*City of Issaquah*

# Sanitary Sewer Master Plan

## March 2025

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# ACKNOWLEDGEMENTS

The Sanitary Sewer Master Plan was developed under the direct supervision of David Harms, PE of BHC Consultants, LLC.

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# ES Executive Summary

## ES.1 Introduction (Chapter 1)

The City of Issaquah's (City) Sanitary Sewer Master Plan (Plan) describes the City's existing collection system and examines system capacities to assess the impact of projected growth on available capacity. The Capital Improvement Program (CIP) identifies improvements necessary to accommodate the projected growth and enable the City to maintain a high level of service well into the future.

The Plan documents City policies and operations and maintenance practices. The policies chapter updates and expands City policies relating to new system connections, system capacity and operation of the collection system. Enhanced performance criteria are established in the Plan, for use in identifying system deficiencies and also as a basis for determining system capacity impacts from developer extensions.

This Plan was prepared in accordance with the requirements of the Washington State Department of Ecology (Ecology) as defined in Chapter 173-240-050 of the Washington Administrative Code (WAC) and Chapter 90.48 of the Revised Code of Washington (RCW).

## ES.2 Service Area Characteristics (Chapter 2)

Issaquah is located in King County, Washington east of Seattle, and near the south end of Lake Sammamish. The City is generally situated within three distinct topographic features, the lowland valley, the Lake Tradition and Grand Ridge plateaus, and the moderate to steep hillsides of Tiger, Squak, and Cougar Mountains adjacent to the valleys. The sewer service area encompasses these areas within the City, with the exception of the North Issaquah subarea, which is served by the Sammamish Plateau Water District (SPWD). The existing service area and surrounding utilities are illustrated in Figure ES-1.

A summary of the existing wastewater system service and planning area, water system facilities, surface water conditions, and other service area characteristics is presented in Chapter 2.

## ES.3 Population (Chapter 3)

The projected population for the City over the planning horizon of this Plan is presented in Table ES-1. Baseline and historic population data and growth rates were extracted from the Washington State Office of Financial Management (OFM) Small Area Estimates Program. Future population and employment estimates were provided by the Puget Sound Regional Council (PSRC). Straight-line interpolation was used between the baseline (2021) and year 2050 to estimate population and employment for the 6-year and 20-year targets (2028 and 2042).

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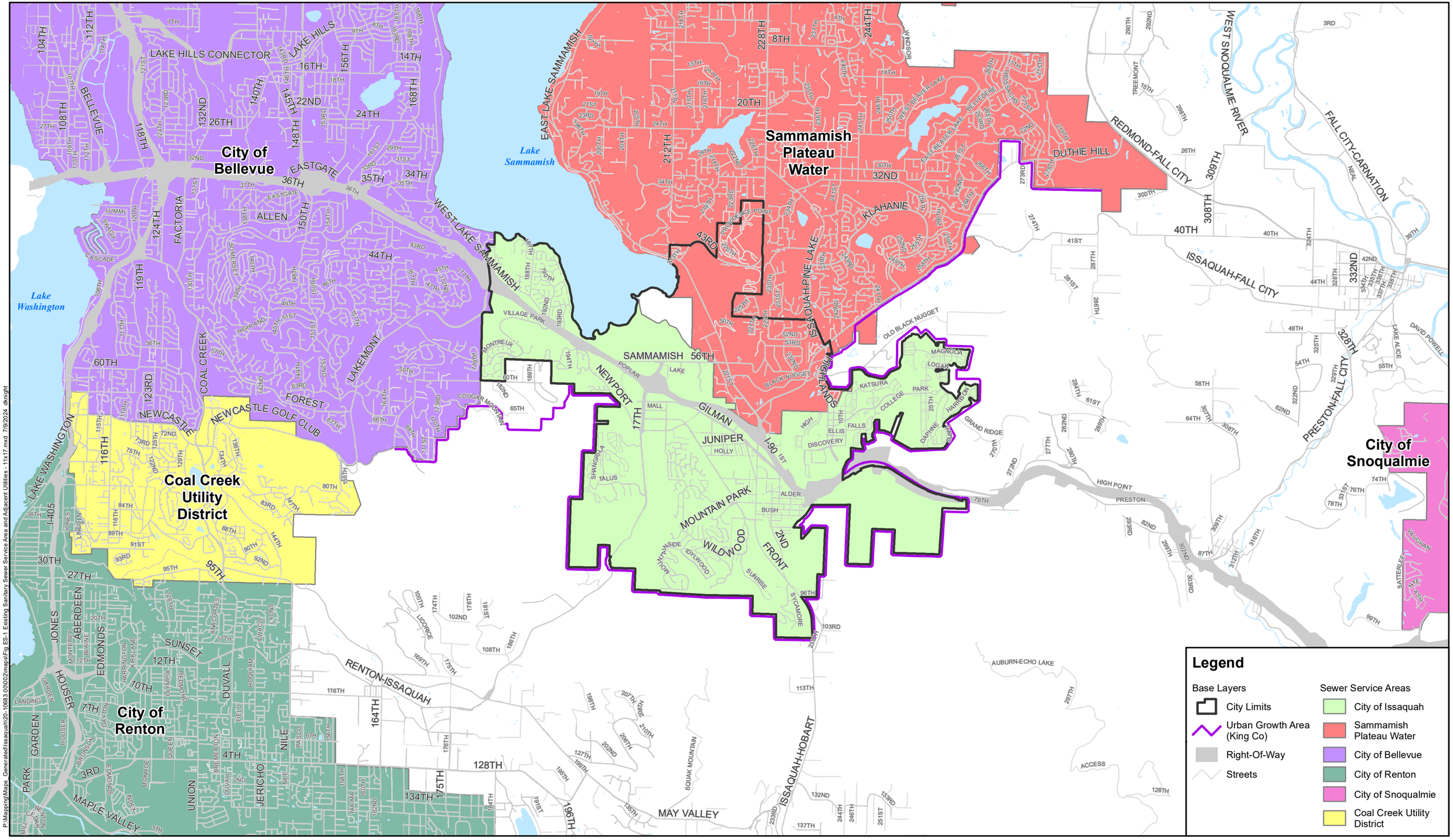


P:\Mapping\Maps Generated\Issaquah\20-10683.000002\maps\Fig ES-1 Existing Sanitary Sewer Service Area and Adjacent Utilities - 11x17.mxd 7/9/2024 dknight

Sewer System: City of Issaquah.
GIS Base data: King County.
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# Existing Sanitary Sewer Service Area and Adjacent Utilities

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**ES-1**

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**Table ES-1**
**Issaquah Sewer Service Area Population and Employment Estimates**

| Meter Basin ID | Baseline (2020 for Population and 2021 for Employment) | | 2028 (6-year CIP) | | 2042 (20-year CIP) | |
|---|---|---|---|---|---|---|
| | Population | Employment | Population | Employment | Population | Employment |
| MB1 | 3,847 | 8,656 | 3,980 | 9,209 | 4,214 | 10,314 |
| MB2 | 2,359 | 183 | 2,359 | 193 | 2,359 | 213 |
| MB3 | 431 | 2,420 | 1,428 | 3,260 | 3,171 | 4,939 |
| MB4 | 5,371 | 3,969 | 6,705 | 6,947 | 9,040 | 12,903 |
| MB5 | 4,001 | 416 | 4,204 | 682 | 4,560 | 1,215 |
| MB6 | 1,986 | 176 | 2,026 | 171 | 2,097 | 161 |
| MB7 | 1,480 | 1,182 | 1,665 | 1,459 | 1,988 | 2,013 |
| MB8 | 1,235 | 766 | 1,269 | 999 | 1,329 | 1,465 |
| MB9 | 12,907 | 3,544 | 12,983 | 4,942 | 13,115 | 7,738 |
| **Total** | **33,617** | **21,312** | **36,619** | **27,862** | **41,873** | **40,961** |

## ES.4 Regulations and Policies (Chapter 4)

The City manages and operates their sewer system in accordance with state, local, and federal regulations and in accordance with the Issaquah Municipal Code (IMC). The goals, policies and standards described in Chapter 4 provide a framework for the planning, design, operation, and management of the sewer system, to provide safe, reliable and timely service to customers, maintain reliable levels of service and ensure adequate capacity in support of new development. City policies and criteria identified in Chapter 4 are limited to the sewer system, including its design and operation, and include the following:

- Policy Goals and Comprehensive Master Plan Interface
- Pretreatment Requirements
- Sewer Master Plan Policies
- Sewer Extensions and Connections
- Septic-to-Sewer Policies
- Maintaining Sewer System Capacity:
  - Capacity Policy 6 – Inflow and Infiltration Capacity Impacts
  - Capacity Policy 7 – Developer Capacity Impacts
- Design and Construction Standards

## ES.5 Existing Wastewater Facilities (Chapter 5)

The City owns, operates, and maintains approximately 88 miles of sewer lines, including 2 miles of force main ranging in size from 2-inch to 6-inch diameter, 86 miles of gravity sewer ranging in size from 4-inch to 24-inch, and four lift stations. Pipe materials for the majority (82.6%) of the conveyance system are polyvinyl chloride (PVC) and reinforced concrete pipe (RCP), with several other piping materials comprising the rest of the piping.

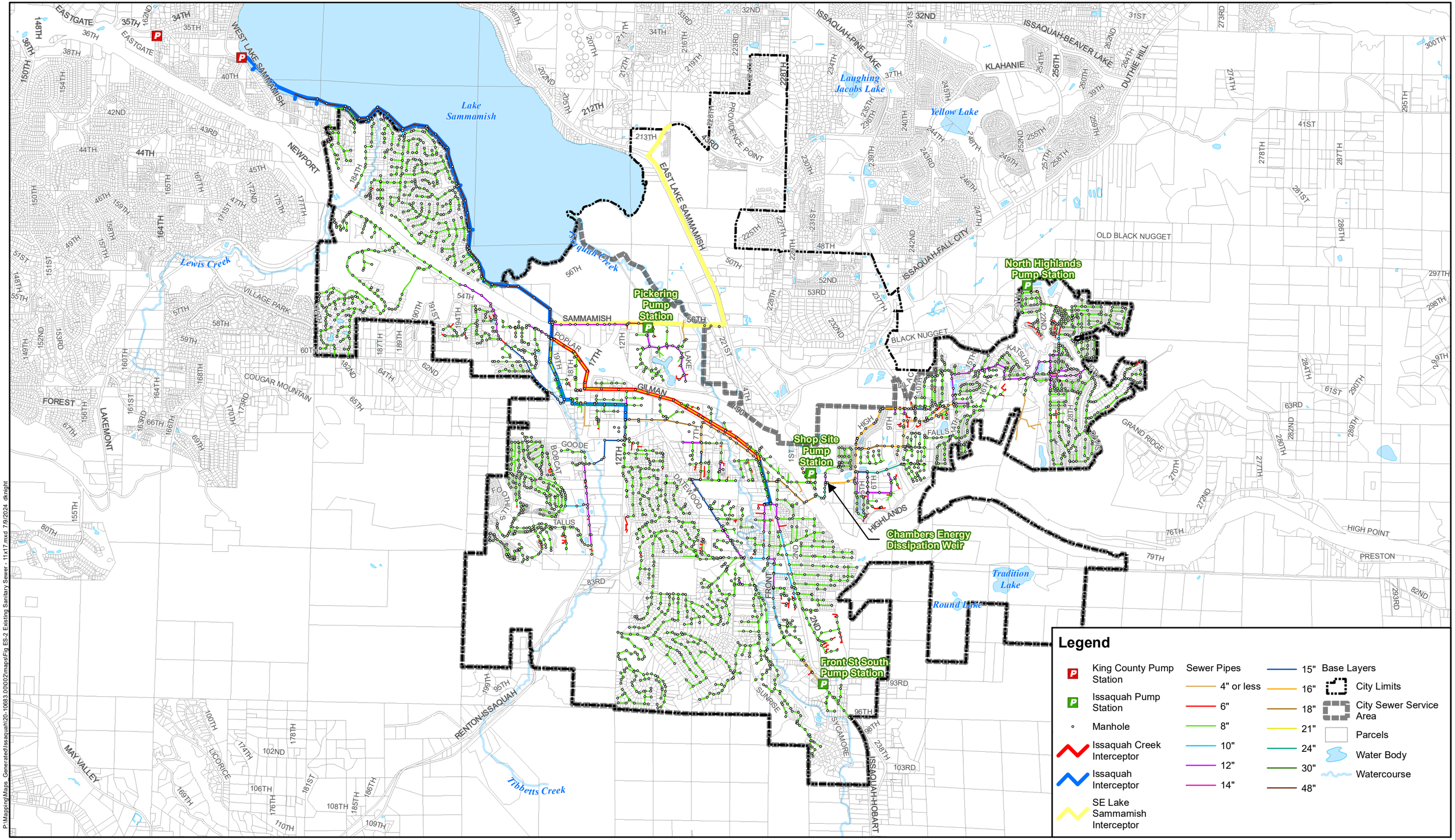
The City's sewer collection and conveyance system includes four active sewer lift stations:

- Front Street South Lift Station
- North Highlands Lift Station
- Pickering Sewer Lift Station
- Shop Site Sewer Lift Station

The system also includes an energy dissipation weir. The purpose of the weir is to dissipate energy in the sewer flow discharging from the Highlands, through the steep-sloped piping to the valley floor. The collection system transports wastewater to the King County Wastewater Treatment Division's (WTD) regional interceptor at multiple locations, including the downtown Issaquah collection system and South Cove neighborhood. The existing sewer system is illustrated in Figure ES-2.

