

CHAPTER 5

POLICIES AND DESIGN CRITERIA



INTRODUCTION

The City of Fife (City) plans and provides water service for the residents and businesses it serves both inside and outside of Fife's City Limits, consistent with laws, policies and design criteria emanating from multiple sources. **Table 5-1 – *Regulatory Agencies*** summarizes the primary entities that govern and guide Fife's water system planning and operation.

**Table 5-1
Regulatory Agencies**

Agency	Design Criteria/Laws/Policies
U.S. Department of Health & Human Services	Federal Regulations
U.S. Environmental Protection Agency	Federal Regulations
Washington State Department of Health	State Regulations
Washington State Department of Ecology	State Regulations
Fife City Council	City Regulations
American Water Works Association	Design Criteria

The guidance and direction from these various regulatory sources circumscribe the City’s approach to its water system and help assure City water customers are provided adequate, safe and reliable water service. The regulatory guidance from these various sources also help ensure that future customers and the growth that is planned for the City’s water service area are supplied in a similar manner. The City’s ability to meet planned and forecast demands is detailed in **Chapter 7**. Recommended improvements to the City water system are identified in **Chapter 9**.

Within the framework established by federal and state requirements, the City of Fife adopts regulations and policies. The City's water system and service policies take the form of ordinances, memoranda and operation procedures, many of which are summarized in this Chapter.

Policies listed below that are *italicized* are set by Federal or State Law or by City Code; all others are Public Works guidelines.

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

- Supply
- Customer Service
- Facilities
- Finance
- Organization

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

SUPPLY POLICIES

Quality Protection

- *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 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. A copy of the City of Fife Cross-Connection Control Plan is contained in **Appendix G**.
- The City has staff that is certified for backflow prevention and inspection.
- *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 of Fife 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 or wholesale water 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 assure a continued, long-term, high quality supply for homes, commerce, industry and recreation.
- The City will ensure that the capacity of the system, including wells, pump stations and transmission mains, is sufficient to meet the peak day demand of the system.

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Fire Flow

Fire flow policies and criteria are set by the City's fire marshal; however, fire protection services are provided to the City of Fife by the City of Tacoma Fire Department. **Table 5-2 – Current Fire Flows** shows the City's current minimum fire flows for future developments

**Table 5-2
Current Fire Flows**

Customer Class	Fire Flow Requirement (gpm)	Flow Duration (hours)
Single-Family Residential	1,000	1
Multi-Family Residential	1,000	1
Commercial	1,500	2

Actual fire flow requirements, as determined by the fire marshal, may differ from those shown based on such factors as proposed use, building size and construction. Improvements to increase the available fire flow to meet actual fire flow requirements greater than those shown shall be the responsibility of the developer.

Regional Participation

- The City will update the *Comprehensive Water System Plan* and submit for approval from the State every six years (WAC 246-290-100).
- The City will review the *Comprehensive Water System Plan* every two years and update as necessary.
- The City will participate in regional supply management and planning activities to protect the environment reduce cost of service and improve reliability, water quality and quantity. The City will participate in the following regional activities.
- The City will supply all customers within the water service area, unless a special agreement with an adjacent purveyor exists, due to topography or other limiting factors.

