

Section 9: Operation and Maintenance

This chapter focuses on the operation and maintenance aspects of the City's wastewater collection and treatment systems. It covers key components such as sewer gravity pipelines, pump stations, force mains, odor control facilities, and wastewater treatment plants. Topics addressed include responsibility and authority, standard system operations, routine and preventive maintenance, current and future staffing requirements, new construction, safety measures, and emergency response protocols.

9.1 Responsibility and Authority

The Wastewater Utility operates under the authority of the Director of Public Works and Utilities (Director). The operations and maintenance responsibilities are divided between the Wastewater Manager and the Utilities Operations Manager, both of whom report directly to the Director.

The Wastewater Manager is responsible for overseeing the Wastewater Division, which includes the operation and maintenance of sewer pump stations, odor control stations, and wastewater treatment facilities. Meanwhile, the Utilities Operations Manager supervises the Utilities Operations Division, which manages the operation and maintenance of the water distribution system, stormwater systems, and wastewater transmission and collection systems.

The responsibility for the infrastructure is defined in Table 9-1 below:

Table 9-1: Operations and Maintenance Responsibilities

Title	Certification
Sewer Gravity and Force Mains	Utility Operations Division
Manholes	Utility Operations Division
Sewer Laterals	Utility Operations Division
Combination Valves	Utility Operations Division
Pump Stations	Wastewater Division
Odor Control Stations	Wastewater Division
WWTP	Wastewater Division
ESTP	Wastewater Division
CSO Outfalls	Wastewater Division

Numerous individual grinder pumps are installed in areas where gravity sewer connections are not feasible. The City owns and maintains approximately 280 of these grinder pump stations and the number of these stations increases every year. These stations are installed by private developers when a gravity sewer connection is not feasible. They are also installed by contractors on City capital projects when a beach sewer is being decommissioned and the sewer connection must be redirected to an upland sewer system. They are typically installed at single family residences; however, they have also been used at condominiums, apartments, small businesses, and in the City right-of-way. Typical installation is a single (simplex) 1 hp grinder pump installed in a tank with sufficient storage for 1 to 2 days during a power outage.

Larger installations require multiple pumps (duplex and triplex) with larger storage tanks. Service lines on private property are owned and maintained by the owner, and the service line in the right-of-way is owned by the City. The Owners are required to sign a Grinder Pump Service Agreement with the City which clearly defines the ownership and maintenance requirements. The pumps themselves are maintained by the City through a third-party maintenance contract (currently Correct Equipment). The property owners pay a fee on top of their regular sewer bill to cover the cost for maintaining the grinder pumps. The grinder pump stations that are part of this agreement must be manufactured by Environment One (E-One) Corporation.

9.2 Utility Organization

The Director has the responsibility for the Wastewater Utility which includes planning, financing, operations, maintenance, the capital improvement program, and personnel.

An organizational chart of the Department of Public Works and Utilities is shown in Figure 9-1. Figure 9-2 provides a more detailed breakdown about the Utility Operations Division. Figure 9-3 provides a more detailed breakdown of the Wastewater Division.