## ES.6 Sewer Flow Characteristics (Chapter 6)

Sewer flow data recorded in the City's sewer collection system were analyzed to determine current sewer flow characteristics, including unit flows, diurnal flow variations, infiltration and inflow rates and peaking factors. This information was then processed with current population and employment data to develop the per capita flow rates which were then used to project future flows. The resulting unit and projected flows used to model the City's collection system are presented in Table ES-2.




## Legend

- King County Pump Station
- Issaquah Pump Station
- Manhole
- Issaquah Creek Interceptor
- Issaquah Interceptor
- SE Lake Sammamish Interceptor

**Sewer Pipes**
- 4" or less
- 6"
- 8"
- 10"
- 12"
- 14"
- 15"
- 16"
- 18"
- 21"
- 24"
- 30"
- 48"

**Base Layers**
- City Limits
- City Sewer Service Area
- Parcels
- Water Body
- Watercourse

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CITY OF ISSAQUAH WASHINGTON

# Existing Sanitary Sewer System

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**ES-2**

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## Table ES-2
## Summary of Unit Flows and Projected Flows

| Meter Basin ID | Sub-basin ID | Residential Flow (gpcd) | Employment Flow (gpcd) | 2020 Average Annual Flow[1] (GPD) | 2028 Average Annual Flow (GPD) | 2042 Average Annual Flow (GPD) | 2050 Average Annual Flow (GPD) |
|---|---|---|---|---|---|---|---|
| MB1 | 2736 – North | 65 | - | 199,286 | 207,931 | 223,011 | 231,786 |
| MB1 | 2736 – East | - | 10 | 90,916 | 96,446 | 107,496 | 113,816 |
| MB2 | 1974 | 65 | 10 | 163,715 | 163,815 | 164,015 | 164,135 |
| MB3 | ISSCK39A | 65 | 10 | 86,178 | 159,583 | 289,658 | 364,073 |
| MB4 | ISSAQ2 | 65 | 10 | 625,055 | 741,545 | 952,880 | 1,073,630 |
| MB5 | 2423 (2423–East) | 65 | 10 | 102,103 | 104,556 | 109,023 | 111,579 |
| MB5 | ISS015 (2423–West) | 65 | 10 | 132,047 | 145,449 | 169,452 | 183,196 |
| MB6 | 0249 | 65 | 10 | 130,882 | 133,432 | 137,947 | 142,247 |
| MB7 | 0990 | 65 | 10 | 170,130 | 184,925 | 211,460 | 226,645 |
| MB8 | 0962 | 65 | 10 | 83,822 | 88,362 | 96,922 | 101,792 |
| MB9 | 1703 | 65 | 10 | 1,025,526 | 1,044,446 | 1,080,986 | 1,101,906 |

Note:
1) Sewered residential population assumes no septic tanks in the City.

## ES.7 Sewer Conveyance System Analysis (Chapter 7)

This chapter presents the hydraulic analysis necessary for strategic, long-term infrastructure planning and development of the CIP included in Chapter 10. The City's conveyance system was analyzed using a truncated hydraulic model that simulates flow in the primary gravity trunk and interceptor mains. The extents of the truncated hydraulic model are illustrated in Figure ES-3. The wastewater conveyance system was analyzed using InfoSWMM modeling Software, by Innovyze. Flow projections from Chapter 6 were combined with an estimated increase of infiltration and inflow (I/I) over time (due to system degradation) to generate flows for analysis of system capacity in the existing, 6- (2028) and 20-year (2042) scenarios.

Model results for the existing, 2028 and the 2042 scenarios are illustrated in Chapter 7. Results indicate that most of the City's infrastructure is sufficient to handle the projected increase in flow rates through the planning horizon, with surcharging identified at three locations. CIP projects identified in Chapter 10 were developed to increase available capacity in the collection system and mitigate the surcharging identified from the analysis results.

## ES.8 Wastewater Reclamation and Reuse (Chapter 8)

This chapter describes standards for water reclamation and reuse. The City does not currently have any goals for reclaimed water production, as no opportunities for substantial beneficial use of reclaimed water have been identified.

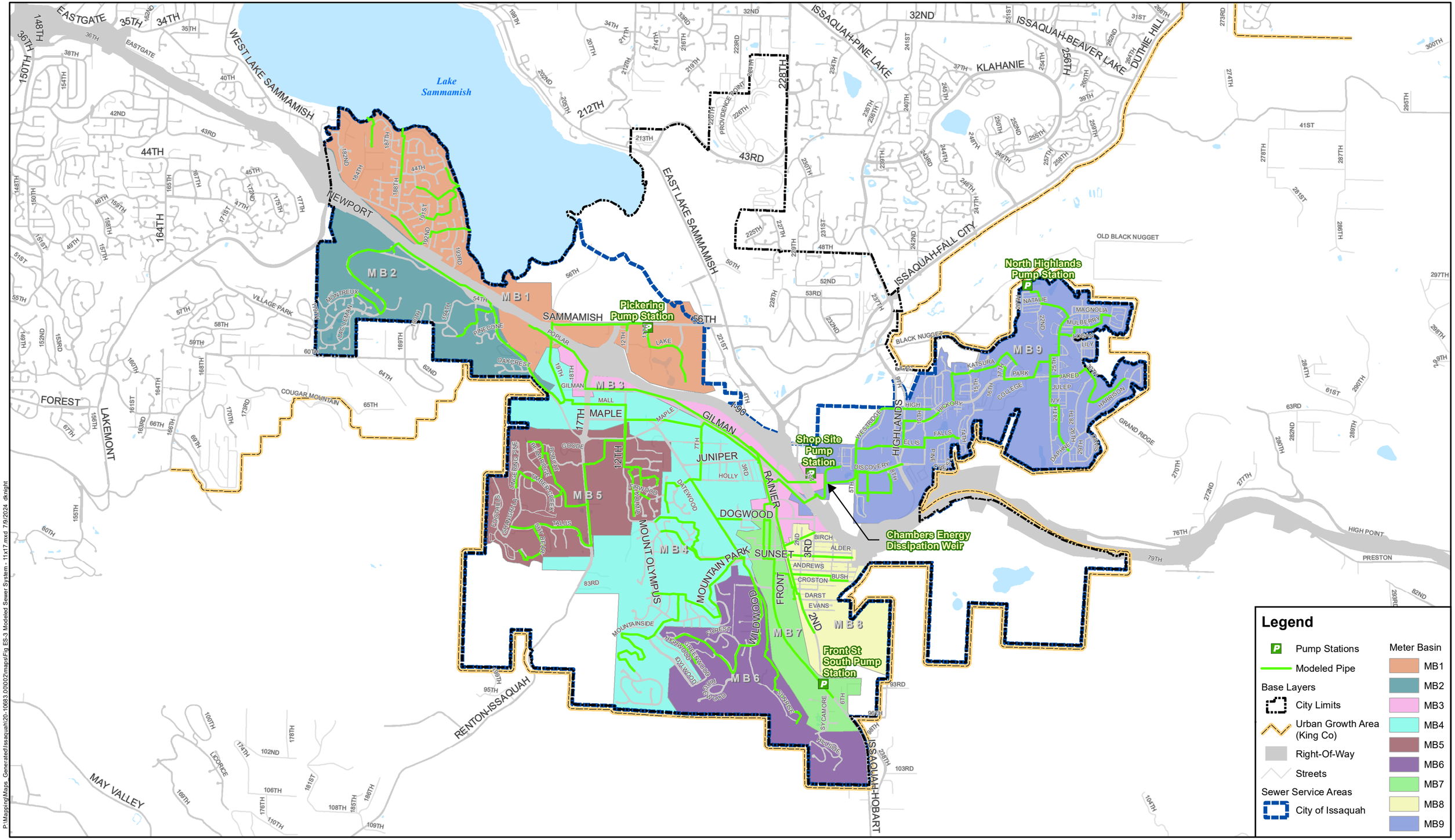
The King County WTD Regional Wastewater Services Plan (RWSP) was adopted in 1999. The RWSP outlines programs and projects through 2030 to increase wastewater system capacity and function, gives guidance on recovering and recycling beneficial resources from the wastewater treatment process, and provides direction on protecting and monitoring water quality and meeting permit conditions. The RWSP's major components and the policy areas most directly affecting Issaquah are summarized in Section 8.3 of that chapter and include conveyance system improvements and infiltration and inflow reduction. Examination of the feasibility of wastewater reuse in the City is beyond the scope of this Plan.

## ES.9 Operations and Maintenance (Chapter 9)

The City Public Works Director oversees Public Works Engineering (PWE) and Public Works Operations (PWO), which work together to manage, operate and maintain the sewer collection system. The City's Public Works Department has 66 full-time equivalent employees (FTE) that perform operations and maintenance activities on all City utilities, including sewer, water, storm and surface water, and roads.

PWO staff are responsible for the operation and maintenance of the sewer collection system piping, lift stations, and discharges to the regional County system. PWE staff are responsible for design and construction projects related to maintenance of system conveyance and capacity. Sewer utility billing services are managed by the Finance Department.

The Public Works Department workload is shared between utilities, with approximately 2.78 FTEs performing sewer collection system work and operating and maintaining the lift stations. For comparative purposes, the City has approximately 0.6 maintenance staff per 100,000 linear feet of pipe (average = 0.8 for similar utilities) and 0.7 maintenance staff per lift station (average = 0.42 for similar utilities).




P:\Mapping\Maps_Generated\Issaquah\20-10683.00002\maps\Fig ES-3 Modeled Sewer System - 11x17.mxd 7/9/2024 dknight

Sewer System: City of Issaquah.
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CITY OF ISSAQUAH WASHINGTON

# Modeled Sewer System

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**ES-3**

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The City is proactive in managing operations and maintenance procedures, performing regular maintenance, and in responding to critical maintenance issues. Specific improvements are therefore not identified herein. It is recommended, however, to increase total operations and maintenance staffing, based on staffing comparisons with similar utilities.

## ES.10 Capital Improvement Program (Chapter 10)

The City's CIP incorporates recommended improvements identified through the collection system hydraulic modeling analysis to provide additional capacity where deficiencies are identified. Five CIP projects have been identified in this Plan, as illustrated in Table ES-3.

Implementation of the CIP projects will be determined based on a number of factors, including an increase in flows and/or necessary rehabilitation of aging infrastructure. Timing of projects may also depend on coordination with other utility projects, such as transportation, water or stormwater utility improvements. Actual costs can and will differ from the opinions of probable costs. Volatility in the bidding climate, the number of contractors bidding on a project, and their approach to bidding and completing the work will all impact actual project costs.