CUSTOMER SERVICE POLICIES

Water Service and Connection

- The City will strive to provide potable water service to the people within the City's water service area, provided all policies related to service can be met.
- All proposed developments within the City's water service area 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 City and must conform to the City's adopted design criteria, construction standards and specifications, as may be shown in the developer extension program for the City. All costs of the extension shall be borne by the developer or applicant.
- Water service can be extended within the water service area if the project is in compliance with the City's utility regulations and policies, and adopted land use plan, zoning and development regulations.
- Requests for new water service begin at either the preliminary plat stage or with a Meter Application. These documents include property location, meter size, owner information and other data. The City then determines if water is available, or what will be necessary to serve the property. Once meter connection fees are paid, including, but not limited to, installation charges and System Development Charges, and required system extensions/improvements are completed, a Binding Certificate of Water Availability for final approval on short plats, subdivisions, septic/sewer designs and building site applications will be prepared and returned to the applicant within two weeks. Service installation is scheduled upon receipt of payment. The turnaround time for service installations, once the service is paid for, is typically around 30 days.
- All applications for permits for the use of water shall be made to the building department. Such application shall be made by the owner of the property to which the water may be required, and must agree to conform to the rules and regulations thereof that may be established from time to time as conditions for the use of water.
- The Binding Certificate of Water Availability shall expire two years from the date of issuance, and a Non-Binding Certificate of Water Availability shall expire one year from the date of issuance.
- For water service applications outside of the City Limits but within the water service area, the applicant will follow the steps for a standard meter connection, including completion of an Outside City Agreement form and obtaining a water service agreement 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 Plan 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.
- Delays resulting from non-technical conditions that affect the City's ability to provide new water service are the responsibility of the applicant. These conditions include, but are not limited to, environmental assessments and local regulations.
- Time extensions in regards to water availability shall be granted in accordance with the associated permit requirements. When extensions are denied, the disputes are handled through the City's dispute resolution process. Disputes can be brought to the Fife City Council for discussion.

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Annexations

- Provision of service will be provided per the adopted extraterritorial utility policy. The City will follow State guidelines in the assumption of facilities in annexation areas.
- Areas annexed will be served by the City of Fife at the customer's expense unless accepted by City Council and must meet the City of Fife water standards.
- 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

- Temporary service is not allowed.

Emergency Service

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

Planning Boundaries

- *New developments will be required to pay for system extensions. Provisions for late-comer agreements will be allowed (RCW 35.91.020) and FMC Chapter 13-14 Latecomer Agreement.*
- For planning purposes, the City will use the designated service area boundary established by agreement as a result of the Pierce County Coordinated Water System Plan.
- The City of Fife will follow State of Washington guidelines in assuming portions of adjacent water systems as a result of annexation.

Satellite System Management

- The City will not consider providing satellite system management or ownership services within the City's water service area.

FACILITY POLICIES

This section describes the planning criteria and policies used to establish an acceptable hydraulic behavior level and a standard of quality for the water system. Additional criteria are contained in the City's construction standards, a copy of which is included in **Appendix H** of this Plan.

Minimum Standards

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

Pressure

- *A minimum pressure of 30 pounds per square inch (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 pounds per square inch (psi) at customer meters during normal demand conditions, excluding a fire or emergency.
- The City will endeavor to maintain a maximum pressure of 120 psi in the water mains during normal demand conditions, excluding pressure surges. 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 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 feet per second (fps).
- During the Peak Hour Demand (PHD) the velocity of the water in a water main shall not exceed 9 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 9 fps.

Transmission and Distribution

- Unless deemed impractical, transmission and distribution mains will be looped to increase reliability and fire flow capacity and to decrease head losses.
- All mains will comply with the generally recognized design criteria from the AWWA and Department of Health guidelines that follow.
 1. All new construction will be in accordance with the City's Standard Specifications, of which a copy is included in **Appendix D** of this Plan.
 2. Distribution system design assumes that adequately-sized service lines will be used. All residential service lines will be 3/4-inch or larger. Service lines will be the same size as the meter or larger.
 3. The minimum diameter of distribution mains will be 8 inches. Water mains not required to carry fire flow, as determined by the City, may be a smaller diameter. All water mains will be ductile iron pipe. The City may consider other piping materials for specialized applications on a case-by-case basis.
 4. All new distribution mains will be sized by a hydraulic analysis.

