

## Chapter 6

# OPERATION AND MAINTENANCE

### 6.1 Introduction

The City of Tumwater (City) updated their Operation and Maintenance (O&M) Plan in August, 2019. This chapter summarizes key information from the O&M Plan that is required by the Washington State Department of Health (DOH) to be included in a water system plan. The full O&M Plan can be found in Appendix P.

The O&M Plan includes the following sections:

- Operational responsibilities.
- Water system operation and control.
- Routine operation of treatment facilities.
- Preventative maintenance.
- Equipment, supplies, chemicals, and service providers.
- Water quality monitoring.
- Cross connection control.
- Water system vulnerability assessment.
- Emergency response & contact information.

### 6.2 Water System Facilities in O&M Plan

The following water system facilities are included in the O&M Plan:

- Wells.
- Reservoirs.
- Treatment Plants.
- Disinfection Systems.
- Interties.
- Distribution System including water meters and hydrants.
- Booster Stations.
- System Control and Telemetry.
- Valves.

### 6.3 Water System Management and Personnel

The Operations and Maintenance Division is part of the Water Resources & Sustainability (WRS) Department for the City of Tumwater. Both Water Resources and Operations share responsibilities for managing the water utility under the direction of the Director. Figure 6.1 is an organizational chart outlining the relationship between the two divisions.