## Table ES-3
## Capital Improvement Projects

| Basin | Project No. | Project Description | Opinion of Probable Project Cost[2] | Planning Horizon |
|---|---|---|---|---|
| MB6/ MB4 | CIP 1A[1,2] | Perform field I/I investigation in MB 6, upstream of CIP 1A, 1B and 2. Replace and/or upsize the gravity sewer trunk on Newport Way SW between Wildwood Boulevard SW and West Sunset Way. | $ 1,826,000 | 5-10 year (2025-2030) |
| MB4 | CIP 1B[1] | Replace and/or upsize the gravity sewer trunk on Newport Way NW between West Sunset Way to NW Dogwood Street. | $ 2,893,000 | 30-year (2020-2050) |
| MB4 | CIP 2[1] | Replace and/or upsize the gravity sewer trunk on 7th Avenue NW between NW Maple Street and NW Juniper Street and NW Maple Street between 12th Avenue NW and 7th Avenue NW. | $ 7,384,000 | 30-year (2020-2050) |
| MB9 | CIP 3[3] | Replace and/or upsize the gravity sewer trunk on 5th Place NE between NE Ellis Drive and just south of NE Discovery Drive. | $ 2,039,000 | 30-year (2020-2050) |
| | | **Total Projected Project Costs** | **$ 14,142,000** | |

Notes:
1) Indicates field I/I investigation (CIP 1A) is required/recommended prior to project implementation.
2) Costs are not escalated for future construction.
3) The cost for performing I/I investigation is $75,000 and for upsizing the gravity sewer trunk on Newport Way SW is $1,751,000. Detailed information on cost estimate is present in Appendix I.

# Chapter 1 Introduction

The City of Issaquah (City) 2025 Sanitary Sewer Master Plan (Plan) updates the City's 2002 Sewer System Plan and the 2014 Plan update that was not finalized. This Plan provides the City with a guide for managing, operating, and maintaining the sewer collection system. The Plan facilitates coordination of upgrades and expansions of the infrastructure to meet the needs of existing and future customers through the 20-year planning scenario. The Plan also serves as a guide for policy development and decision-making processes for the City.

Many changes and improvements affecting wastewater system planning have taken place within the City's service area since the last two planning efforts were performed. These changes include:

- Continued growth in Issaquah's service area, mainly in the Highlands and Talus neighborhoods
- The 2010 and 2020 King County Decennial Flow Monitoring Programs
- Significant zoning changes adopted by the City
- City of Issaquah Comprehensive Plan updates

This Plan identifies capital improvements for the 6-year planning period and defines longer-term system planning goals and service criteria consistent with regional land use and wastewater planning issues. As regulations and conditions change, periodic review and revision of this Plan will be appropriate and necessary to reflect such changes. Population, growth, and development trends must also be monitored to assess whether the actual trends differ significantly from projections in this Plan and whether these differences significantly affect proposed improvements.

## 1.1 Purpose and Objectives

The purpose of this Plan is to update the previous two planning efforts and develop new 6- and 20-year planning projections for growth; identify updated Capital Improvement Projects (CIP) projects to resolve deficiencies and to maintain adequate capacity in the sewer system. This Plan also provides the public and regulatory agencies with current information on the City's operation, policies, and plans for sewer system upgrades.

The Plan is prepared for the City to fulfill the requirements of Chapter 173-240-050 of the Washington Administrative Code (WAC), Chapter 90.48 of the Revised Code of Washington (RCW), and RCW 36.70A (Growth Management Act). The WAC requirements and their corresponding locations within this Plan are identified in Table 1-1.

The objectives of this Plan are as follows:

- Develop population and related flow projections within the City's sewer service area.
- Update and expand the City's sewer system hydraulic model using InfoSWMM modeling software and the City's GIS database.
- Collect flow meter data at key points in the collection system piping for both dry and wet weather conditions. Calibrate the model to the collected meter data.

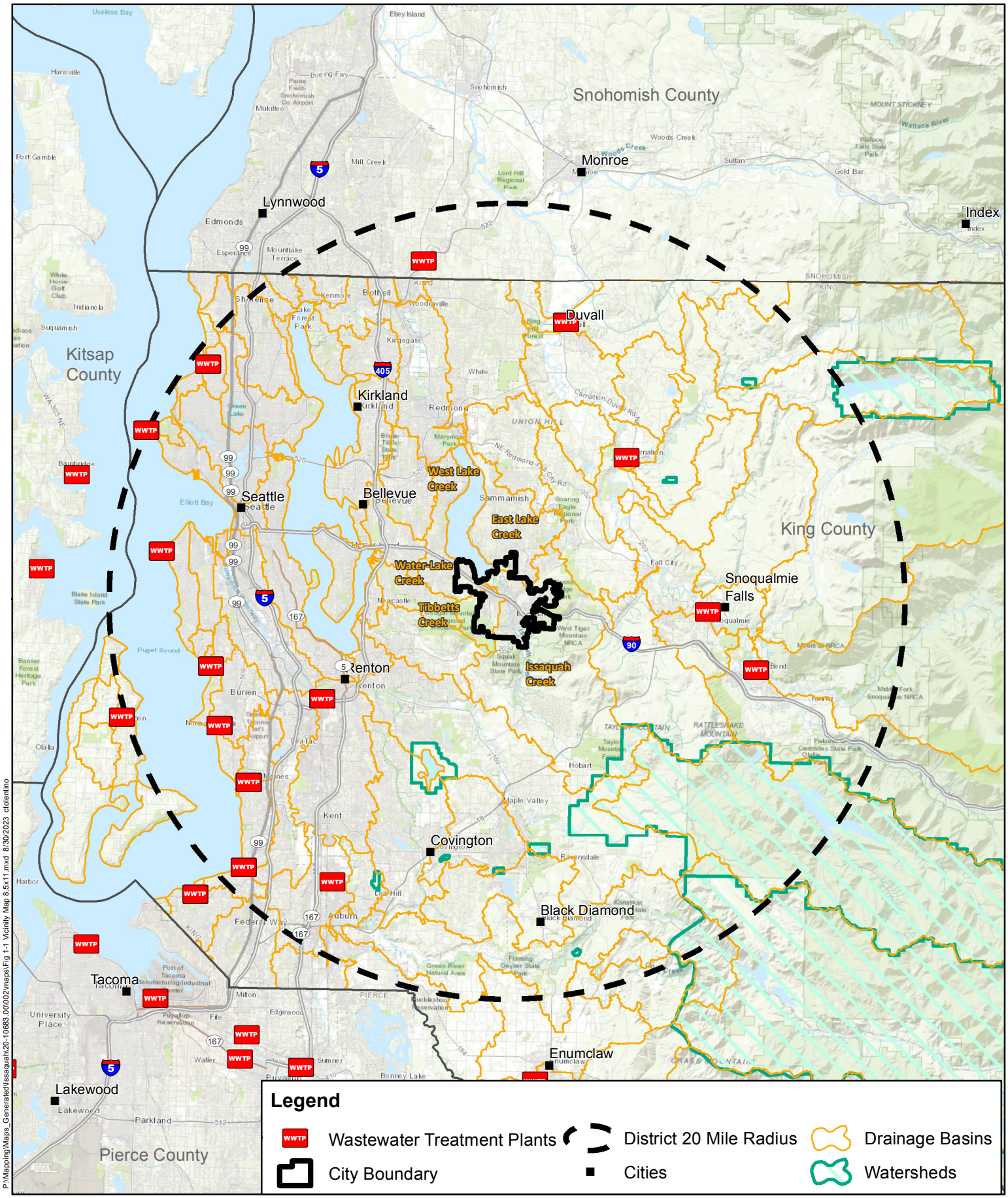
- Establish updated performance criteria for use in identifying system deficiencies and also as a basis for determining system capacity impacts from developer extensions.
- Analyze the existing sewer system for existing and projected flow conditions to identify potential deficiencies and related timing.
- Develop a prioritized capital improvement program (CIP).
- Review and update City policies governing:
  - On-site Septic Systems (OSS).
  - Fats Oils and Grease (FOG).
  - Water Quality.
  - Sewer Extensions and Connections.
  - Inflow and Infiltration Capacity Impacts Thresholds.
  - System Performance Criteria and developer contributions to the City's sewer conveyance system.
- Provide a current summary of City operations and maintenance activities for the sewer system and determine appropriate staffing levels.

## 1.2 Ownership and Management

The City is a municipal corporation that owns and operates a public wastewater collection system. The system is funded through wastewater rates and general facility charges. These revenues pay for current operating expenses, maintenance of the system, replacement, and/or emergency repairs and provide for future capital improvements. Wastewater system management and administration is provided by the City Public Works Department and includes operation, repair, and maintenance of the collection system, major improvements and development, engineering design and construction, administrative support, accounting and financial services, billing, and collection.

The City uses a Mayor-Council form of government. The Mayor oversees the management of the Public Works Department through the Public Works Director. The Public Works department is divided into the two main areas of Engineering and Operations. Engineering is further organized into Utilities Engineering and Transportation Engineering, overseeing the planning, design, and construction of sewer collection system and the other City utilities. Operations is further organized into Storm/Sewer, Water, and Street Operations, responsible for maintaining and operating the sewer collection system that discharges to the King County Regional Collection System, and into the other City utilities.

The City does not own or operate a wastewater treatment plant (WWTP). Rather, wastewater is conveyed to various King County (County) owned interceptors within the wastewater service area and the County is contracted for further conveyance and treatment. All of Issaquah's wastewater is ultimately transported and treated at the King County South Treatment Plant in Renton. Figure 1-1 illustrates the City boundary and wastewater treatment plant facilities within a 20-mile radius.




P:\Mapping\Maps_Generated\Issaquah\20-10683.00\002\maps\Fig 1-1 Vicinity Map 8.5x11.mxd 8/30/2023 ctolentino

GIS Data: Midway Sewer District & King County.
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CITY OF ISSAQUAH WASHINGTON

# VICINITY MAP

Sewer Master Plan
City of Issaquah, Washington
September 2023

Figure
**1-1**

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## 1.3 Regulatory Requirements

Several local, state, and federal regulatory requirements guide the planning, operation, design, and construction of wastewater collection systems, as described in the following sections.

### 1.3.1 Department of Ecology

This Plan was prepared in accordance with the requirements of the Washington State Department of Ecology (Ecology) as defined in Chapter 173-240-050 of the Washington Administrative Code (WAC) and Chapter 90.48 of the Revised Code of Washington (RCW). The WAC requirements are outlined in Table 1-1 and include locations within this document where they are addressed.

**Table 1-1**
**Comprehensive Sewer Plan Requirements per WAC 173-240-050**

| Reference Paragraph | Description of Requirement | Location in Document |
|---|---|---|
| 3a | Purpose and need for proposed plan | Section 1.1 |
| 3b | Who will own, operate, and maintain system | Section 1.2 |
| 3c | Existing and proposed service boundaries | Figure 2-1 |
| 3d | Layout map showing boundaries; existing and proposed sewers; existing and proposed lift stations and force mains; topography; streams, lakes; water systems | Chapter 2, Chapter 7, Chapter 10 |
| 3e | Population trends | Chapter 3 |
| 3f | Existing domestic and/or industrial wastewater facilities within 20 miles and within the same topographical drainage basin. | Figure 1-1 |
| 3g | Inflow and infiltration problems | Chapter 6, 7 |
| 3h | Treatment systems and adequacy of such treatment | N/A (Treatment by County) |
| 3i | Identify industrial wastewater sources | Chapter 6 |
| 3k | Discussion of treatment facilities | Section 2.3.4 |
| 3k | Discussion of collection alternatives | Chapter 7 |
| 3k | Discussion of disposal alternatives | Section 2.6 |
| 3l | Define construction cost and Operations and Maintenance (O&M) costs | Chapter 10, 11, Appendix I, J |
| 3m | Compliance with management plan | N/A |
| 3n | SEPA compliance | Appendix D |

Consideration of reclaimed water (RCW 90.48.112) and consideration of water conservation measures (RCW 90.48.495) are discussed in Chapter 8. These are also discussed more thoroughly in the City's Water System Plan.

