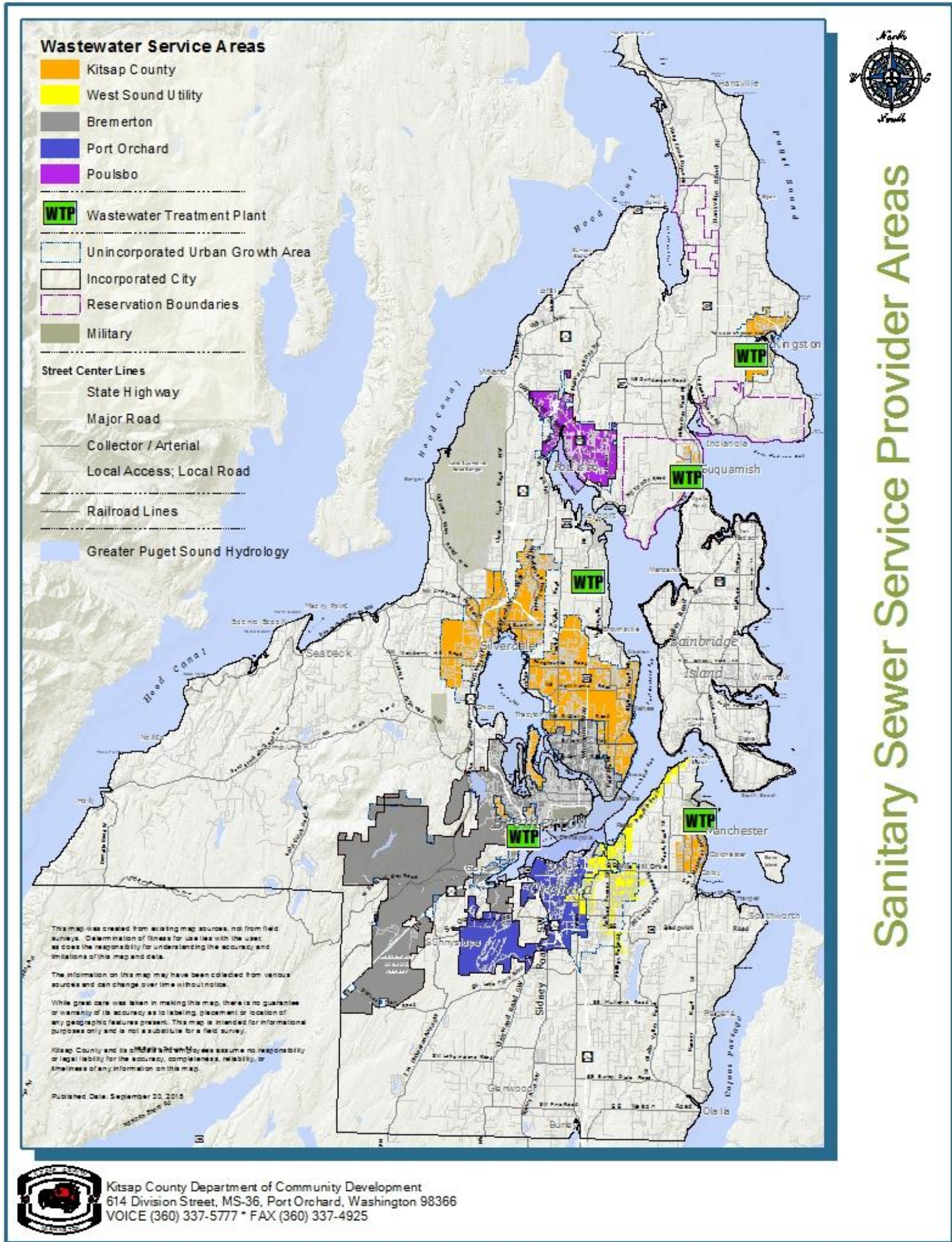
Wastewater/Sewer – Affected Environment

According to the 2024 Kitsap County Capital Facilities Plan, there are a total of 13 wastewater collection systems and 10 wastewater treatment facilities in Kitsap County, which serve approximately 40 percent of the total County population. The majority of the rural population uses on-site septic systems. Several agencies within the County provide sanitary sewer services:

1. Kitsap County manages five wastewater collection systems: Central Kitsap, Kingston, Manchester, Navy Yard City, and Suquamish, and four treatment plants servicing Central Kitsap, Manchester, Suquamish and Kingston;
2. The City of Bremerton maintains and operates collection and treatment systems for the East Bremerton UGA, portions of the West Bremerton UGAs, and the Gorst UGA;
3. The City of Poulsbo maintains a collection system and contracts with the County to treat city wastewater at the Central Kitsap Treatment Plant in Brownsville;
4. The City of Port Orchard and West Sound Utility District independently operate their respective collection systems and jointly own the treatment facility at Annapolis. West Sound Utility District is responsible for daily operation of the treatment plant;
5. The Port Gamble/S'Klallam Tribe owns and operates a small collection system and treatment facility that serves the community east of Port Gamble Bay.
6. Pope Resources owns and operates a collection system and secondary treatment plant serving the Port Gamble townsite and mill site;
7. The Port of Bremerton owns and operates a collection and treatment system that serves the commercial development on Port property; and
8. The U.S. Navy manages wastewater collection systems on federal reservations and contracts with Kitsap County and the City of Bremerton to treat its effluent. It is a major contributor to several wastewater treatment plants in Kitsap County, with the Central Kitsap plant receiving the most.

