

CHAPTER 5

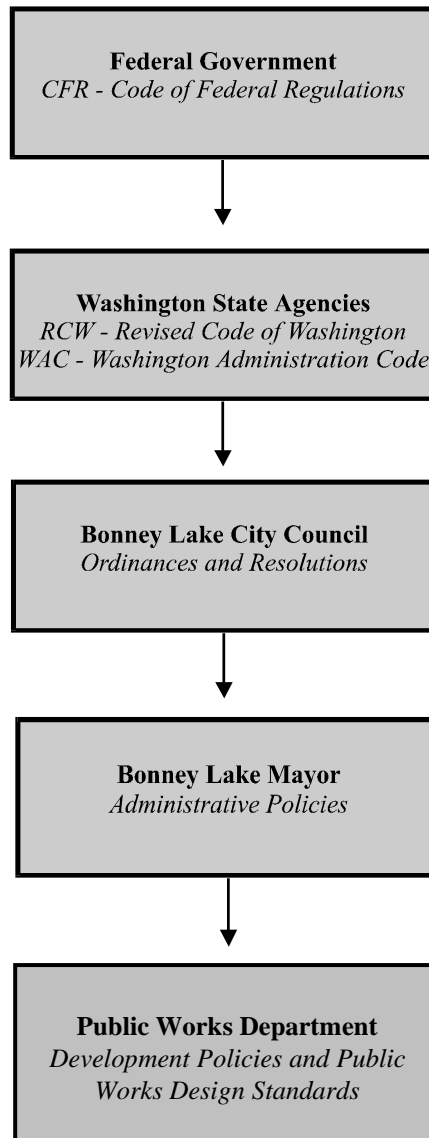
POLICIES AND DESIGN CRITERIA



Panorama Heights Booster Pump Station

INTRODUCTION

The City of Bonney Lake (City) operates and plans water service for the City's water service area (WSA) residents and businesses according to the design criteria, laws, and policies that originate from the following five sources, listed in descending order from those with the broadest authority to the narrowest:



These laws, design criteria, and policies guide the City's operation and maintenance of its water system on a daily basis, and its planning for growth and improvements. Their overall objective is to ensure that the City provides high-quality water service at a fair and reasonable cost to its customers. They also set the standards the City must meet to ensure that the water supply is adequate to meet existing and future water demands. The system's ability to meet these demands is detailed in **Chapter 4 – Water Demands**, and the recommended improvements are identified in **Chapter 9 – Water System Improvements**.

The highest three entities establishing policies – U.S. Government, Washington State agencies, and Bonney Lake City Council – dictate requirements that are set by law. The last two entities – Bonney Lake Mayor's Office and the Public Works Department – adopt policies that are not less stringent or in conflict with those established by an entity higher on the list. Law is set by the

federal government through federal regulations, by the State of Washington in the form of statutes, and by City Council in the form of ordinances. The City's administrative policies are established in the form of memoranda, resolutions, standards, design criteria, and operational procedures, and are based on standard engineering practices and American Water Works Association (AWWA) standards. The City's policies are summarized in this chapter.

It is important to understand that if standards are set too low, customers will not be satisfied; if standards are set too high, the cost of installing and operating facilities will be unacceptable.

The policies associated with the following categories are presented in this chapter.

- Supply
- Customer Service
- Facilities
- Finance
- Organization

Policies listed below that are italicized are set by federal or state law or by city code; all others are Public Works guidelines.

SUPPLY POLICIES

Quality Protection

- *The City will require special control measures to protect aquifer recharge zones (Bonney Lake Municipal Code (BMC)16.20.540 and 639 § 6 1991).*
- *The City will pursue aquifer protection by developing a wellhead protection program and watershed control program (WAC 246-290-135).*
- *The quality goal of the City is to maintain water quality at a level that equals or is better than water quality in its natural state and that meets or exceeds all water quality laws and standards (WAC 246-290-250 and WAC 246-290-300).*
- *The City will pursue and maintain an active role in protecting the regional environment (BMC 16.20.030 and 639 § 6 1991).*
- The City will pursue steps to meet or exceed all water quality laws and standards.
- The City will take all reasonable measures to protect its system and customers.