### 1.3.2 Growth Management Act

The State of Washington adopted the Growth Management Act (GMA) (RCW 36.70A) with the intent of concentrating most new development and population gains within the urban areas of the more populous and rapidly growing counties. State and local (primarily county and city) governments are required to define an urban growth area boundary within which urban services like sewers are provided and commit to serving the wastewater needs of the planned growth that will occur within the urban boundary. Any new parcels created outside that boundary must be at a very low density with sufficient acreage to support on-site sewage disposal systems conforming to Washington State Department of Health (DOH) regulations. The GMA therefore has a direct impact on utility system planning with an emphasis toward determining the capability of existing systems to accommodate future growth.

The entire City is within the King County Urban Growth Area (UGA) boundary, and as such, an urban level of service is to be provided to all areas within the City. There are pockets of unsewered areas throughout the City where sewer service is anticipated in the future. GMA planning goals require the provision of urban levels of service for development within the UGA. As on-site sewage disposal systems fail, or as required by development, the City will satisfy property owner requests for sanitary sewer service as identified in Chapter 4.

### 1.3.3 King County

The 2016 King County Comprehensive Plan is the County's land use planning document that defines growth strategies for achieving the Growth Management Act's 13 planning goals. The first plan was adopted in 1994 and the 2016 Plan was last updated December 6, 2022. Chapter 9 of the King County Comprehensive Plan addresses services, facilities, and utilities, including public wastewater systems, and supports the Phase 1 Countywide Planning Policies and the Phase II amendments finalized in May 1994. The County is currently undergoing the once-a-decade update to its Comprehensive Plan, which is anticipated to be adopted in 2024.

Title 13 of the King County Code sets requirements for water and sewer systems, including review guidelines and consideration of reclaimed water. Title 13 requires sewer and water comprehensive plans to consider opportunities for reclaimed water. Issaquah does not operate a WWTP so providing reclaimed water through wastewater treatment is not viable. This 2025 Plan Update will be reviewed by the County's Utility Technical Review Committee (UTRC) per the requirements in Title 13. This 2025 Plan Update is consistent with the strategy and policies presented in King County's documents.

## 1.4 Plan Organization and Contents

This Plan defines the current service area, wastewater collection system basins and existing infrastructure; defines the projected service population and resulting wastewater flows; describes City policies governing transition of on-site septic system to the City sewer system, fats oils and grease management, water quality sampling and maintenance of sewer system capacity; summarizes operations and maintenance procedures and practices and presents proposed improvements to upgrade existing facilities and provide adequate wastewater service to existing and future customers within the City's service area.

Specific components included in this Plan are identified below.

### Introduction (Chapter 1)

- Purpose and objectives of the City's Sanitary Sewer Master Plan.
- Regulatory requirements of the wastewater system and planning process.
- Overview of the Plan contents and glossary of terms and abbreviations.

### Service Area Characteristics (Chapter 2)

- Defines the existing service area and wastewater planning area boundaries and the geographical features and resources within these boundaries.
- Discusses the relationship with King County and other wastewater system providers.
- Describes the City's wastewater system and facilities.
- Documents land use and zoning throughout the service and planning areas.
- Summarizes the City's water system and facilities.

### Population (Chapter 3)

- Documents existing and future population and employment estimates.

### Regulations and Policies (Chapter 4)

- Describes the Sanitary Sewer Master Plan Policies.
- Summarizes regulations and permitting relevant to the wastewater system and planning.
- Describes the City's Fats, Oils, and Grease (FOG) Program.
- Describes the On-Site Septic (OSS) Code Revisions.
- Describes the policy to maintain sewer system capacity, for impacts from inflow and infiltration, and from new developments.
- Summarizes the Design and Construction Standards requirements for City sewer system improvements and extensions.

### Existing Wastewater Facilities (Chapter 5)

- Describes the existing wastewater system facilities and provides an inventory of the wastewater collection system basins, sewer mains, and lift stations.

### Sewer Flow Characteristics (Chapter 6)

- Describes existing wastewater facilities by basin and water meter data and wastewater data for all basins are summarized.
- Estimates current and future wastewater flows for Issaquah's wastewater system based on current usage and future population estimates.

### Sewer Conveyance System Analysis (Chapter 7)

- Summarizes efforts to analyze the system using a hydraulic and hydrologic wastewater model.

- Presents recommended improvements by wastewater basins.
- Provides figures of all the existing wastewater facilities and recommended improvements.

### Wastewater Reclamation and Reuse (Chapter 8)

- Presents accepted design criteria standards and discusses King County Wastewater Treatment Division's (WTD) policies for future regional wastewater service, which include inflow and infiltration (I/I), conveyance system improvements, and reclaimed water.
- Discusses the impacts of water conservation on the City's wastewater system.

### Operations and Maintenance (Chapter 9)

- Describes departmental management structure, staff position descriptions, and staffing levels.
- Documents maintenance problems, describes the City's wastewater system inspection program and recordkeeping methods, and discusses operation and maintenance staff.
- Presents an evaluation and condition assessment of the City's lift stations.
- Describes improvements to be made to the existing O&M Program.

### Capital Improvement Program (Chapter 10)

- Summarizes the recommended infrastructure improvements identified in the wastewater system evaluation for each basin.
- Identifies costs of the improvements and presents capital funding sources.

### Financial Program (Chapter 11)

- Identifies the City's approach to financing the operations and maintenance of the wastewater system along with financing the Capital Improvement Program identified in Chapter 10.
- Introduces the financial analysis contained in Appendix J.

## 1.5 Glossary of Terms and Abbreviations

The following terms and abbreviations are used in this Plan:

| | |
|---|---|
| AADF | Average Annual Flow, or Average Daily Flow. This flow condition captured all daily flows during the year. |
| AAF | Average Annual Flow. This flow condition is defined as the average flow during the year. |
| AC | Asbestos Cement |
| ac-ft/year | Acre Foot per Year |
| ADWF | Average Dry Weather Flow. This flow condition is defined as the average of each flow meter for a period during the month of October. |
| AWWF | Average Wet Weather Flow. The average flow from the months of November through March. All flows during this period are summarized regardless of the amount of precipitation. |

| | |
|---|---|
| Basin | An area that is served, or will be served, by a specific part of a wastewater system. Basins generally correspond to natural drainage areas. |
| BOD | Biochemical Oxygen Demand |
| BMP | Best Management Practices |
| CAD | Computer-Aided Design |
| CARA | Critical Aquifer Recharge Area |
| Cascade | Cascade Water Alliance |
| CCS | Central Computer System |
| CCTV | Closed-Circuit Television |
| CI | Cast Iron |
| CIP | Capital Improvement Program |
| City | City of Issaquah |
| CMOM | Capacity, Management, Operation, and Maintenance |
| County | King County |
| CPP | Corrugated HDPE |
| CWA | Cascade Water Alliance |
| d/D | Depth to Diameter |
| DFM | Decennial Flow Monitoring |
| DI | Ductile Iron |
| DOH | Washington State Department of Health |
| DWF | Dry Weather Flow, or Domestic Flow. An estimation of wastewater flow with little to no I/I contribution. |
| Ecology | Washington State Department of Ecology |
| EPA | United States Environmental Protection Agency |
| ERU | Equivalent Residential Units |
| ESD | Washington State Employment Security Department |
| FAR | Floor-to-Area Ratio |
| FOG | Fats, Oils, and Grease |
| FM | Force Main. A pipe that transports wastewater under pressure delivered by a wastewater pump. |
| FRC | Fast Response Component |
| FTE | Full Time Equivalent Employee |

| | |
|---|---|
| Full-Service Area | Defined by King County as areas where water supply is available and where public wastewater systems are available now or will be provided in the next six years. |
| GIS | Geographic Information System |
| GMA | Growth Management Act |
| gpad | gallons per acre day |
| gpcd | gallons per capita per day |
| gpd | gallons per day |
| gpm | gallons per minute |
| GWP | General Wastewater Plan |
| HB | House Bill |
| HDPE | High Density Polyethylene |
| I/I | Combined total of infiltration and inflow without distinction between the two. |
| ILA | Interlocal Agreement |
| IMC | Issaquah Municipal Code |
| Impact and Planning Area | Area outside of the city limits that is anticipated to be served by the City. |
| Infiltration | Groundwater that enters a wastewater collection system through fractured or defective pipes, leaking pipe joints, leaking manholes, and other defects. |
| Inflow | Stormwater runoff that directly enters a wastewater collection system from roof, street, and other drains, perforated or leaking manhole covers, and other sources. Water from foundation drains is also considered inflow. |
| KCBOH | King County Board of Health |
| King County WTD | King County Department of Natural Resources Wastewater Treatment Division (formerly the Municipality of Metropolitan Seattle or Metro). |
| LF | Lineal Feet |
| LID | Local Improvement District |
| LS | Lift Station |
| MG | Milligrams |
| mgd | million gallons per day |
| mg/L | Milligrams per Liter |
| MH | Manhole |

| | |
|---|---|
| MMF | Maximum Month Flow. This flow condition is defined as the highest monthly average flow. |
| MOU | Memorandums of Understanding |
| MWL | Municipal Water Supply – Efficiency Requirements Act Chapter 5, commonly known as the "Municipal Water Law." It was adopted in 2003 and includes requirements for water and wastewater master planning. |
| MIKE URBAN | Danish Hydraulic Institute Software. This is the software used for the hydraulic and hydrologic model simulations. |
| NASSCO | National Association of Sewer Service Companies |
| NESSWD | Northeast Sammamish Sewer and Water District |
| NPDES | National Pollution Discharge Elimination System. As authorized by the Clean Water Act, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. |
| O&M | Operation and Maintenance |
| OFM | Washington State Office of Financial Management |
| OPPC | Opinion of Probable Project Cost |
| OSS | On-Site Sewage |
| PACP | Pipeline Assessment Certification Program |
| PDF | Peak Day Flow. This flow condition is defined as the maximum daily flow during the months of October to April. |
| Peak Design Flow | Estimated wastewater flow in the system during a 100-year flow-event. |
| PHF | Peak Hour Flow. This flow condition is defined as the maximum hourly flow during the months of October to April. |
| Plan | Sanitary Sewer Master Plan |
| POTW | Publicly Owned Treatment Works |
| PPCP | Pharmaceutical and Personal Care Product |
| PSRC | Puget Sound Regional Council |
| Purple Book | Department of Ecology Reclaimed Water Facilities Manual |
| PVC | Polyvinyl Chloride |
| PWE | Public Works Engineering |
| PWO | Public Works Operations |
| Qa | Annual Quantity |

| | |
|---|---|
| Qi | Instantaneous Quantity |
| RCP | Reinforced Concrete Pipe |
| RCW | Revised Code of Washington |
| RDI | Rainfall Dependent Infiltration and Inflow |
| RDII | Rainfall Derived Infiltration and Inflow |
| RGS/RTP | Regional Growth Strategy via the Regional Transportation Plan |
| RTU | Remote Telemetry Units |
| RWSP | Regional Wastewater Services Plan |
| SAEP | Small Area Estimates Program |
| SCADA | Supervisory Control and Data Acquisition |
| SEPA | State Environmental Policy Act. A law of the State of Washington that requires identification of environmental impacts for proposed projects and actions. General Wastewater Plans are subject to review under this law. |
| Sewer | A pipe or conduit generally closed but normally not flowing full, for carrying wastewater. |
| Service Planning Area | Defined by King County as the area within Issaquah's urban growth area that will ultimately receive wastewater service. |
| Service Area | The area currently served by wastewater collection system. |
| SFR | Single-family Residential |
| SPU | Seattle Public Utilities |
| SPWD | Sammamish Plateau Water District |
| SRC | Slow Response Component |
| SSO | Sanitary Sewer Overflow |
| SSOAP | Sanitary Sewer Overflow Analysis and Planning |
| TDR | Transfer of Density Rights |
| TOC | Toxic Organic Compounds |
| TSS | Total Suspended Solids |
| Urban Area | King County defines as an area with a land use classification of urban that is further classified as Full-Service Area or Service Planning Area. |
| UGA | Urban Growth Area |
| UGMA | Urban Growth Management Area |

| | |
|---|---|
| UPD | Urban Planned Developments. These are land developments within the UGA involving a public review process with the intent of mutual benefit to public and private interests. |
| USDA | United States Department of Agriculture |
| UST | Utility System Technician |
| UTRC | Utility Technical Review Committee, King County |
| VCP | Vitrified Clay Pipe |
| WAC | Washington Administrative Code |
| WSDOT | Washington State Department of Transportation |
| WTD | Wastewater Treatment Division |
| WW | Wastewater resulting from residential, commercial, and industrial water use, exclusive of irrigation. |
| WWTP | Wastewater Treatment Plant |

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# Chapter 2 Service Area Characteristics

Chapter 2 provides a summary of the existing wastewater system service and planning area, water system facilities, surface water conditions, and other service area characteristics.