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5. All new mains providing fire flow will be sized to provide the required fire flow at a minimum residual pressure of 20 psi during peak day demand conditions, while maintaining a maximum pipeline velocity of 9 feet per second. 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, 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 typically 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 minimum distance between isolation valves will not exceed 600 feet. A minimum of four valves will be provided per cross, and a minimum of three valves per tee. The City may increase or decrease the number of and distance between valves for new construction based on system configuration.
 - c. Air/vacuum release valves will be placed at all high points, or “crowns,” in all pipelines.
 - d. Blowoff assemblies shall be located at main dead ends where there is not a fire hydrant.
 - e. Individual check valves will be installed on customer service lines where conditions warrant.
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 single-family lots are within 300 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 fire marshal. Hydrants located in dead-end areas or cul-de-sacs shall service an area of no more than 120,000 square feet.
 - c. A minimum of one fire hydrant shall be installed per intersection.
 - d. The fire marshal will review and approve all proposed fire hydrant installations to ensure the correct number and spacing of fire hydrants for each project.
 - e. Fire department connection (FDC) shall be no more than 20 feet from the closest fire hydrant.

Well Facilities

- All existing and future well facilities will be modified/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. Each well will be equipped with a flow meter and all necessary instrumentation to assist personnel in operating and troubleshooting the facility.
 5. Emergency power capability will be provided where practical.
- Pumps will be operated automatically, with flexibility in pump start/stop settings.
- Wells will be operated with the provision for at least two methods of control to minimize system vulnerability.
- Manual override of wells will be provided for and located at the Operations and Maintenance office using the City's Supervisory Control and Data Acquisition system.
- Wells 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.
- Wells 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.

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Pressure Reducing Stations

- All pressure reducing valves will be placed in vaults that are large enough to provide ample workspace for field inspection and valve repair.
- Vaults will drain to daylight, or will be equipped with sump pumps to prevent vault flooding.
- Pressure relief valves may be provided on the low-pressure side of the pressure reducing valves to prevent system over pressurizing in case of a pressure reducing valve failure.

Control

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

Maintenance

- Facility and equipment breakdown is given 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 Senior Water Quality Specialist.
- Written records and reports showing operation and maintenance history will be maintained on each facility and item of equipment.

Joint-Use

- All joint-use facilities (with other public water systems) must comply with the City's policy and design standards.
- All joint-use facilities will be maintained by the Water Department.
- Joint-use facilities will be pursued only in those areas that improve reliability or reduce operating costs.

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; and
 3. Adequate and stable source of funds to cover the current and future cash needs of the City.
- The existing customers of the City will pay the direct and indirect costs of operating and maintaining the facilities through water rates. In addition, the water rates will include debt service incurred to finance the capital assets of the City.
- New customers seeking to connect to the water system will be required to pay connection fees and charges 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 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, as well as increase 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 capital expenditures, which will cover some portion of the depreciation of the physical plant. The amount may be transferred from the Operations and Maintenance Fund to the Construction Fund for general purposes or for specific purposes.
- A non-restricted contingency reserve amount will be maintained to cover unanticipated emergencies and fluctuations in cash flow.

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- Water rates will be based on either the Base-Extra Capacity Method or the Commodity-Demand Method. Both methods strive to equitably charge customers with different service requirements based on the cost of providing the water service. Service requirements relate to the total volume of water used, peak rates of use and other factors.
- Fees and charges are calculated based on the service location. Rates will be the same for all customers within the city limits. Rates will be established separately for customers located outside of the city limits.

Connection Charges

Owners of properties that have not been assessed, charged or have not 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 a water main.

1. *Latecomers Fees:* Latecomers 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 hookup fees, are additional in order 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

- Personnel certification will meet or exceed State standards.
- The City will promote staff training.

Relationship with Other Departments

- The Finance Department is responsible for customer billing, payment collection, project cost accounting and fund activity reporting.
- The Personnel Department is responsible for employee records, union labor negotiations and salary schedules.
- The City of Tacoma Fire Department uses water utility facilities for fire protection and the fire marshal establishes fire flow requirements.
- The City of Tacoma Fire Department is responsible for emergency responses to hazardous events at water system facilities.
- Fire hydrant testing is performed jointly by the City of Tacoma Fire Department and Fife's Water Department.
- The Police Department is responsible for enforcing violations of City water ordinances.