

## CHAPTER 5

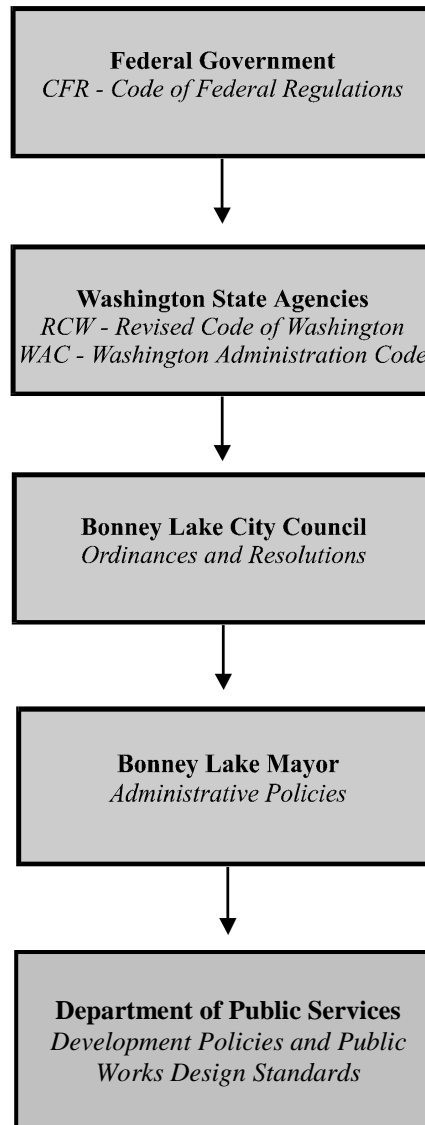
# Policies and Design Criteria



*Lift Station No. 23*

## INTRODUCTION

The City of Bonney Lake (City) operates and plans the sewer service for the City's sewer service area (SSA) 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 operation and maintenance (O&M) daily basis, and its planning for improvements. Their overall that the City provides high-quality sewer service at a fair and reasonable cost to its customers. They also set the standards the City must meet to ensure that the sewer system is adequate to meet existing and future water demands. The system's ability to meet these demands is detailed in **Chapter 4 – Projected Growth and Future Service Areas**, and the recommended improvements are identified in **Chapter 8 – Sewer System Improvements**.

policies guide the City's of its sewer system on a future growth and objective is to ensure

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 Department of Public Services) 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. 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 presented in this plan are divided into five general categories.

1. Sewer Service Policies
2. Service Area Policies
3. Facility Policies
4. Organizational Policies
5. Financial Policies

Each of these policy categories will be described in detail in this chapter. Policies listed that are italicized are set by federal or state law or by city code; all others are Public Works guidelines.

## **SEWER SERVICE POLICIES**

This section addresses the criteria used to establish adequate level of service standards for the City's sewer service.

### **Wastewater Treatment**

- *Waters of the state shall be of the highest possible quality. Regardless of the quality of the waters of the state, all wastes and other materials and substances proposed for discharge into said waters shall be provided with all known, available, and reasonable methods of treatment prior to discharge. (Washington State Administrative Code (WAC) 173-221-020)*
- *All treated wastewater to be used as reclaimed water should meet standards outlined in Chapter 90.46 Revised Code of Washington (RCW) and the Criteria for Sewage Works Design, Washington State Department of Ecology (Ecology), 1998. Whichever guidelines provide the more stringent requirements should govern.*
- *Treated effluent disposed to surface waters should also meet standards outlined in applicable state law and the criteria for Sewage Works Design, per Ecology, 1998. Whichever guidelines provide the more stringent requirements should govern.*
- The City shall endeavor to find the most cost effective, timely, reliable, and efficient wastewater treatment methods available.
- When treatment methods prove to be non-cost effective, timely, reliable and/or efficient, or another treatment method is more feasible, then alternative treatment methods should be explored, including, but not limited to, other existing facilities, new conventional facilities, lagoons, and drainfields.

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- Septic tanks and community drainfields may be used as an interim solution to central sewer systems in the following circumstances:
  - Access to the existing sewer system would require extensive pumping due to topography.
  - Access to the existing sewer system would require the extension of over 1 mile of sewer main. In this case, the development must install dry sewers and pay all connection charges at the time of the building permit.
- A proposed single-family residence on a single parcel must connect to the existing sewer system if a sewer main is within 300 feet of the property.

### Conservation

- *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 during a water shortage.
- Alternative sources of water, including, but not limited to, reclaimed water, shall be obtained if financially, environmentally, and physically feasible.

## SERVICE AREA POLICIES

### Annexations

- Areas annexed without existing collection facilities will be served by the City at the customers' expense unless accepted by City Council.
- In both annexations and existing service areas, the City's policy requires that sewer mains be extended across frontage to the far property boundary.
- The value of water resources on the plateau shall be considered when evaluating sewer service to new areas and to areas currently served by septic drain fields.
- Areas annexed with existing facilities must meet the City's sewer standards unless accepted by City Council.
- The City will follow state guidelines in the assumption of facilities in annexation areas.