Cross-Connection Control

- The City has a responsibility to protect the public water system from contamination due to cross-connections. Cross-connections that can be eliminated will be eliminated.
- The City has a cross-connection control program for eliminating cross-connections, copy of which is contained in **Appendix E – Cross-Connection Control Plan**.
- The City has staff that is certified for backflow prevention and testing.

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- The City will comply with the backflow prevention assembly installation and testing requirements as indicated in WAC 246-290-490, and as published in the manual entitled *Cross Connection Control Manual Accepted Procedure and Practice – Pacific Northwest Section*, American Water Works Association (AWWA).

Quantity

- *The City will meet or exceed all laws and regulations regarding supply and storage quantities (WAC 246-290-200).*
- The City will observe water rights seniority.
- The City will pursue the acquisition of water rights to meet or exceed water demand at saturation development conditions.
- The City will pursue maximum supply rates as designated by relevant water rights without impacting the regional environment.
- The City is actively pursuing saturation planning for supply sources so that future water resource limitations can be handled effectively and the impacts of limitations can be minimized.
- The City will manage water resources to ensure a continued, long-term, high-quality supply for homes, commerce, industry, and recreation.

Fire Flow Demand

Public agencies adopt fire flow standards for their specific jurisdiction. Since the City provides water service to several other jurisdictions (including Auburn, Sumner and Pierce County), there are different codes that govern minimal fire flow requirements. Therefore, the City will ensure that the minimum fire flow requirements for each jurisdiction are met for each jurisdiction's specific service area. The general fire flow requirements for each jurisdiction are listed in **Table 4-14 – General Fire Flow Requirements**. In general, however, the City will plan to provide the following minimum fire flows for future development.

Single-Family Residential:	1,000 gpm for a 45-minute duration
Multi-Family Residential:	2,500 gpm for a 2-hour duration
Commercial/Schools:	2,500 gpm for a 2-hour duration
Industrial:	3,500 gpm for a 3-hour duration

The fire flows listed above are slightly more stringent than those required by Pierce County, but will be required for all areas within the City, unincorporated Pierce County, or those areas that are not within another jurisdiction's corporate limits or potential annexation area (PAA) boundaries.

These fire flows represent minimum standards. Specific fire flow design requirements for each development are determined by the Fire Marshal and International Fire Code Appendix B, and are based on the size and type of construction of each building.

For areas within the City of Auburn and its PAA, the City will plan to provide the following minimum fire flows.

Single-Family Residential:	1,500 gpm for a 2-hour duration
Multi-Family Residential:	2,500 gpm for a 3-hour duration
Commercial/Schools:	2,500 gpm for a 3-hour duration
Industrial:	3,500 gpm for a 4-hour duration

For areas within the City of Sumner and its PAA, the City will plan to provide the following minimum fire flows.

Medium Density Residential:	1,000 gpm for a 2-hour duration
High Density Residential:	1,500 gpm for a 2-hour duration
Commercial/Schools:	1,500 gpm for a 2-hour duration
Industrial:	3,500 gpm for a 3-hour duration

Note that single-family homes greater than 3,500 square feet in Pierce County, and all single-family homes within Bonney Lake City limits, are required by the building code to have a sprinkler system.

Fire Flow Analysis

Fighting fires tests the limits and reliability of any given water system. During fires, an adequate combination of supply, storage, pipeline capacity, and reliability must be available to meet the firefighting requirements.

According to Insurance Services Office criteria, the primary goal of the water system is to provide water to a fire at a sufficient rate and duration to extinguish it. Adequate storage and supply is useless if the transmission or distribution system cannot deliver the water at the required rate necessary to extinguish the fire. To achieve this goal, fire flow modeling and analyses should be conducted for all proposed developments during the plan review and permitting process. All fire flow modeling shall test at least the following two scenarios to confirm that adequate fire suppression protection will be available to new developments.

1. Assume that the fire flow demand will be required during a period of peak hour demand and that all major components of the water system are in service.
2. Assume that the fire flow demand will be required during a period of maximum day demand and that a major component of the water system will be out of service, either due to contamination, failure, or maintenance. This includes a major water main, storage reservoir, or source of supply.