## 2.1 Background

The City of Issaquah (City) is located in King County, Washington, east of Seattle, and near the south end of Lake Sammamish. It is bordered by the Sammamish Plateau to the north and the Issaquah Alps to the south and east. Located in the east Puget Sound basin at the base of the Cascades foothills, Issaquah has a long history. The area originally developed to service the mining industry on neighboring Tiger Mountain. The Issaquah area was initially referred to as "IsSquak", in reference to the calls and squawks of the water birds that frequented the valley. The town's name changed to Gilman a few years later. After incorporation in 1892 as the Town of Gilman, the name was changed to Issaquah in 1899. More recently, the City has served largely as a residential community to the greater Seattle/Bellevue metro area, although the City itself has seen significant commercial growth lately.

The City's residential population has also grown considerably in recent years. The population has more than tripled in size from 9,025 in 1995 to 30,434 at the 2010 census. Continuing its rapid growth, the City expanded to a population of 39,344 in 2022. The portion of the population within the City wastewater system service area is presented in Chapter 3. Much of the City's rapid growth has occurred through annexation of surrounding areas, including the Issaquah Highlands, Talus, South Cove, and Montreux. The City's current city boundary is 7,754 acres.

The majority of the City's sewer system was built between 1969 and 1979. The City's wastewater collection facilities include gravity sewers, sewer force mains, and lift stations that convey wastewater to the Metro/Northwest Sammamish Interceptor. The wastewater is subsequently pumped through a series of interceptors and lift stations to King County's South Treatment Plant in Renton, Washington.

The sewer service area is situated between the Issaquah Alps (Cougar, Squak, and Tiger Mountains), and south Lake Sammamish. Over the past 20 years, significant growth of residential subdivisions has occurred on the adjacent surrounding hillsides and plateaus, including development of the Issaquah Highlands and Talus communities, much of it occurring between 2000 and 2010. Most of the "Greenfields" associated with this development are gone. The City is now directing development to focus on infill areas of smaller sites on the valley floor and redevelopment of lower density areas to more intensive uses.

While recent residential development has primarily occurred on the plateaus and hillsides, commercial development has been concentrated to the Olde Town region, Gilman Boulevard, East Lake Sammamish Parkway and SE 56th Street (North of Interstate 90), and within the Highlands development. While commercial development has contributed to the expansion of the sewer system, most growth has come from the development of residential areas.

The existing sewer service area for the City is shown on Figure 2-1, Existing Sanitary Sewer Service Area and Adjacent Utilities. The area shown in Figure 2-1, outside of City limits but within the Urban Growth Area, located south of the western portion of the City, will be served by the City as it develops. The City has a code prohibiting extending service outside the City's limits or service area, per Issaquah Municipal Code (IMC) 13.88.010.

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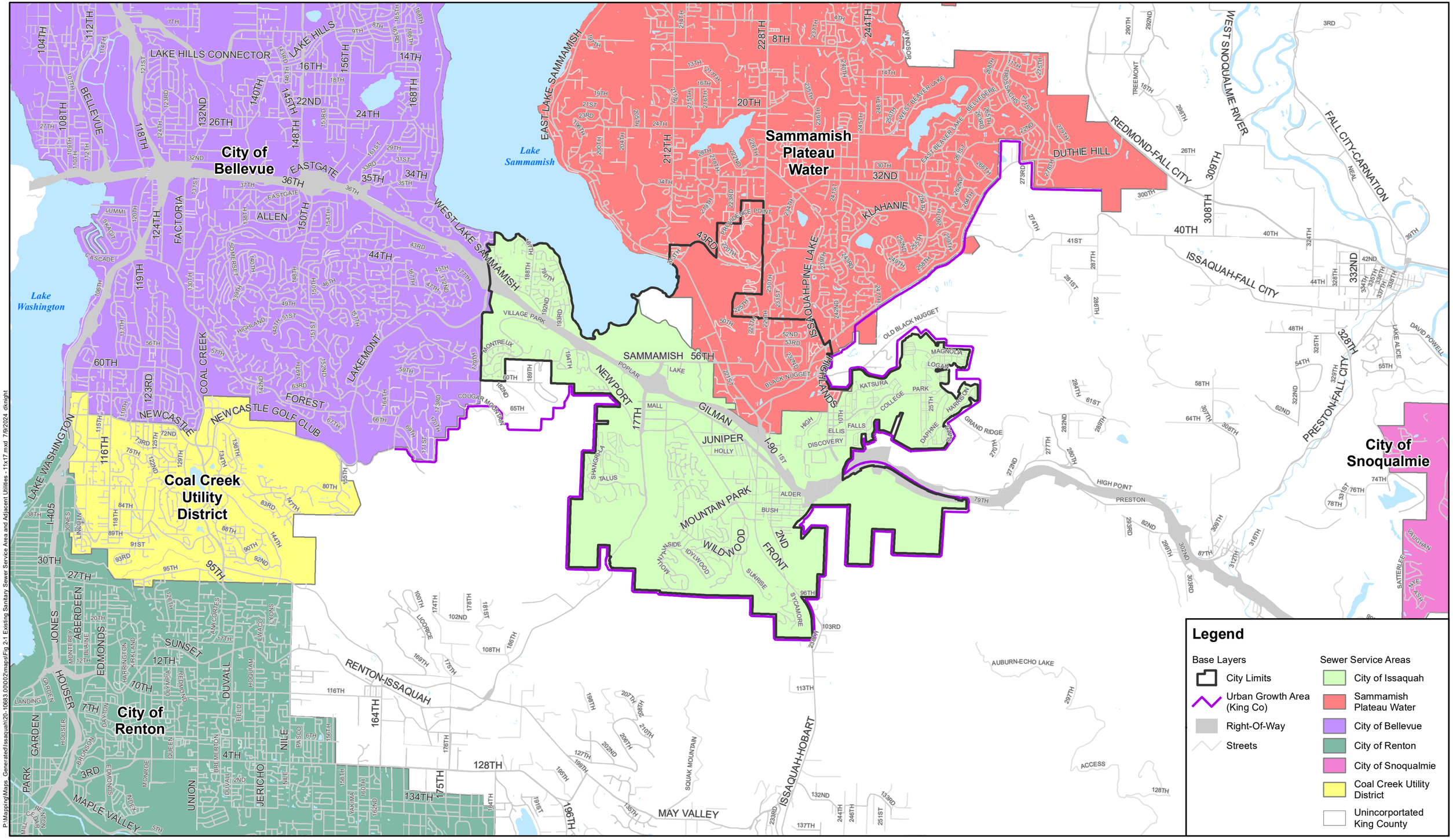


P:\Mapping\Maps Generated\Issaquah\20-10683.000002\maps\Fig 2-1 Existing Sanitary Sewer Service Area and Adjacent Utilities - 11x17.mxd 7/8/2024 dknight

Sewer System: City of Issaquah.
GIS Base data: King County.
Data sources supplied may not reflect current or actual conditions. This map is a geographic representation based on information available. It does not represent survey data. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.
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CITY OF ISSAQUAH WASHINGTON

# Existing Sanitary Sewer Service Area and Adjacent Utilities

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure **2-1**

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## 2.2 Land Use and Planning Areas

This section describes the City's wastewater planning area and the state, county, and City policies that guide and regulate planning and service in the City's wastewater service area. Existing and future land use areas are shown in Figure 2-2, Existing Land Use, and Figure 2-3, Future Land Use.

Zoning for the existing land use area includes retail, commercial, community facilities, conservancy, mixed use, low density residential and multi-family residential as illustrated in Table 2-1. Approximately 30.9% of the study area is zoned as Community Facilities, 33.6% is zoned as Low Density Residential, 8.6% is zoned as Multi-Family Residential, and 1.4% is zoned as Retail. Table 2-1 summarizes the zoning composition for the City for existing and future land use.

**Table 2-1**
**Zoning for Existing Land Use**

| Zoning | Existing Land Use | | Future Land Use | |
|---|---|---|---|---|
| | Area (Ac) | Percent | Area (Ac) | Percent |
| Commercial | 82.7 | 1.2% | 82.7 | 1.2% |
| Community Facilities | 2,059.7 | 30.9% | 2,099.4 | 31.5% |
| Community Facilities privately owned | 144.2 | 2.2% | 144.2 | 2.2% |
| Conservancy | 689.4 | 10.3% | 689.4 | 10.3% |
| Low Density Residential | 2,239.3 | 33.6% | 2,203.1 | 33.0% |
| Mixed Use | 542.9 | 8.1% | 543.2 | 8.1% |
| Multi-Family Residential | 575.9 | 8.6% | 573.0 | 8.6% |
| Retail | 94.1 | 1.4% | 94.1 | 1.4% |
| Urban Village | 241.5 | 3.6% | 241.5 | 3.6% |
| **TOTAL** | **6,669.8** | **100%** | **6,670.6** | **100%** |

### 2.2.1 Issaquah Wastewater Planning Area

The City of Issaquah's sewer service area defines its wastewater planning area boundary, as shown in Figure 2-1, which does not extend outside of its municipal boundary. This is in compliance with Growth Management Act (GMA) requirements and is consistent with annexations and City of Issaquah Comprehensive Plan policies. The North Issaquah subarea is served by the Sammamish Plateau Water District (SPWD). While it is City policy to provide direct sewer service to all customers within the City wastewater planning area boundaries, there are several areas that remain unsewered, primarily in low-lying areas, due to physical constraints in constructing sewer service. All system evaluations for this Plan will take place within the wastewater planning area boundaries.

The City's land use and zoning are updated as part of its ongoing comprehensive planning process. The following are Issaquah's Comprehensive Plan policies from the utilities chapter and the capital facilities chapter that applies to the Plan.