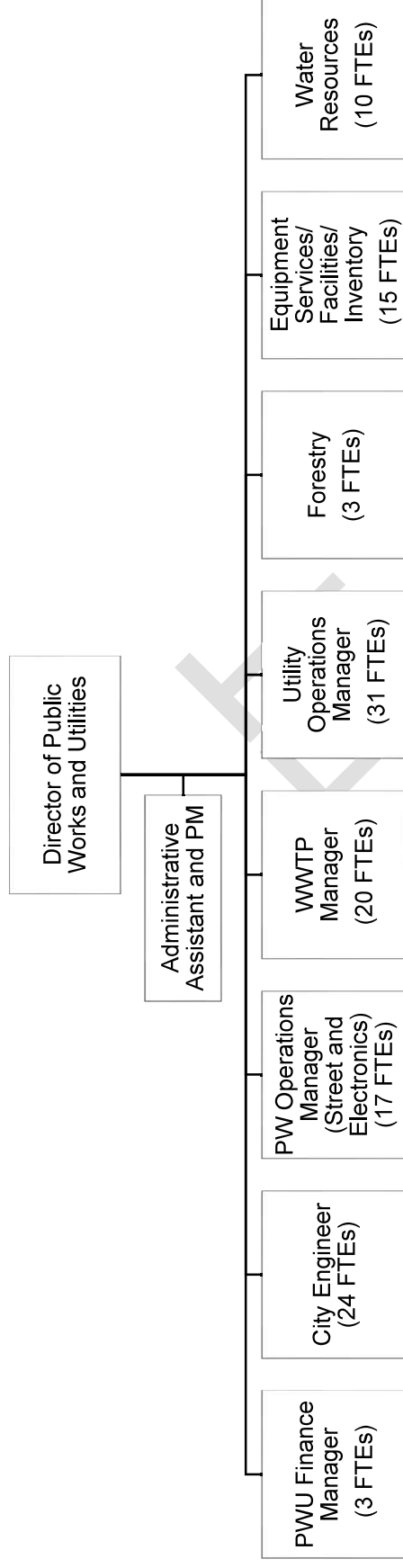


Figure 9-1: Department of Public Works and Utilities organizational chart

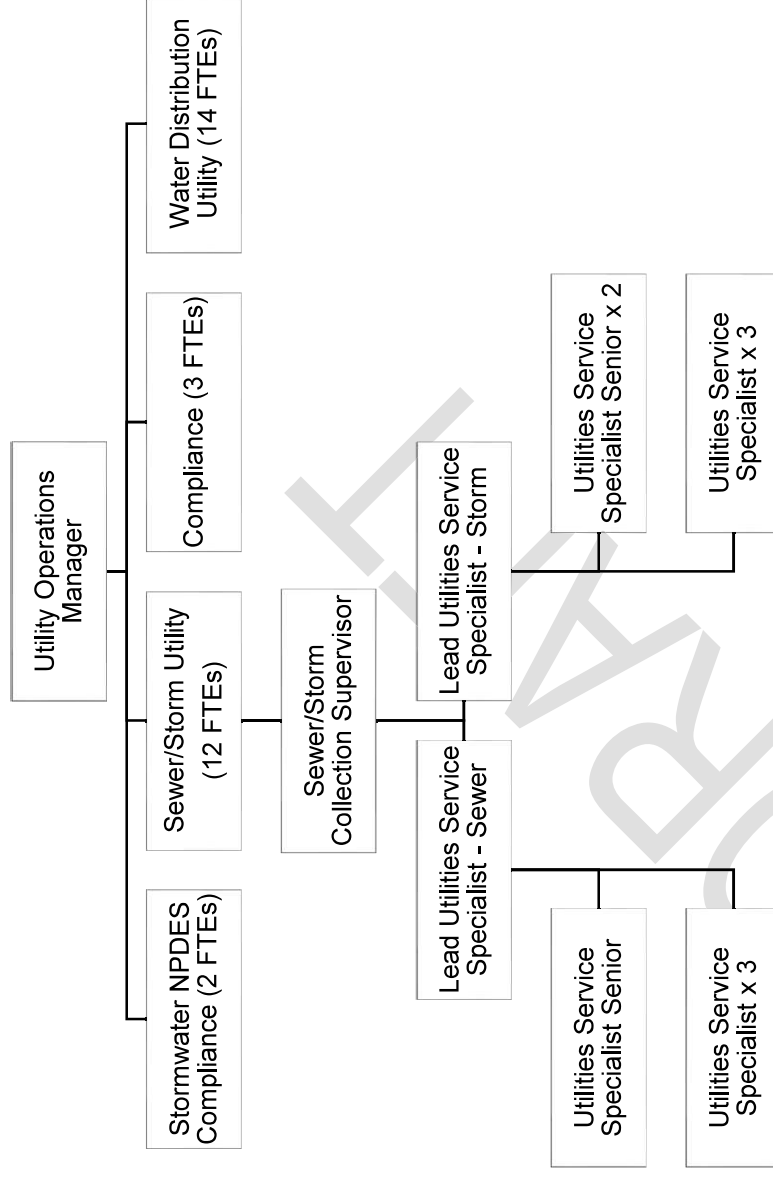


Figure 9-2: Utility Operations Division

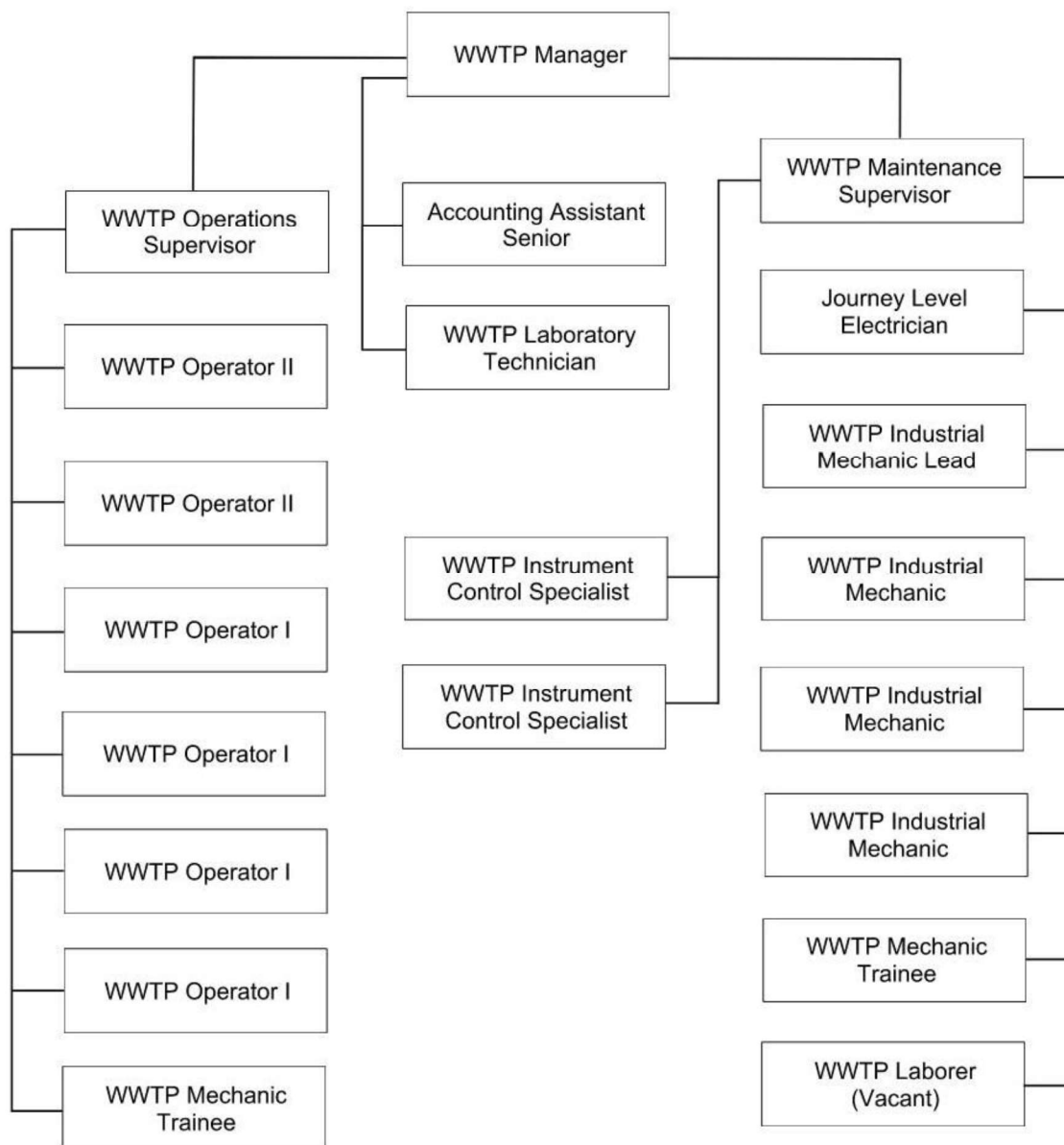


Figure 9-3: Wastewater Division

9.2.1 WWTP Personnel

There are 20 personnel that work under the supervision of the Wastewater Manager. There are currently 8 employees, who have the responsibility for plant operations, and 8 employees who are responsible for pump station and plant maintenance, 2 instrumentation/control specialists, a lab technician, and two administrative staff. Currently, there is 1 vacant laborer position on the plant operations side. The Washington State Department of Ecology, under WAC 173-230, requires every operator in charge of a wastewater treatment plant to be certified at a level equal to or higher than the classification rating of the facility. A summary of staff minimum required certifications is outlined in the following table.

Table 9-2: WWTP Staff Minimum Required Certifications

Title	Minimum Certification
WW Manager	WWTPO Group IV
Lab Technician	WWTPO Group II
Operations Supervisor	WWTPO Group III
Operator II – Lead	WWTPO Group III
Operator I	WWTPO Group II
Operator Trainee	Operator-in-training

At the time of publication of this report, the City is fully compliant with and surpassing all minimum certification requirements. The standard progression pathway involves beginning as an Operator Trainee, subsequently qualifying for the WWPTO Group II certification, and advancing to Operator I.