It is recommended that the following conditions be met for each scenario in conjunction with the recommended fire flow demand.

- Tank levels in the system have been drawn down to the bottom of both equalizing storage volume and the required fire suppression volume.
- System pressures do not fall below 20 pounds per square inch (psi).
- System pipeline velocities do not exceed 8 feet per second (fps).
- System demands and configurations shall be based on the year the development will reach current zoning maximum.

Conservation

- *The City may declare a water shortage emergency and take such steps as necessary to conserve water for basic household and domestic uses (Bonney Lake Municipal Code (BMC) 13.04.060 588§ 4 1987).*
- *The City shall require the use of efficient water fixtures in all new construction (RCW 19.27.170).*
- The City will promote the efficient and responsible use of water and will conserve water during a shortage.
- The City will maintain its Water Use Efficiency Plan based on the Washington State Department of Health (DOH) and Ecology Conservation Guidelines.

Regional Participation

- *The City will update the Water System Plan and submit for approval from the state every 6 years (WAC 246-290-100).*
- The City will review the Water System Plan (WSP) every 2 years and update as necessary.
- The City will stay up-to-date on regional supply activities that reduce the cost of service and improve reliability, quantity, and water quality.

CUSTOMER SERVICE POLICIES

Water Service and Connection

- The City will strive to provide potable water service to the people within the City's WSA, provided all policies related to service can be met.
- All proposed developments within the City's WSA shall connect directly to the City's water system, unless deemed unfeasible by the City at the time of the request.
- Water system extensions required to provide water service to proposed developments shall be approved by the Public Works Department and must conform to the City's adopted design criteria, and construction standards and specifications, as shown in the City's Development Policies and Public Works Design Standards. All costs of the extension shall be borne by the developer or applicant.
- For water service applications, the City will review the availability for water service at the time of land use permitting, site civil review, and building permit. During the land use permitting process, the City will determine if source of supply water is available for the site. During the site civil review, the City will address the sizing and looping of the water main and how water will be delivered to the site. The formal water service application begins at the time of building permit, when fire flow and service sizing is evaluated. The complete process takes several months.
- Water system capacity will be evaluated at the time of water service application. The City will use the capacity analysis contained in **Chapter 4 – Water Demands** of this WSP to evaluate source of supply, storage, and water rights capacity available to the applicant.

- Water system source of supply capacity will be considered only when providing water availability to applicants.
- Water availability shall expire per Bonney Lake Resolution 730.
- No new wells will be authorized by the City for either domestic or irrigation use.

Connections Outside City Limits

- The drilling of private wells is prohibited inside the City’s WSA.
 - Unlike water line extensions within the City, the property owners outside the City limits and PAA are not required to extend the water line across the parcel. The owner/builder may extend the water line further than the parcel line, if desired, before the water meter and service line are connected.
- Utility Latecomer Agreements (ULA) Outside the City Limits.
 - At the property owner’s or developer’s request, the City may participate in a ULA following the guidelines contained in Chapter 35.91 the RCW and Chapter 13.16 of the BMC. This pertains only to parcels located within the WSA boundaries of the Bonney Lake water system.
 - In any case where a latecomer agreement is contemplated in connection with a developer extension, the latecomer agreement shall be finalized, approved by City Council, and executed prior to or simultaneous with the City’s acceptance of ownership of the developer extension.

Annexations

- Areas annexed will be served by the City at the customer’s expense, unless accepted by City Council, and must meet City water standards.
- Areas that have water service already provided by Tacoma Public Utilities or Valley Water Company shall continue to retain those water providers.
- The City will follow state guidelines in the assumption of facilities in annexation areas.
- The City’s water will be mixed with water supplied by other systems only if the water supplied by others meets or exceeds federal and state water quality requirements.

Temporary Services

- Compliance with quantity and construction standards (but not quality) standards may be deferred for temporary water service.

Emergency Service

- Compliance with standards may be temporarily deferred for emergency water service.
- Policy criteria may be waived for emergency service.