### Service Area

- The City's sewer system shall serve all users of sewer within the City and within the City's SSA subject to appropriate statutes and ordinances, and subject to the limitations of the sewer collection system.

- New developments will be required to pay for system extensions. Provisions for latecomer agreements will be allowed.
- The City is the lead agency within its service area boundary as designated by applicable Pierce County (County) requirements and agreements.
- As lead agency, the City accepts ultimate responsibility for providing sewer service within its service area.
- The City will not provide sewer service to other utilities on a wholesale basis.

### FACILITY POLICIES

This section details the design criteria to be used to establish an optimum behavior level and a standard of quality for the sewer system.

#### Sewer Mains

- *All sewer designs should follow the standards outlined in the City's most current Development Policies and Public Works Design Standards Manual.*
- *All sewers shall be designed and constructed to have a mean velocity of not less than 2 feet per second (fps). These criteria shall apply for average day flows for the sewer at the time the facility is first brought online.*
- *Velocity in the force mains shall not exceed 8 fps. Optimum velocities for reducing maintenance costs and preventing accumulation of solids range between 3.5 and 5 fps. (Criteria for Sewage Works Design, Ecology, 1998.)*
- *Where velocities greater than 15 fps are expected, special provisions shall be made to protect against internal erosion. (Criteria for Sewage Works Design, Department of Ecology, 1998.)*
- *No sewer shall be less than 8 inches in diameter, except that, in special cases, the City may approve 6-inch diameter sewer lines.*
- *An "n" value of 0.013 shall be used in Manning's formula for the design of all sewer facilities (regardless of pipe material) except inverted siphons, where an "n" value of up to 0.015 can be used. (Criteria for Sewage Works Design, Department of Ecology, 1998.)*
- *Accepted material for sewers, such as ductile iron and PVC will be given consideration, but the material selected should be adapted to local conditions. (Criteria for Sewage Works Design, Department of Ecology, 1998.)*
- *All required separations from water mains, water supply wells, and other existing utilities are applicable. As outlined in the Criteria for Sewage Works Design, Department of Ecology, 1998.*

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### Lift Stations

- *Lift stations should be designed to allow the station to provide the peak design flow with the largest pump out of order.*
- *Lift station shall be designed by the City.*
- *Lift stations should be designed for the typical 20-year design life.*
- *The City will not assume maintenance responsibility for any additional grinder pressure sewer pumps. However, the City will consider maintaining additional pressure sewer mains located within right-of-ways.*

### Maintenance

- Equipment breakdown is given highest maintenance priority, and repairs should be made even if overtime labor is involved.
- Equipment should be replaced when it becomes obsolete.
- Worn parts should be repaired, replaced, or rebuilt before they represent a high failure probability.
- Equipment that is out-of-service should be returned to service as soon as possible.
- A preventive maintenance schedule shall be established for all facilities, equipment, and processes.
- Spare parts shall be stocked for all equipment items whose failure will impact the ability to meet other policy standards.
- Tools shall be obtained and maintained to repair all items whose failure will impact the ability to meet other policy standards.
- Dry, heated, shop space shall be available to all maintenance personnel to maintain facilities.
- All maintenance personnel shall be trained in the procedures and techniques necessary to efficiently perform their job descriptions.
- Written records and reports will be maintained on each facility, and item of equipment showing O&M history.

### Temporary and Emergency Services

- Compliance construction standards, but not quality standards, may be deferred for temporary sewer service.
- Compliance with standards may be deferred for emergency sewer service.

## **Reliability**

- The City shall ensure that the sewer system is constructed, operated, and maintained to protect against failures of power supply, treatment process, equipment, or structure with appropriate backup facilities.
- System demand planning will use historical customer data and assume that all available land will be developed at saturation.

## **Joint Use**

- All joint use facilities must comply with City policy and design standards.
- Joint use facilities will be pursued only in those areas that improve reliability or operating costs.

## **ORGANIZATIONAL POLICIES**

### **Structure**

- The sewer utility shall be operated as an “enterprise utility,” which means that it will be financially self-supporting.
- The Department of Public Services managers accomplish sewer utility management.
- The sewer utility shall operate to administer only the municipal sewer system. The sewer utility does not administer stormwater, water, and other utilities.
- The Department of Public Services performs sewer utility customer service (except for billings).
- The sewer utility has the responsibility for adequate system operation.
- Planning, design, O&M, and construction will be accomplished or overseen by the sewer utility.

### **Staffing**

- The sewer utility staffing levels are established by the City Council, based on the financial resources of the City and needs of the sewer utility.
- Personnel certification will comply with state established standards.