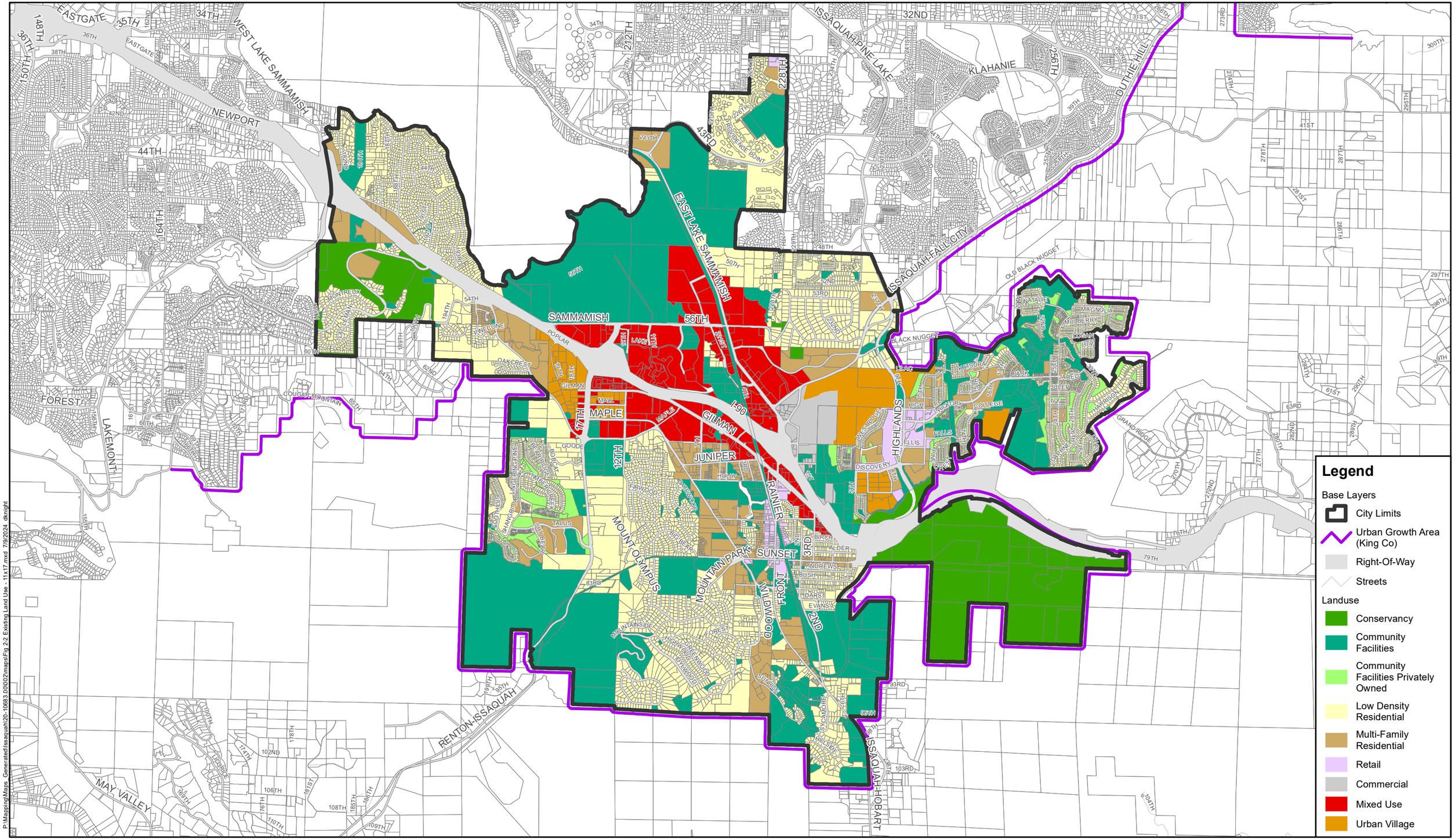
In accordance with the City of Issaquah Comprehensive Plan, all new development in the City is required to connect to sanitary sewer lines. Relevant adopted City policies for sewer service include:

- U Policy F1 Provide sewer availability to areas historically unsewered that are at a risk of flooding, or within or adjacent to environmentally sensitive areas, including shoreline buffers, buffers of streams, and situated within known wetlands, to reduce the risk of contamination to environmentally sensitive natural systems.
- U Policy F2 Prevent future septic installation for commercial developments and residential areas within environmentally sensitive areas as outlined in U Policy F1.
- U Policy F3 Ensure all septic systems in the City are monitored and inspected according to Seattle-King County Department of Health regulations. Allow existing single-family homes with septic systems to continue to use them, provided that the systems are functioning properly, as documented by the Seattle-King County Health Department.
- U Policy F4 Reduce fats, oils, and grease entering sewer system by ensuring all grease generating establishments are installing appropriately sized grease interceptors.
- U Policy F5 Reduce contamination from mobile food vendors, by ensuring greywater is discharged to sewer.

Policies updated or developed as part of this planning effort are described in detail in Chapter 4.

### 2.2.2 North Issaquah Service Area

The North Issaquah subarea is served by the Sammamish Plateau Water District and is outside the City sewer service planning area. This area is located north of Interstate 90 and east-southeast of Lake Sammamish, as illustrated on Figure 2-1.




## Legend

Base Layers
- City Limits
- Urban Growth Area (King Co)
- Right-Of-Way
- Streets

Landuse
- Conservancy
- Community Facilities
- Community Facilities Privately Owned
- Low Density Residential
- Multi-Family Residential
- Retail
- Commercial
- Mixed Use
- Urban Village

P:\Mapping\Maps Generated\Issaquah\20-10683.00\002\maps\Fig 2-2 Existing Land Use - 11x17.mxd 7/9/2024 dknight

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CITY OF ISSAQUAH WASHINGTON

# Existing Land Use

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
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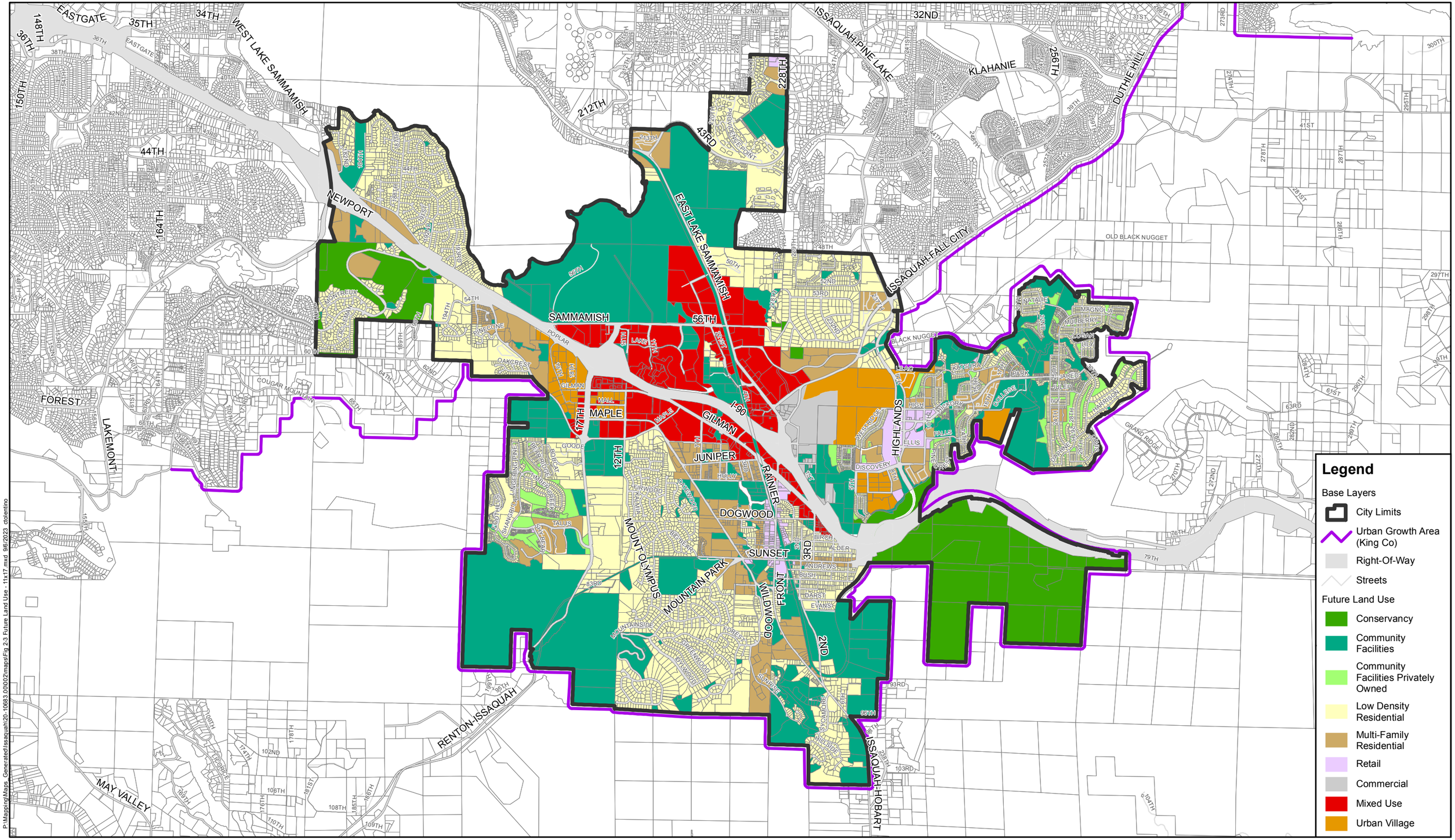


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CITY OF ISSAQUAH WASHINGTON

**Future Land Use**
Sewer Master Plan
City of Issaquah, Washington
September 2023

Figure
**2-3**

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### 2.2.3 King County Planning Area

The most recent update to the King County Comprehensive Plan was adopted in August 2020. This Sanitary Sewer Master Plan complies with the adopted Countywide Planning Policies, which includes separate sections addressing the various required planning elements mandated by the GMA. The policies in the King County Plan reflect a growth and development strategy that focuses public investment within the Urban Growth Areas (UGA), most of which are within the western third of King County. The UGA designates areas that allow for urban growth that is projected to occur during the 20-year planning cycle. Annexation of land outside the UGA is prohibited. Figure 2-1 shows the City of Issaquah's UGA boundary adopted by the King County Growth Management Planning Council. Chapter 9 of the King County Comprehensive Plan addresses services, facilities, and utilities, including public wastewater collection systems in urban and rural areas. The provisions and policies generally reflect the premise of Countywide Planning Policies that wastewater collection systems will serve urban areas and in general, that they are not appropriate to serve rural areas.

### 2.2.4 Growth Management Act

In 1990, the State of Washington adopted the GMA with the intent of concentrating most new development and population gains within urban areas of the more populous and rapidly growing counties. The GMA was a response to rapid population growth and concerns with urban sprawl, environmental protection, quality of life, and related issues. Counties subject to GMA requirements are required to define and maintain UGAs within which urban services like sewers are provided. Any new parcels created outside that boundary must be low density with sufficient acreage to support on-site sewage disposal systems conforming to State Health regulations.

The entire Issaquah sewer service area is within the GMA boundaries of the City for urban development. Consequently, there are no limitations on extending sewer service to unsewered areas.

## 2.3 Relationships with King County WTD and Adjacent Wastewater System Providers

### 2.3.1 Interagency Agreements

Neighboring agencies such as the City of Bellevue Sewer System and SPWD provide sewer service adjacent to the City. The King County Department of Natural Resources, Wastewater Treatment Division (King County WTD) provides regional conveyance from these local collection systems to sewage treatment and disposal facilities. Interlocal agreements between the City and these agencies are described below, as well as background information on both of the adjacent service providers. Copies of the referenced interlocal agreements are included in Appendix A.

### 2.3.2 City of Bellevue Sewer System

The City of Bellevue Sewer System is contiguous with the northwest corporate limits of Issaquah. The City of Bellevue service area includes the area located at the southern end of Lake Sammamish, west of Lake Sammamish State Park, and north of Interstate 90 (I-90). The agreement between the City and Bellevue dated April 17, 1990, established a joint-use facility (in Bellevue) to convey sewage flows from the Lakemont Triangle area through Bellevue to the King County Issaquah Interceptor. Also, as per the agreement between the two cities, the east slope of Cougar Mountain is within Issaquah's service area, and Bellevue provides service to the west slope of Cougar Mountain. The interlocal agreement between the City of Issaquah and City of Bellevue is located in Appendix A.

### 2.3.3 Sammamish Plateau Water District

The City of Sammamish is located north of Issaquah, in east King County between Lake Sammamish to the west and the Snoqualmie river valley in the east. The southern portion of the City of Sammamish is served by SPWD. The SPWD's sewer service area extends south into the City of Issaquah limits, as illustrated in Figure 2-1. The City and SPWD adjusted the sewer service area boundary in 2017, adding the southernmost area, between Locust St and Juniper Street, into the SPWD sewer service area. The City's interlocal agreement with SPWD provides for SPWD to serve the urban area east of Lake Sammamish, east of Issaquah Creek, north and east of I-90, north of Locust Street, and north and west of the Issaquah Highlands.

### 2.3.4 King County Department of Natural Resources

The City does not have any sewage treatment and disposal facilities. The City contracts with King County (County) to provide sewage treatment and disposal as well as regional interception/transmission. Copies of Issaquah's agreement for sewage disposal with the County are provided in Appendix B.

Sewage from the Issaquah collection system is conveyed via County interceptor piping to the County's Sunset Pump Station, located adjacent to Vasa Park on Lake Sammamish. From there it is pumped through a series of interceptors and pump stations to the County's South Treatment Plant in Renton. Sewage from the City is currently discharged into two County interceptors that are located within the City limits: the Issaquah and the Issaquah Creek Interceptors. The Issaquah Interceptor was completed in 1969, and the Issaquah Creek Interceptor was completed in 1982 to supplement the Issaquah Interceptor, which was flowing at capacity. Upon completion of the Issaquah Creek Interceptor, much of the Issaquah Interceptor was incorporated as part of the City's sewer system. These interceptors are further described in Chapter 5 and illustrated in Figure 5-1.