Planning Boundaries

- *The City's water system shall serve all users of water within the City and the City's WSA, subject to appropriate statutes and ordinances and subject to the limitations of the water department's supply and delivery system (BMC 13.04.010 588 § 1 1987).*
- *New developments will be required to pay for system extensions. Provisions for late-comer agreements will be allowed (BMC 13.04.150 588A § 1 1994 and RCW 35.91.020).*
- *The City may shut off water supply at any time without notice for repairs (BMC 13.04.05 588 § 8 1987).*
- With regards to public water service, the City is the lead agency within its service area boundary as designated by the *Pierce County Coordinated Water System Plan*. Therefore, the City accepts ultimate responsibility for providing water service within its service area.
- The City will supply all customers within its WSA limits via direct service only, unless otherwise approved by the City Council.
- The City will extend its system as needed to improve hydraulic conditions for its existing customers.

Satellite System Management

- The City will consider providing satellite system management or ownership services within the City's existing service area.

Duty to Serve

The City has a duty to provide service to all new connections within the retail service area when the circumstances meet the following four threshold factors:

- The City has sufficient capacity to serve water in a safe and reliable manner;
- The service request is consistent with local plans and development regulations;
- The City has sufficient water rights to provide service; and
- The City can provide service in a timely and reasonable manner.

The time-period starts for measuring timely and reasonable service when the water service application is first submitted to the City. The following section provides additional details regarding the City's duty to serve policies.

Permit Requirements

The connection of private services to the City's water system requires the issuance of the following permits.

- **Water Meter Permits** – Prior to the construction of a domestic water service, the owner or authorized agent, shall obtain a Water Meter Permit from the City. Permits will not be issued for connection to a new main until the system is ready for Council acceptance (except for projects where multiple buildings are approved for phased occupancy). For large, new developments, no permits will be issued until as-builts are in, walk-through inspections are completed, and the Bill of Sale is Council-ready.

- Fire Hydrant Permit – Prior to the installation of a public fire hydrant, the owner/agent shall obtain a Fire Hydrant Permit from the City and approval of the location from the City Fire Marshal.
- Fire Line Connection Permit – Prior to the connection of a fire line to the City water main, the owner/agent shall obtain a Fire Line Connection Permit from the City.
- Private Fire Line Permit – Prior to the installation of a private sprinkler system, private fire line and/or private fire hydrant(s), the owner/agent shall obtain a Private Fire Line Permit from the City Fire Marshal. In addition, a Backflow Assembly Permit shall be obtained if approved backflow prevention is not provided on the private fire line. Additional licenses are required by the Washington State Fire Marshal’s Office for these installations.
- Outside Agency Permits – In addition to the permits listed above, the developer is responsible for securing and abiding by the conditions imposed by permits required by outside agencies. These permits include County and State DOT right-of-way permits, Hydraulic Permits, Shoreline Permits, Corps of Engineers, Department of Fisheries Permits, etc.
- County Right-of-Way Permit – For water extensions in County right-of-way, the Owner shall obtain a County Right-of-Way Permit prior to the preconstruction meeting. Conditions and requirements set forth by the County shall comply with County Road Standards. The City and the Contractor must schedule and attend a preconstruction meeting with County right-of-way inspection staff prior to starting any work. Permit and Inspection Fees charged to the City by the County will be billed to the Contractor or owner in full. All construction and restoration must be completed to the satisfaction of the County and City.
- Water Use Only, and Backflow Assembly Permits - Prior to the installation of a water use only, and Backflow assembly the owner/agent shall obtain a Water Service Permit from the City.
- Water system capacity will be evaluated at the time of water service application. The City will use the capacity analysis contained in **Chapter 7** of this WSP to evaluate source of supply, storage, and water rights capacity available to the applicant.
- Water system capacity, pressure, and fire flow will be considered when providing water availability to applicants.
- Water availability shall expire at the time that the associated permit expires (i.e., land use, site civil, or building permit).
- Time extensions in regard to water availability shall be granted in accordance with the associated permit requirements. When extensions are denied, the disputes are handled through the rules guiding the associated permit process. Disputes can be brought to the City Council for discussion.

FACILITY POLICIES

This section describes the planning criteria and policies used to establish an acceptable hydraulic

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behavior level and standard of quality for the water system. Additional criteria are contained in the City of Bonney Lake's *Development Policies and Public Works Design Standards*, a copy of which is included in **Appendix D – Water System Standards** of this WSP.