### **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.

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- The East Pierce Fire and Rescue District is responsible for emergency responses to hazardous events at sewer system facilities.
- The Police Department and Department of Public Services are responsible for enforcing violations of the City’s sewer ordinances.
- The Water Department is responsible for shutting off water service if a customer does not pay their sewer bill.
- The Sewer Department will participate in the implementation of the Water Department’s conservation program.

### Planning and Regional Participation

- The City will update the General Sewer Plan (as defined in WAC 173-240-020) and submit for approval from the state every 6 years.
- The City will review the General Sewer Plan every 2 years and update as necessary.
- The City will stay up-to-date on regional collection activities that reduce the cost of service and that improve reliability, service, and effluent quality.

## FINANCIAL POLICIES

- Rates and additional charges established for the City should be:
  1. *Cost-based* rates that recover historical, current, and future costs associated with the City’s sewer system and its services.
  2. *Equitable* charges to recover costs from sewer customers commensurate with the benefits they receive.
  3. *Adequate and stable* source of funds to cover the current and future annual cash needs of the sewer utility.
  4. *Easily understood* and administered by the customer.
- The existing customers of the City will pay the direct and indirect costs of operating and maintaining the sewer facilities through user rates. In addition, the user rates will include debt service incurred to finance the capital assets of the utility.
- To further improve the equitability of rates, the City will consider implementing a flow-based rate structure.
- New customers seeking to connect to the sewer system will be required to pay an “equitable share of system charge” or capital facilities charge for an equitable share of the cost of the system’s capital facilities plan. This revenue will be used to finance the Capital Facilities Program.



- The term “connection charge” refers to all capital facility charges, frontage charges, and any other charge for connecting to the City’s system, paid by a property owner when connecting to the sewer system.
- New and existing customers will be charged for extra services through a separate ancillary charge, based on the cost to provide the service. Ancillary charges can increase equitability and operating efficiency by discouraging unnecessary demand for services by the customers. Revenue from ancillary charges will be used to finance annual O&M.
- The City will maintain information systems that provide sufficient financial and statistical information to ensure conformance with rate-setting policies and objectives.
- There are two widely-used, generally-accepted methods for determining the total revenue requirements of a sewer utility; the cash basis and the utility basis. The sewer rates will be developed using the cash basis, which is a method commonly used by publicly-owned utilities.
- The user charges must be sufficient to provide cash for the expenses of operating and maintaining the utility. To ensure the fiscal and physical integrity of the utility, an amount should be set aside each year for capital expenditures from retained earnings. That is, an amount should be set aside to cover some portion of the depreciation of the physical plant. The amount may be transferred from the operating fund to the construction fund for general purposes or for specific purposes such as to create a reserve for main replacement.
- A working capital reserve will be maintained to cover unanticipated emergencies, bad debts, and fluctuations in cash flow. The cash reserve will be equal to 45 days for the operating fund, and 60 days or longer for the construction fund, based on the amounts being expended.
- Customers should be classified as single-family, multi-family, commercial, industrial, irrigation, and schools. These are the existing customer classes for the utility.
- The criteria used to project demand and size facilities will be based on the "worst case" comparison of historical or comprehensive planning statistics. This will result in conservative financial planning.
- The City will use generally accepted cost allocation principles for all cost allocation purposes.
- The sewer rates will be based on the cost of providing the sewer service. Service requirements relate to the total volume of water used, peak rates of use, and other factors.
- The City’s fees and charges should be calculated for the service area as a whole.
- The City will not discriminate between customers inside the City, as compared to customers outside the City.
- The City will charge customers for extra service through a separate ancillary charge, based on the cost to provide the service. The charges should be reviewed regularly and updated annually, based on increases in the Consumer Price Index for the City area.

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- The owners of properties which have not been assessed, charged, or borne an equitable share of the cost of the sewer collection and sewer treatment facilities, shall pay prior to connection to a sewer main one or more of four special charges:
  1. *Cost Recovery Agreements* – Cost recovery agreements are granted to developers, owners, and the City for the reimbursement of a pro rata portion of the original costs of sewer systems.
  2. *Special Assessment Charge* – The special assessment is a charge for the historical costs for the sewer collection system. This shall include the sewer collection mains that lie adjacent to or near properties that would benefit directly from sewer mains that were not installed by Local Improvement Districts (LIDs) or by a private developer under a Latecomers Agreement. The latecomers will pay an additional 10 percent administration fee.
  3. *Capital Facilities Charge* – The capital facilities charge shall be assessed against any property connecting to the sewer system. This charge is for the major facilities that deliver the sewage to a treatment facility, and for the facilities to treat and dispose of the sewage. This charge is for reimbursement of customers who have paid for the facilities described and for building capacity to accommodate growth.
  4. *Inspection and Approval Fees* – Inspection and approval fees will be based on a time-and-expense basis.