The Countywide Planning Policies are regularly updated by the Growth Management Planning Council. These policies address land use, transportation, open space, housing, and provision of urban services (including wastewater pipes). The King County Comprehensive Plan is responsive to the Countywide Planning Policies. Issaquah's Sanitary Sewer Master Plan is also consistent with these policies. The Countywide Planning Policies that affect wastewater service are included in Appendix C.

## 2.4 Surrounding Vicinity Characteristics

The physical aspects of the general area in and around Issaquah are described in this section, in accordance with WAC 173-240-050. These characteristics are important factors to be considered in the development of a wastewater plan because they may affect pipeline routes, design, and methods of construction.

### 2.4.1 Topography

The topography of the City's service area has a direct relationship with the location and configuration of the sewer collection system and lift stations. Issaquah is generally situated within three distinct topographic features: 1) the lowland valley; 2) the Lake Tradition and Grand Ridge plateaus; and 3) the moderate to steep hillsides adjacent to the valleys, including Squak and Cougar mountains. The City's topography is moderately steep. The City is surrounded by steep hillsides formed by Tiger, Squak, and Cougar Mountains and to the north by Lake Sammamish with elevations ranging from 100 to 900 feet above mean sea level. There are two large plateaus located east of the valley: Lake Tradition and Grand Ridge. The average

elevation is approximately 500 feet. The topography within the Issaquah UGA, represented with 20-feet and 100-foot contour intervals, is shown in Figure 2-4.

Service extends along the northern flanks of both Squak and Cougar Mountains, with the highest elevation in the service area at approximately 2,020 feet, at the top of Squak Mountain in the southern portion of the service area.

### 2.4.2 Geology and Soils

The most common soil types in the Issaquah area are Alderwood gravelly sandy loam, Alderwood and Kitsap soils, Sammamish silt loam, Beausite gravelly sandy loam, Bellingham silt loam, and Everett gravelly sandy loam soils. The soil in the central part of the City is mainly Sammamish silt loam. Soil data was obtained from the United States Department of Agriculture (USDA) – Natural Resources Conservation Service Soil Survey of the King County Area.

The 2018 City of Issaquah Water System Plan provides detailed information on the City geology. The general geologic conditions in the Sammamish Valley, on the adjacent hillsides and on the northeasterly slopes of Squak Mountain can be characterized as follows:

- The valley floor is generally composed of layers of unconsolidated sedimentary deposits, sand, gravel, silt, and clay to an approximate depth of 100 feet, lying over clays. Deep under the clay layer, between approximately 200 and 400 feet deep, there is another water-bearing layer. This material is deepest at the north end of the valley near Lake Sammamish and shallowest at the south end.
- On the hillsides, there are deposits of stratified glacial drift that may be up to 100 feet thick.
- Squak Mountain's northeasterly slopes contain ancient lake sediments that are typically associated with landslide hazards.

Critical areas exist throughout the City that limit development. The City's critical areas are shown in Figure 2-5. A majority of the critical areas are wetlands and floodplain that fall in the center of the City. Most of the wetlands lie in the vicinity of Issaquah Creek as shown in Figure 2-5. The 100-year and 500-year floodplains exist in the northern and central part of the City just south of Lake Sammamish. A large percentage of the areas with steep slopes, 40% or greater, are outside the City boundary.

### 2.4.3 Climate

The City generally has a mild climate because of its proximity to Puget Sound and influenced by moist air masses emerging from the Pacific Ocean. The average yearly temperature is about 50°F with a typical high of around 75°F in the summer and a typical low of 30°F in the winter. The average yearly precipitation rate is about 40 inches and occurs from October to March.

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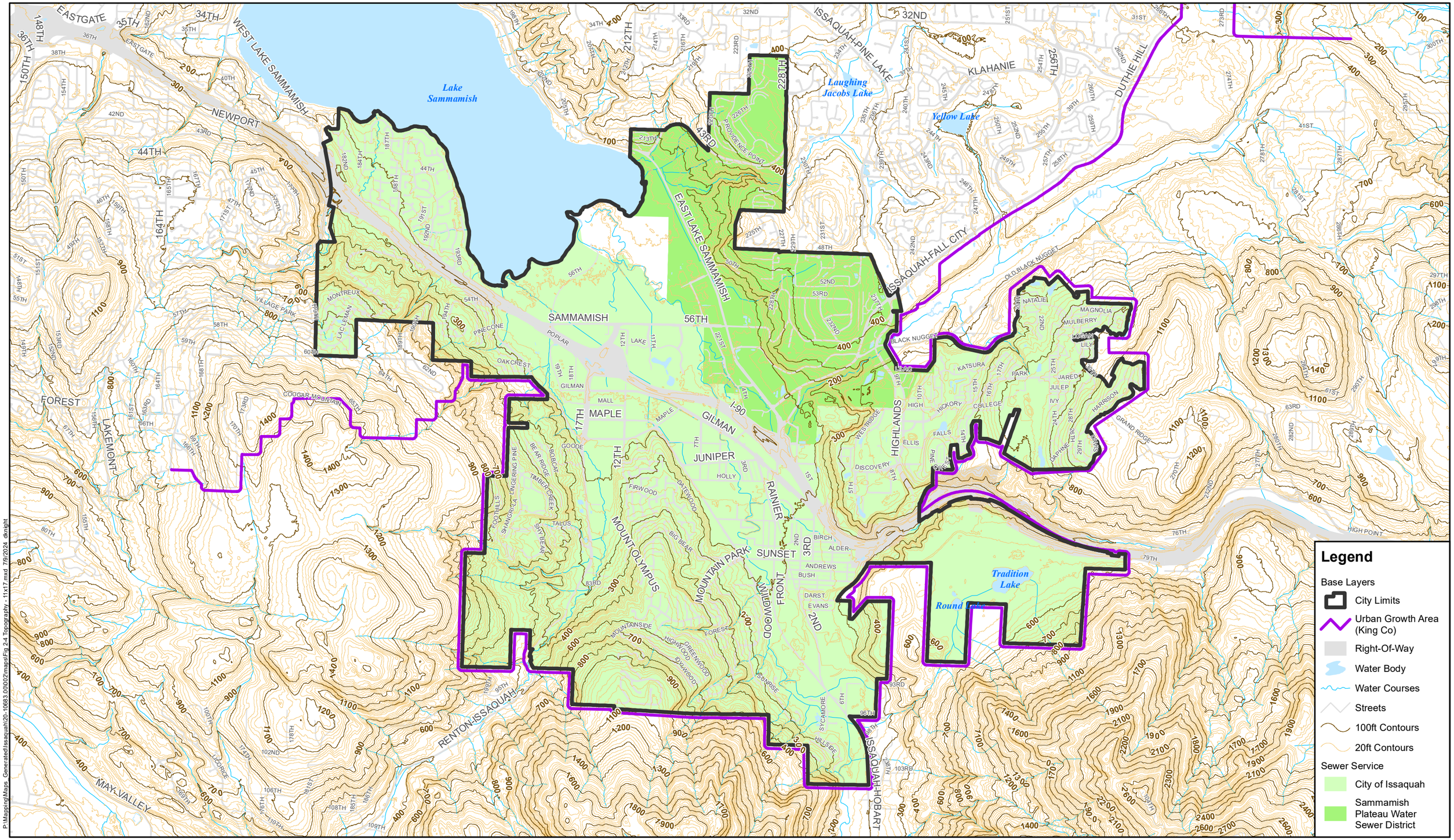


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CITY OF ISSAQUAH WASHINGTON

# Topography Map

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure **2-4**

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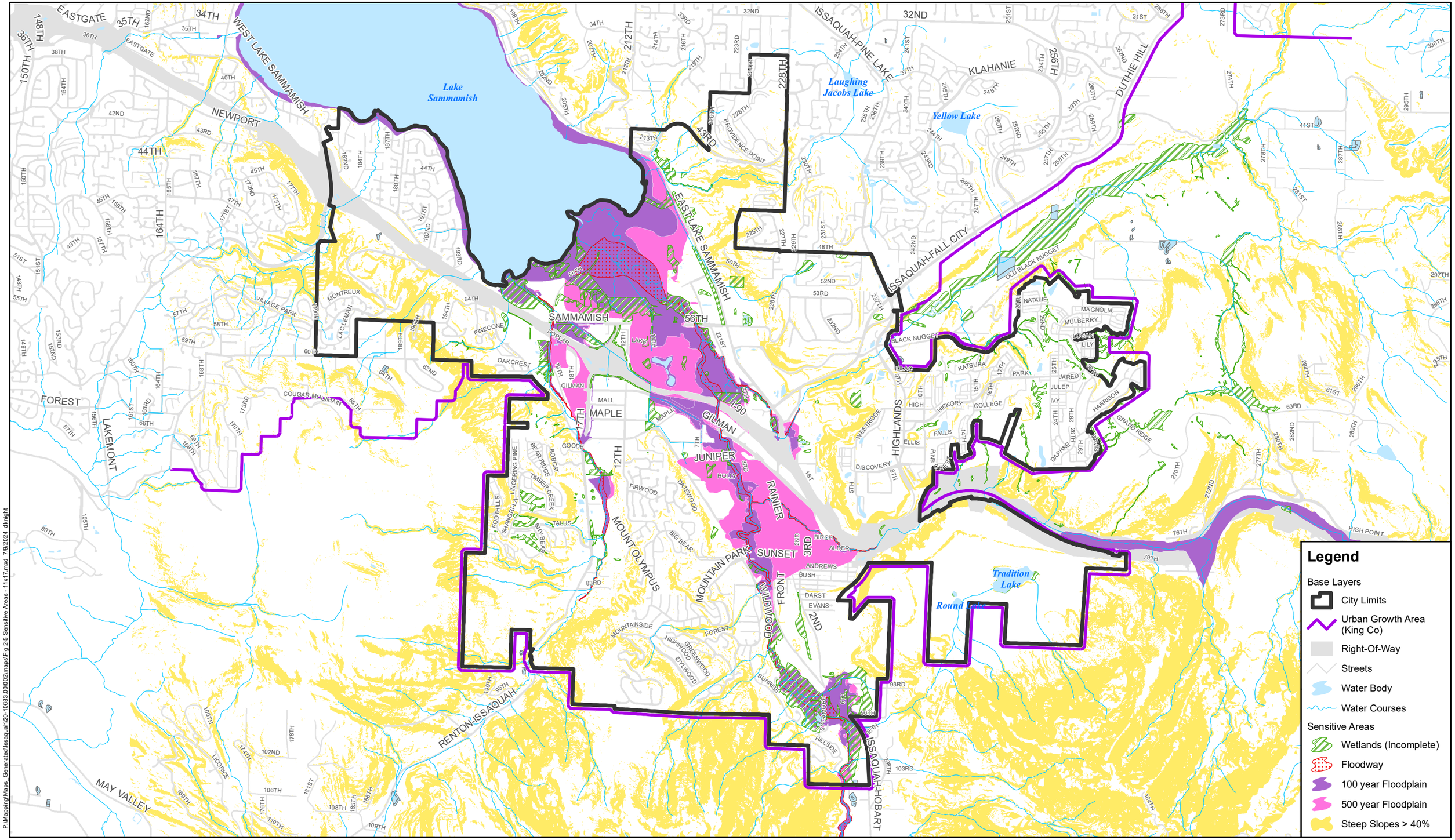


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CITY OF ISSAQUAH WASHINGTON

# Sensitive Areas

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**2-5**

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## 2.5 Water Resources

The City of Issaquah's primary sources of supply are groundwater from four production wells and water purchased from the Cascade Water Alliance (CWA). The major water system features are shown on Figure 2-6, Major Water System Facilities.

### 2.5.1 Water System Description and Facilities

The City's water system including pipes, water pressure zones, and water facilities are illustrated in Figure 2-6.

The City has four groundwater wells which are the sole sources of groundwater supply to the system.