Minimum Standards

All proposed developments within the City's WSA shall conform to the City's adopted design criteria, construction standards, and specifications.

Pressure

- *A minimum pressure of 30 psi at customer meters shall be provided during normal peak hourly demand conditions, not including fire flow or other emergency demand conditions (WAC 246-290-230(4)).*
- *During fire flow and other emergency demand conditions, the minimum pressure at customer meters, and in the remainder of the system, shall not be less than 20 psi (WAC 246-290-420-230(5)).*
- The City will endeavor to maintain a minimum pressure of 40 psi at customer meters during normal demand conditions, excluding a fire or emergency.
- The City will endeavor to maintain a maximum pressure of 80 psi in the water mains during normal demand conditions, excluding pressure surges. Pressures as high as 120 psi may be allowed in certain areas. Individual residences are responsible for reducing pressures over 80 psi.
- The City will endeavor to maintain a minimum pressure of 30 psi at customer meters during all demand conditions, excluding a fire or emergency.
- During fire conditions, the minimum pressure at customer meters and throughout the remainder of the system will be 20 psi.
- During a failure of any part of the system, the maximum pressure will not exceed 150 psi.

Velocities

- During normal demand conditions, the velocity of water in a water main should be less than 5 fps.
- During emergency conditions, such as a fire, and for design purposes, the velocity of water in a water main may exceed 5 fps, but may not exceed 8 fps.

Storage

- Storage within the distribution system must be of sufficient capacity to supplement supply when system demands are greater than the supply capacity (equalizing storage) and still maintain sufficient storage for proper pump operation (operational storage), fire suppression (fire flow storage), and other emergency conditions (standby storage).

- Equalizing storage must be stored above the elevation that yields a 30 psi service pressure to the highest service in the zone. The City will strive to maintain adequate equalizing storage above an elevation that yields 40 psi.
- Standby storage must be located above the elevation that yields a 20 psi service pressure to the highest service in the zone under peak hour demand (PHD) conditions.
- Fire flow storage must be located above the elevation that yields a 20 psi service pressure to all services in the zone under maximum day demand (MDD) conditions.
- The City will provide sufficient standby storage for an emergency condition in which a major supply source is out of service. The volume of storage will be sufficient to maintain uninterrupted supply to the system during the emergency condition.
- The City will provide sufficient storage for a fire condition equal to the system's maximum fire protection water demand and the required duration.
- The City will have high water level and low water level alarms at the Operations and Maintenance office.
- A water level indicator will be located at the Operations and Maintenance office.
- Storage facilities will be located in areas where they will satisfy the following requirements:
 1. Minimize fluctuations in system pressure during normal demands;
 2. Maximize use of the storage facilities during fires and peak demands; and
 3. Improve the reliability of supply to the system.

Transmission and Distribution

- *Cross-Connection control shall conform to WAC 246-290-490 and Accepted Procedures and Practices in Cross Connection Control Manual by Pacific Northwest Section AWWA (BMC 13.04.200 577 § 2 1986).*
- *All new construction shall be in accordance with City standards for additions to the water system (589D § 1, 1995).*
- Dead-end mains without domestic services will not be allowed unless otherwise approved by the City Engineer.
- Dead-end water main extensions that exceed the length of 650 feet or that serve more than 15 single-family homes or 15 multi-family units will not be permitted unless otherwise approved by the City Engineer.
- Unless deemed impractical by the Public Works Department, transmission and distribution mains must be looped to increase reliability and fire flow capacity and to decrease head losses. Looping will typically be required for all water main extensions over 650 feet long.
- Looping around large commercial or multi-family buildings will be required when necessary to meet Building Code and Fire Department fire hydrant building coverage. Looping shall be to and from a transmission main, unless otherwise approved by the City Engineer.