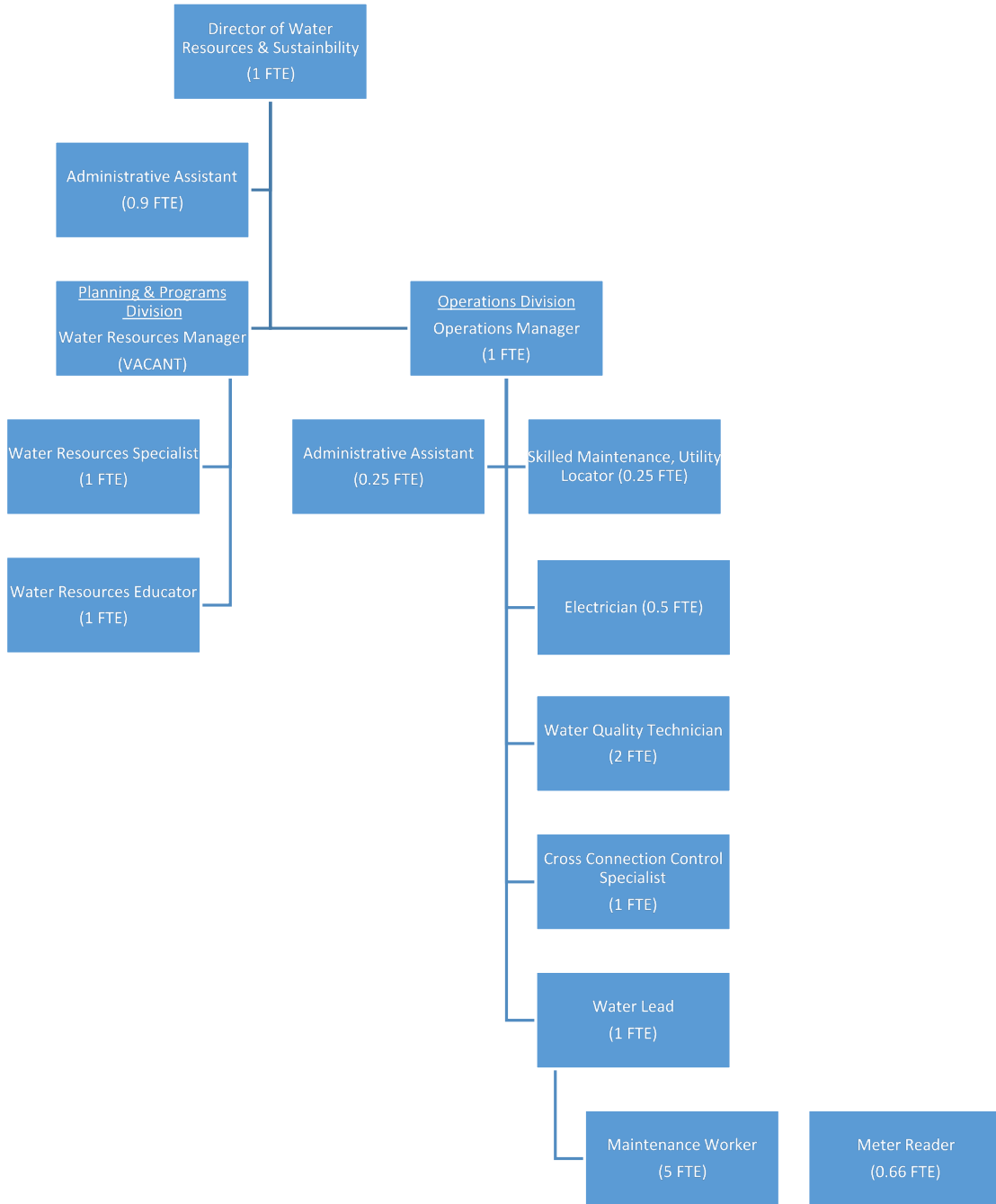


Figure 6.1 City of Tumwater Water System Management Organizational Chart

### 6.4 Operator Certification

The DOH administers the waterworks operator certification program. The City of Tumwater Operations Division personnel that routinely work with the water distribution system and are currently certified by the State can be found in Table 6.1, below. The table will be updated as needed to reflect current staff certifications.

Table 6.1 City of Tumwater Personnel Department of Health Certifications

Name	Title	Certification Level	Cert No.
Steve Craig	Operations Manager	WDM IV, Cross Connection Control Specialist, WTPO II	5536
Michael Thomas	Water Lead	WDM I IT	14627
Forrest Bailey	Cross Connection Control Specialist	Cross Connection Control Specialist and Backflow Assembly Tester	014683 and B6866
Curt Shields	Water Quality Technician	WDM IV and WTPO II	12887
Dennis Ashe	Water Quality Technician	WDM III and WTPO I	12335

DOH establishes minimum operator certification requirements for public water systems based on their size and complexity. DOH requires the City’s public water system to be managed and operated by a certified Water Distribution Manager III or higher.

The City currently satisfies the certification requirements for the size and complexity of its water system. The City encourages its employees to continue their professional growth, and pays for training and relevant certification fees. The Operations Division also encourages all maintenance and skilled maintenance workers currently working in the water distribution group to obtain a Washington State Water Distribution Manager (WDM) Certification.

**6.5 Cross Connection Control**

The City maintains a cross connection control program to ensure all non-residential and appropriate residential connections use effective cross connection control assemblies. The City’s complete cross connection control plan can be found in Appendix Q.

**6.6 Recordkeeping, Reporting, and Customer Complaint Program**

Customer concerns regarding service and quality are important performance measures to any public utility. It is the City’s policy to respond by phone, or in person, to all customer concerns in an expeditious manner. All customer concerns and the City’s response are recorded in the maintenance management database (Lucity) to establish any patterns, which might lead to improved service.

WRS Operations and Engineering are working to coordinate incoming reports and complaints received by various departments at the City, to track investigation activity, and to ensure an appropriate response was accomplished.

The City maintains, at a minimum, the records outlined in Table 6.2 in digital or hard copy format for the specified time period.

Table 6.2 City Water System Recordkeeping Summary

Record	Duration
<b>Water Quality Analysis</b>	
Bacteriological	5 years
Inorganic Chemical	Permanently
Volatile Organic Chemical	Permanently
Synthetic Organic Chemical	Permanently
Radionuclides	Permanently
Lead and Copper	Permanently
<b>Source/Treatment Data</b>	
Well Logs	Permanently
<b>Customer Records</b>	
Meter Readings	6 years
Service Account Records	Permanently
Complaints and Concerns	6 years
Cross Connection/Backflow Assembly Reports	Permanently
<b>Other Records</b>	
Meter Test Records	Life of Meter
Maps and Drawings	Useful Life
Comprehensive Water System Plan	12 years
Water Quality Monitoring Plans	Useful Life
Equipment Maintenance Manuals	Life of Equipment
Valve Records	Valve Life
Hydrant Records	Hydrant Life
Wellhead Protection Plan	Permanently

The City reports all required information to DOH according to Washington Administrative Code (WAC) 246-290-480 (2). Other records are available upon request.