9.2.2 Collection System Personnel

Under the Utility Operations Manager's supervision, a team of 12 personnel manages the maintenance of both the wastewater and stormwater collection systems. The team's efforts are equally divided between the two utilities, with 2 full-time equivalents (FTEs) currently dedicated to street sweeping 3 days a week, and storm maintenance and improvement on other days. Consequently, approximately 4 FTEs are allocated annually to maintenance activities and capital improvements for the wastewater collection system.

9.3 Existing Operation and Maintenance Activities

The operation and maintenance of the wastewater system is generally performed by City staff utilizing City-owned equipment. The City of Bremerton maintains and operates the required equipment to support both routine system functions and emergency response needs. Specialized or non-standard repairs may be carried out by external contractors.

9.3.1 Collection System

The Utility Operations Division is responsible for the operation and maintenance of both the wastewater and stormwater collection systems. Monitoring of CSO sites falls under the purview of the Wastewater Division. Core responsibilities of the Utility Operations Division include video inspections, street sweeping, responding to citizen complaints, cleaning catch basins and manholes, investigating collection system issues, repairing failing facilities, and supporting capital construction projects. This support encompasses design assistance, utility locates, constructability reviews, potholing, and construction of collection system extensions. The division also assists other departments with operations, maintenance, and construction tasks.

The City has implemented a program for comprehensive video inspection of the wastewater collection system. Video inspection is conducted on a case-by-case basis to support the CIPP program, requiring inspection prior to implementation. A significant portion of the work is subcontracted, with the CIPP program focusing on rehabilitating sewer service laterals from the right-of-way (ROW) to the main sewer line. The program currently covers approximately 8,000 to 9,000 linear feet per year. Inspection videos are stored on a server and are integrated with the GIS mapping system for ease of access. This program requires an annual commitment of 1.5 FTEs.

The sewer collection system is cleaned continuously, with the goal of maintaining a complete cleaning cycle every two years. Problematic areas prone to clogging, root intrusion, and grease accumulation are jetted on a routine schedule to ensure unobstructed flow. This activity requires a yearly allocation of 2.25 to 2.5 FTEs.

The Utility Operations Division also maintains the stormwater collection system, dedicating 2 FTEs annually to system cleaning. The support during traffic control for manhole lining by contractor require approximately 0.5 FTEs per year.

9.3.2 Treatment Facilities and Pump Stations

Since the completion of the 2014 WWCP, the City now operates a total of 40 pump stations. Maintenance staff typically inspect each pump station weekly, with larger pump stations receiving daily visits. This effort requires 2 FTEs annually. Issues encountered during routine inspections are documented in the City's Cartegraph work order system where corrective maintenance can be planned and executed. This effort requires 2 FTEs annually, one for the west side and one for the east side of the City.

Data Collection and Management

Most operations data is collected by programmable logic control (PLC) systems that measure, calculate, and execute prescribed functions for many in-plant and pump station functions. The information generated within the treatment facilities and pump stations is automatically stored/archived in an electronic format at the WWTP. Other operations data, such as laboratory results, operator inspection results, and process performance(s), is logged into the electronic archive system.

WWTP and pump station maintenance data is managed by the Cartegraph system. The software allows for documentation and management of preventative maintenance, corrective maintenance, predictive maintenance, inventory management, and purchase orders. The software resides on the WWTP intranet system and is backed up automatically on a daily basis. Back up is done through two mirror drive servers.

Collection system maintenance data and customer complaints are also tracked using Cartegraph software. The Cartegraph system is stored on a fault protected server using a redundant array of independent disks (RAID) configuration which is backed up nightly.

9.4 Staffing Needs Related to New and Expanded Facilities and Programs

- **Pump Station SCADA and Controls Upgrades** – All the improvements related to the SCADA system and controls will be a part of this project. The annual maintenance and operations of the SCADA system and controls upgrades typically requires 1 FTE.
- **Installation of Emergency Generator Program** – This program consists of the installation of an emergency generator at select City infrastructure in need of a generator or replacement generator. The installation of the emergency generator program typically requires 0.25 FTEs.
- **Pump Station Improvements Program** – Based on the pump station inspections, improvements will be made under this program. This program is expected to require 2 FTEs.
- **I&I Reduction Program** – This ongoing program includes efforts to reduce the I&I in the City's sewer system. The I&I Reduction Program typically requires 1.5 FTEs.
- **PSIC** – Staffing increases will be needed to operate and maintain collection system infrastructure in the PSIC region as development expands.
- **Westside WWTP** – As improvements are made to comply with more stringent nutrient permit limits, more staff additions may be necessary for operations and maintenance of additional process equipment.