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- In most cases, transmission mains will be defined as water mains greater than 8 inches in diameter.
- All mains will comply with the generally recognized design criteria from the AWWA and DOH guidelines that follow.
 1. All new construction will be in accordance with *City Development Policies and Public Works Design Standards*, of which a copy of Section 400 is included in **Appendix D – Water System Standards** of this WSP.
 2. Distribution system design assumes that only adequately-sized service lines will be used. All residential service lines will be $\frac{5}{8}$ -inch diameter or larger for domestic service only and 1-inch diameter or larger if also providing sprinkler service as required by code. Service lines will be the same size as the meter, unless otherwise approved by the City Engineer.
 3. The minimum diameter of distribution mains will be 8 inches. All water mains will be ductile iron pipe, unless otherwise approved by the Public Works Department.
 4. All new transmission mains will be sized based on hydraulic analyses conducted by the City or its representative.
 5. All new mains providing fire flow will be sized to provide the required fire flow at a minimum residual pressure of 20 psi and maximum pipeline velocity of 8 fps during MDD conditions. In general, new water mains that will carry fire flow in residential areas shall be a minimum of 8 inches in diameter and looped. New water mains in commercial, business park, industrial, and school areas shall be a minimum of 12 inches in diameter and looped.
 6. Valve installations will satisfy the following criteria.
 - a. Zone valves will be located at all pressure zone boundaries to allow future pressure zone realignment without the need for additional pipe construction.
 - b. Isolation valves will be installed in the lines to allow individual pipelines to be shut down for repair or installing services. Unless it is impractical to do so, the distance between isolation valves will not exceed 1,200 feet. A minimum of four valves will be provided per cross and three valves per tee.
 - c. Air/vacuum release valves will be placed at all high points, or “crowns,” in all pipelines.
 - d. Blow-off assemblies shall be located at main dead ends where there is not a fire hydrant and as necessary at low spots in water mains. The blow-off assembly shall have a valve the same size as the main with concrete thrust blocking.
 - e. Individual pressure reducing or check valves must be installed in all new customer service lines in the system. Pressure reducing valves (PRVs) protect customers from high pressures in case a mainline pressure-reducing station fails. The resident owns and maintains these PRVs. The

City main waive this requirement on a case by case bases in areas of low pressure.

- f. Check valves must be installed on hot water tanks to prevent the tanks from emptying into the City's distribution system when a nearby water main is empty or when the pressure in the main is less than the pressure in the tank. The check valves shall protect the water system from possible contamination caused by a cross-connection with the customer's pipes and fixtures.
7. Fire hydrant installations will satisfy the following criteria.
 - a. Fire hydrants serving detached single-family dwellings or duplex dwellings on individual lots will be located not more than 600 feet on center, such that all lots are within 400 feet from a fire hydrant, as measured along the path of vehicular access.
 - b. Fire hydrants serving any use other than detached single-family dwellings or duplex dwellings on individual lots will be located not more than 300 feet on center, and will be located so that at least one hydrant is located within 150 feet of all structures, but not closer than 50 feet, unless approved by the East Pierce Fire and Rescue District or Valley Regional Fire Authority.
 - c. One fire hydrant minimum shall be installed per intersection.
 - d. The East Pierce Fire and Rescue District or Valley Regional Fire Authority will review all proposed fire hydrant installations to ensure the correct number and spacing of fire hydrants for each project per their standards.
 - e. Fire hydrants require Storz adapter fittings. The City will retrofit all existing fire hydrants when funding becomes available.

Supply and Booster Pump Stations

- All existing and future booster pump stations will be modified or constructed to comply with the following minimum standards.
 1. All structures will be non-combustible, where practical.
 2. All buildings will have adequate heating, cooling, ventilation, insulation, lighting, and work spaces necessary for on-site operation and repair.
 3. Sites will be fenced to reduce vandalism and City liability.
 4. All stations will be connected to the Supervisory Control and Data Acquisition (SCADA) system for remote monitoring and operation.
 5. Each station will be equipped with a flow meter and all necessary instrumentation to assist personnel in operating and troubleshooting the facility.
 6. Emergency power capability will be provided at all booster pump stations supplying each pressure zone.