## 6.7 Repair & Replacement Program

The City has an annual program to replace aging water mains, and associated infrastructure, called the Watermain Replacement Program. This includes main replacement on roadways to be coordinated with other utility or road improvement projects that haven't been identified as specific projects. This program is included in the CIP as project D-32. The program captures 20 years of the annual repair and replacement program. The City has a process of evaluating the system and making repairs (especially in conjunction with other projects, as feasible). The City's goal is to enhance this program in the next 10 years.

## 6.8 Planned Improvements

The City is constructing a new Operations and Maintenance Facility, which will be located at the former Trails End Arena property. The existing buildings are in poor condition, present safety liability risks for the City, and were deemed unsuitable for use. The buildings are being removed in advance of future development of the property for a new City O&M Facility and a new neighborhood park. The Water Fund portion of this project is included in the CIP as project M-4.

The City currently uses Tyler's Technology's Eden program. Tyler no longer writes upgrades specific to Eden. Instead it writes generic upgrades that then need to be customized for Eden, one of several of Tyler software systems. Also, Eden has not provided the Web-based accessibility that the City wished for so the City is planning to assess and analyze a replacement Enterprise Resource Planning business system. This project is included in the CIP as project M-7.

## 6.9 Summary of O&M Deficiencies

The City's O&M manual meets the requirements outlined by DOH for water systems. No deficiencies with the O&M program were found therefore no improvements are recommended based on deficiencies.

## 6.10 O&M Recommendations

It is recommended that the City update the risk assessment and emergency response plans based on the new America's Water Infrastructure Act (AWIA) that was signed into law in October 2018. Table 6.3 outlines the AWIA requirements and the deadlines for these requirements.

Table 6.3 America’s Water Infrastructure Act Requirements

Requirement	Description	Certification Deadline <sup>(1)</sup>
Risk Assessment	<p>Each community water system serving a population of greater than 3,300 persons shall assess the risks to, and resilience of, its system. Such an assessment shall include:</p> <ol style="list-style-type: none"> <li>1. The risk to the system from malevolent acts and natural hazards;</li> <li>2. The resilience of the pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems) which are utilized by the system;</li> <li>3. The monitoring practices of the system;</li> <li>4. The financial infrastructure of the system;</li> <li>5. The use, storage, or handling of various chemicals by the system; and</li> <li>6. The operation and maintenance of the system.</li> </ol> <p>The assessment may include an evaluation of capital and operational needs for risk and resilience management for the system.</p>	December 31, 2020
Emergency Response Plan	<p>No later than six months after certifying completion of its risk and resilience assessment, each system must prepare or revise, where necessary, an emergency response plan that incorporates the findings of the assessment. The plan shall include:</p> <ol style="list-style-type: none"> <li>1. Strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system;</li> <li>2. Plans and procedures that can be implemented, and identification of equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the community water system to deliver safe drinking water;</li> <li>3. Actions, procedures and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals, including the development of alternative source water options, relocation of water intakes and construction of flood protection barriers; and</li> <li>4. Strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.</li> </ol> <p>Community water systems shall to the extent possible coordinate with local emergency planning committees established under the Emergency Planning and Community Right-To-Know Act of 1986 when preparing or revising an assessment or emergency response plan under the AWIA. Further, systems must maintain a copy of the assessment and emergency response plan for five years after certifying the plan to the USEPA.</p>	June 30, 2021

Note:

(1) Certification deadlines for community drinking water systems serving population of 50,000-99,999.