Major providers to urban areas are shown in Exhibit 3.3.7.1-1.

Exhibit 3.3.7.1-1 Wastewater service areas



Inventory of Current Facilities

A comprehensive list of current facilities for each wastewater district can be found in the Kitsap Capital Facility Plan in Exhibits 4-51 to 4-56.

Wastewater/Sewer – Impacts

Level of Service

Impacts Common to All Alternatives

Under any of the UGA alternatives, additional sanitary sewer service would be necessary to serve increased demand. Existing treatment plants would handle increased wastewater volumes generated by residential growth, transitioning septic systems and increased pollutant loads generated by new commercial and industrial development. Conveyance system extensions would be necessary to provide sanitary sewer service to developing areas within UGAs. Several capacity improvements to existing pump stations and sewer mains would also be needed to ensure the existing system could handle additional flows from development within the UGAs.

Extensions to conveyance systems would occur incrementally, funded by new development, local improvement districts or private property owners as appropriate. Funding for regular maintenance of systems is provided through user fees.

Estimates of future demand in this analysis are based primarily on projections of population growth. However, additional demand may be generated by new commercial and industrial growth as well. Demand may also include some transition of existing development on septic systems to public sewer.

Construction of new sewer facilities would have potential to result in impacts to both the natural and built environment. These impacts would be addressed at the project level at the time of project implementation.

The costs are reflective of the impacts of growth as well as ongoing system maintenance. For most systems, the cost difference among the alternatives is not anticipated to markedly differ. However, there are more specific differences in Kitsap County facilities, Bremerton facilities, as well as the West Sound Utility District as a result of changes to UGA boundaries.

Impacts of Alternative 1, “No Action”

Capital improvement projects will continue as planned if no action is taken to allocate growth in a certain area or change UGA boundaries.

Impacts of Alternative 2, “Compact Growth/Urban Center Focus”

Encouraging development within existing urban centers and reduced unincorporated UGAs, as promoted under Alternative 2, will minimize impacts on service providers to extend their services to cover larger areas.

Impacts of Alternative 3, “Dispersed Growth Focus”

Alternative 3 provides for lesser expansions in some locations and greater expansions in others which may increase the demand for service locationally and reduce it in others.

Wastewater/Sewer – Mitigation Measures

Incorporated Plan Features

- The Draft CFP proposes improvements associated with studied alternatives.
- The Comprehensive Plan Capital Facilities Element (CFE) and CFP establish LOS for County-owned and non-County-owned sanitary sewer systems and require agencies to “determine what capital improvements are needed in order to achieve and maintain the standards for existing and future populations.” This element is updated with Alternatives 2 and 3.

Applicable Regulations & Commitments

- Pursuant to Chapter 58.17.110 RCW, local governments must review plat applications to ensure that adequate provisions are made for a variety of public facilities, including “sanitary wastes.”
- Pursuant to Chapter 16.12 KCC, the County engineer and County health officer provide their respective recommendations as to the adequacy of proposed sewage disposal systems. The hearing examiner then determines whether a proposal includes appropriate provisions for “sanitary wastes” and other public and private facilities and improvements.
- Capital Plans of wastewater service providers are required to proactively plan for future systems to meet growth projections.

Other Potential Mitigation Measures

- The County could continue to coordinate with non-County facility providers, including cities and special purpose districts, to support and be consistent with the future land use patterns identified by city and County comprehensive plans.
- Plan policies and development regulations could include mechanisms or incentives to encourage existing properties within UGAs to connect to sewer systems to meet planned growth levels. Methods or incentives could include formation of local improvement districts, permit facilitation and newcomer agreements for developer extensions, density bonuses to encourage lot consolidations, or allowing for innovative sanitary sewer extension and treatment facility designs, such as package plants, grinder pumps and membrane systems for urban densities and others.
- The County could continue pursuing opportunities for water reclamation.

Wastewater/Sewer – Significant Unavoidable Adverse Impacts

With advance planning, implementation and update of capital facility plans no less than every six years, as well as review of development permits in terms of system impacts, no significant unavoidable adverse wastewater impacts are anticipated within the range of alternatives reviewed.