- Pumps will be operated automatically, with flexibility in pump start/stop settings.
- Stations will be operated with the provision for at least two methods of control to minimize system vulnerability.
- Manual override of stations will be provided for and located at the Operations and Maintenance office using the City's telemetry and SCADA.
- Stations will be monitored with alarms for the following conditions.
 1. Pump started automatically or manually.
 2. Power phase failure.
 3. Power outage/generator running.
 4. Communication failure.
 5. Water in structure.
 6. Low suction pressure.
 7. High and low discharge pressure.
 8. Intrusion.
 9. Smoke detector.
 10. Heat detector.
- Stations will have the following indicators.
 1. Local flow indication and totalizing.
 2. Flow indication and totalizing at the Operations and Maintenance office.
 3. Recording of combined supply flow to the system.
- Booster pump stations will be placed wherever necessary to fulfill the following criteria.
 1. Provide supply redundancy to a pressure zone.
 2. Improve the hydraulic characteristics of a pressure zone.
 3. Maximize storage availability and transmission capacity.
 4. Improve water quality (i.e., increase circulation) and quantity.

Pressure Reducing Stations

- All pressure reducing valves should be placed in vaults that are large enough to provide ample work space for field inspection and repair of the valves. Vaults should be tall enough to allow operating personnel to stand upright.
- Vaults should drain to daylight or be equipped with sump pumps to prevent vault flooding.
- Pressure relief valves should be provided on the low pressure side of the PRV to prevent system over-pressurization in case of a valve failure.
- High pressure alarms should be transmitted to the central control system to alert operating personnel of the PRV failure.

Control

The City's control system must be capable of efficiently operating the water system's components in accordance with this WSP, and in response to reservoir levels, system pressures, and abnormal system conditions.

Maintenance

- Facility and equipment breakdown is given the highest maintenance priority. Emergency repairs will be made even if overtime labor is involved.
- Equipment will be scheduled for replacement when it becomes obsolete and as funding is available.
- Worn parts will be repaired, replaced, or rebuilt before they represent a high failure probability.
- Spare parts will be stocked for all equipment items whose failure will impact the ability to meet other policy standards.
- Equipment that is out of service will be returned to service as soon as possible.
- A preventive maintenance schedule will be established for all facilities, equipment, and processes.
- Tools will be obtained and maintained to repair all items whose failure will impact the ability to meet other policy standards.
- Dry, heated shop space will be available for maintenance personnel to maintain facilities.
- All maintenance personnel will be trained to efficiently perform their job descriptions.
- Maintenance will be performed by the water maintenance staff or other approved sources and supervised by the Water Utility Assistant Superintendent.
- Written records and reports showing operation and maintenance history will be maintained on each facility and item of equipment.
- Fire hydrants that are no longer serviceable will be given the highest priority for replacement.
- A computerized work management system will be created that schedules recurring maintenance work, as well as one time repairs and construction.
- All as-built drawings from the City and private projects shall be entered into a Geographic Information System (GIS) database and made available to maintenance workers at remote terminals.

Joint-Use

- All joint use facilities must comply with City policy and design standards.
- Joint use facilities that supply a portion of the City that cannot be supplied from other sources in the event the joint use facility is out of service will be maintained by the City.
- Joint use facilities will be pursued only in those areas that improve reliability or operating costs.

Reliability

- *The City shall ensure that the water system is constructed, operated, and maintained to protect against failures of power supply, treatment process, equipment, or structure with appropriate back-up facilities (WAC 246-290-4200).*
- Security measures shall be employed to ensure the water source, water treatment processes, water storage facilities, and distribution system are under the strict control of the City.
- Supply to the WSA will be pursued to meet MDD during a reasonable "worst case" supply system failure.
- Supply to each pressure zone will be provided to meet MDD during a reasonable "worst case" supply system failure.
- System demand planning will use historical demand data and assume all available land will be developed at saturation.

Vulnerability

- *The City shall maintain and implement an emergency response plan (WAC 246-290-490).*
- Supply vulnerability analysis will be performed to determine a reasonable "worst case" failure for each pressure zone or new development. The analysis will consider the following conditions.
 1. Failure of the largest source of supply.
 2. Failure of the largest mechanical component.
 3. Power failure to a single power grid.
 4. Reservoir out of service.
 5. Failure of a transmission main.
- Storage vulnerability analysis will be performed to determine a "worst case" failure for each pressure zone. The analysis will consider the following conditions.
 1. MDD with simultaneous fire flow demand.
 2. MDD with largest supply source out of service.

FINANCIAL POLICIES

General

- The City will set rates that comply with state regulations.
- Rates and additional charges established for the City should be:
 1. Cost-based rates that recover current, historical, and future costs associated with the City's water system and services;
 2. Equitable charges to recover costs from customers, commensurate with the benefits they receive;

3. Adequate and stable source of funds to cover the current and future cash needs of the City; and
 4. Do not subsidize the operation of other City departments.
- The City’s existing customers will pay the direct and indirect costs of operating and maintaining the facilities through user rates. In addition, the user rates will include debt service, as needed, to finance the capital assets of the City.
 - New customers seeking to connect to the water system will be required to pay a connection charge for an equitable share of the historical cost of the system and for the system's capital improvement program (CIP). Connection charge revenues will be used to fund the CIP in conjunction with available rate revenue.
 - New and existing customers will be charged for extra services through separate ancillary charges based on the costs to provide the services. Ancillary charges can increase equitability and operating efficiency by discouraging unnecessary demand for services. The charges should be reviewed regularly and updated annually based on increases in the Consumer Price Index. Revenue from ancillary charges will be used to finance annual operations and maintenance.
 - The City will maintain information systems that provide sufficient financial and statistical information to ensure conformance with rate-setting policies and objectives.
 - User charges must be sufficient to provide cash for the expenses of operating and maintaining the system. To ensure the fiscal and physical integrity of the utility, each year an amount should also be set aside and retained for planned capital expenditures.
 - A Working Capital Reserve will be maintained to cover unanticipated emergencies and fluctuations in cash flow.
 - The City will charge for the cost of services, material, and equipment required to make a new connection to the system (hook-up fee or meter installation charge) based on an adopted rate per connection.
 - Various customer classes will be maintained as the City deems appropriate, and may include single-family, multi-family, commercial, industrial, governmental, irrigation, schools, and fire protection.
 - The water utility also provides fire protection services. The City will attempt to cost allocate the portion of the water system that supports fire protection.
 - The City’s fees and charges should be calculated for the service area as a whole. Rates will be the same regardless of service location (except for the inside City/outside City distinction).

Connection Charges

Owners of properties that have not been assessed, charged, or borne an equitable share of the cost of the water system will pay one or more of the following connection charges prior to connection to the water system.

1. Latecomer Fees: Latecomer fees are negotiated with developers and property owners; they provide for the reimbursement of a pro rata portion of the original cost of water

system extensions and facilities.

2. **Connection Charge:** The connection charge will be assessed against any property that has not participated in the development of the water system. Meter charges, or hook-up fees, are additional to recover the cost of meter and service line installation.
3. **Developer Extension Charges:** These charges are for the administration, review, and inspection of a developer extension project.

ORGANIZATIONAL POLICIES

Staffing

- The Public Works Department will promote staff training.
- The Public Works Department utility staffing levels are established by the Mayor and City Council based on the financial resources of the City and needs of the water utility.
- Personnel certification will comply with state standards.

Structure

- The water utility shall be operated as an enterprise utility, which means it will be financially self-supporting.
- Water utility management is accomplished by the Public Works' supervisors.
- Water utility customer service is performed by a combination of Public Works and Finance staff.
- The water utility has the responsibility for potable water system operation.

Relationship with Other Departments

- The Finance Department is responsible for customer billing, payment collection, project cost accounting, and fund activity reporting.
- The Administrative Services Department is responsible for employee records and salary schedules.
- Fire flow requirements shall be established by the City based on input from the planning department, engineering department, East Pierce Fire and Rescue District, and Valley Regional Fire Authority.
- The East Pierce Fire and Rescue District, and Valley Regional Fire Authority use the City's water utility facilities for their fire protection efforts.
- The East Pierce Fire and Rescue District and Valley Regional Fire Authority are responsible for emergency responses to hazardous events at water system facilities.
- The Police Department, and other City departments as assigned, are responsible for enforcing violations of City water ordinances.
- The East Pierce Fire and Rescue District and the Valley Regional Fire Authority, or their representatives, are responsible for hydrant fire flow testing under the supervision of the Public Works Department.

- Fire hydrant testing is performed jointly by the East Pierce Fire and Rescue District or Valley Regional Fire Authority, and the City's Public Works staff.