- Risdon Wells No. 1 and 2 are located just south of I-90, east of SE 72nd Street and have a combined capacity of approximately 1,830 gallons per minute (gpm).
- Well No. 1 has an authorized instantaneous quantity (Qi) of 630 gpm and an annual quantity (Qa) of 1,000 acre-feet per year.
- Well No. 2 has an authorized Qi of 1,200 gpm (1.73 million gallons per day (mgd)) and a Qa of 1,600 acre-feet per year.
- The Gilman Wells No. 4 and 5 are located southeast of where I-90 crosses Issaquah Creek. Gilman Well No. 4 has an authorized Qi of 250 gpm and a Qa of 200 acre-feet per year. Well No. 5 is supplemental to the primary water rights for the Risdon Wells with an authorized Qi of 1,000 gpm and a Qa of 1,600-acre feet per year (ac-ft/year).

The City also purchases water from CWA, which is delivered through multiple interties. Information on the City's water system can be found in the 2018 Water System Plan.

The distribution system is comprised of various pipe materials including asbestos cement, polyvinyl chloride (PVC), cast iron, and ductile iron with pipe sizes varying from 4-inch to 16-inch as illustrated in Figure 2-6. The total length of water main is approximately 135.3 miles with approximately 5% of water mains having a diameter below 6-inches. About 45% of the water mains have a pipe diameter of 8-inches and 35% of the total water mains have a pipe diameter of 12-inches. A more detailed description of the existing water mains is provided in the 2018 City of Issaquah Water System Plan.

### 2.5.2 Surface Water

The City lies within the lower reaches of the Issaquah Creek Drainage Basin, which is a tributary to Lake Sammamish. The service area is drained by a series of small streams:

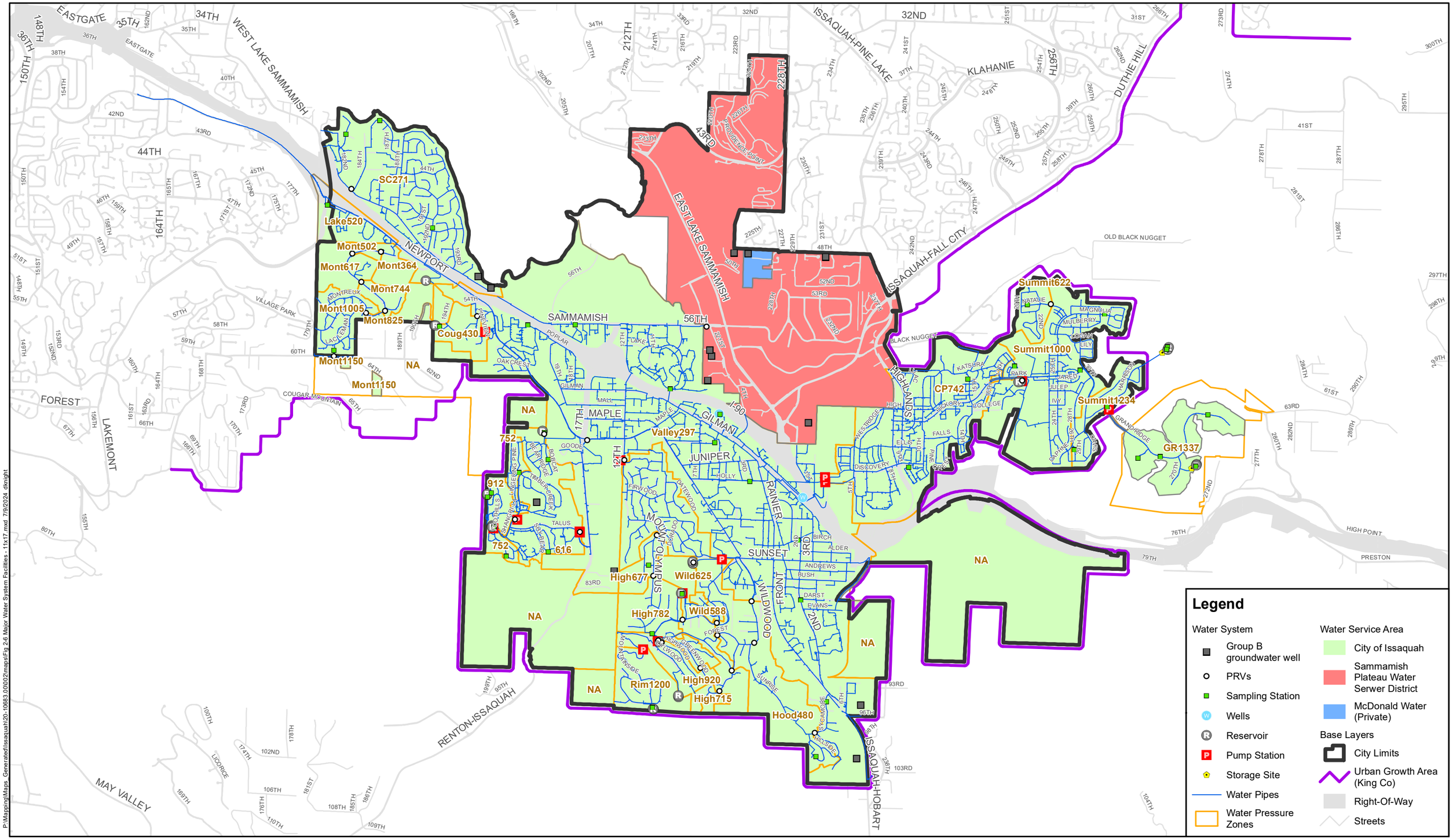
- Tibbetts Creek, and Lewis Creek, draining Cougar and Squak Mountains
- Issaquah Creek that drains Squak and Tiger Mountains
- East and North Forks of Issaquah Creek drains the south slopes of Grand Ridge and the north valley floor

Several small unnamed streams also contribute to the surface water features in the area. These unnamed streams and their tributaries flow into Lake Sammamish. The surface waters within or immediately adjacent to Issaquah's wastewater service area are shown in Figure 2-5.

## 2.6 Disposal Alternatives

The wastewater from the City of Issaquah is currently treated by King County. An agreement for sewage disposal between the City and County is included in Appendix B. There are no limits in the City-County sewage disposal agreement on the amount of wastewater King County will accept.

Neighboring wastewater utilities (e.g. City of Bellevue, City of Redmond, Northeast Sammamish Sewer and Water District, City of Kirkland) also have agreements to send wastewater to King County for treatment. There is no property available for a WWTP; there is no suitable receiving water; and permitting and construction of a new City WWTP is not cost effective or feasible.




P:\Mapping\Maps_Generated\Issaquah\20-10683.000002\maps\Fig 2-6 Major Water System Facilities - 11x17.mxd 7/9/2024 dknight

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**Major Water System Facilities**
Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure **2-6**

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# Chapter 3 Population

## 3.1 Introduction

Population and employment estimates for the City of Issaquah (City) sewer service area for 2020, 2028, and 2042 are presented in this chapter. Population and employment estimates are provided for each of the nine sewer meter basins for development of sanitary flow projections (Chapter 6), hydraulic sewer modeling of the collection system, and capital improvement plan (CIP) development. These population and employment estimates were pulled from the best available data sets and regional demographic models. The nine sewer meter basins developed for the Plan modeling effort (see Figure 3-1) only cover the portion of the City that is served by the City collection system. Population and employment estimates listed in this chapter are not equivalent to estimates and targets within the entire City limits.

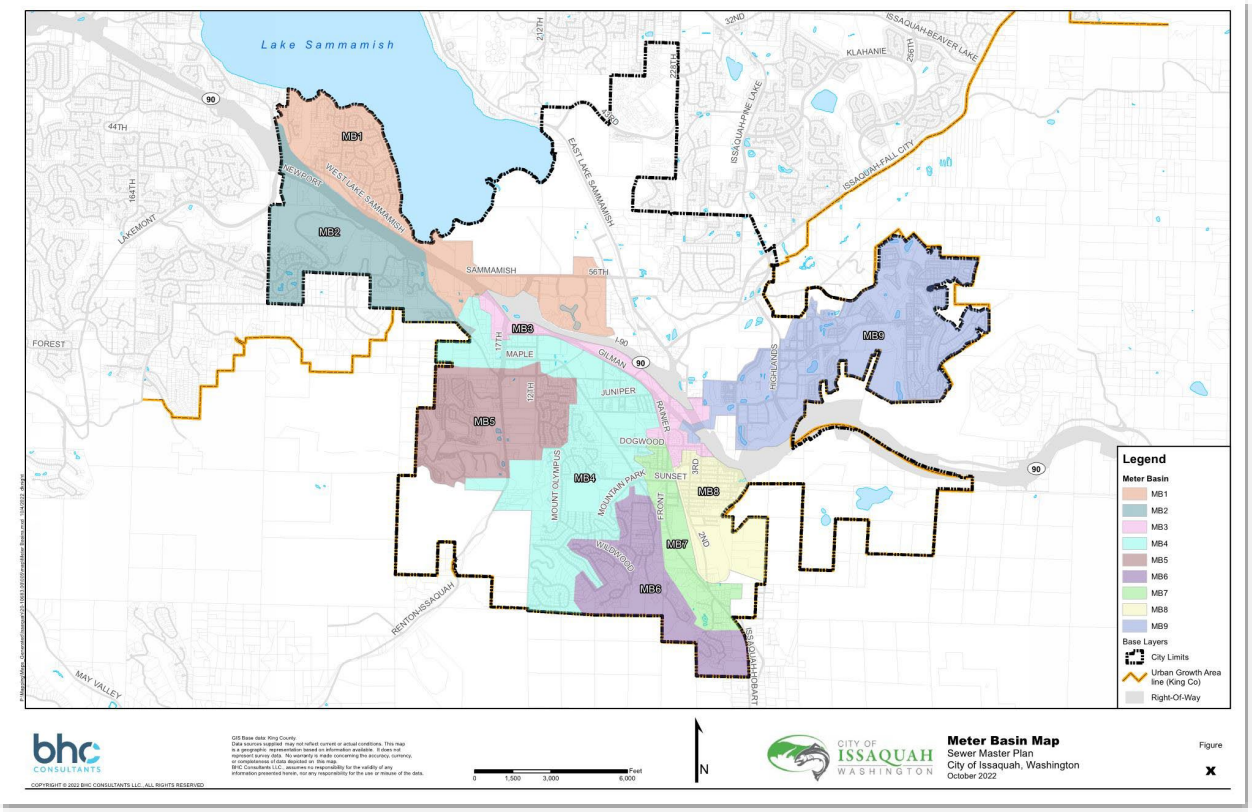


**Figure 3-1 Issaquah Sewer Meter Basins**

## 3.2 Baseline 2020 Population and Baseline 2021 Employment

Population estimates were collected for 2020 from the Washington State Office of Financial Management's (OFM) Small Area Estimates Program (SAEP). Geographic information system (GIS) shapefiles of the sewer meter basins boundaries were submitted to SAEP, and data returned for 2020 were approximate.

Employment estimates were collected for 2021 from the Puget Sound Regional Council (PSRC). GIS shapefiles of the sewer meter basins were submitted to PSRC. Data returned includes employee counts of Total Employment. PSRC estimated these from Covered Employment derived from the Quarterly Census of Employment and Wages, a dataset generated from unemployment reporting requirements and controlled by the Washington State Employment Security Department (ESD). PSRC calculated a Total Employment estimate by adding those absent from the ESD dataset for a more comprehensive but less precise estimate. More about this dataset can be found from the following source: https://www.psrc.org/sites/default/files/emp_data_series.pdf

The baseline results for each sewer meter basin are summarized in Table 3-1.

**Table 3-1**
**Issaquah Sewer Service Area Population and Employment Estimates**

| Meter Basin ID | Baseline (2020 for Population and 2021 for Employment) | | 2028 (6-year CIP) | | 2042 (20-year CIP) | |
|---|---|---|---|---|---|---|
| | Population | Employment | Population | Employment | Population | Employment |
| MB1 | 3,847 | 8,656 | 3,980 | 9,209 | 4,214 | 10,314 |
| MB2 | 2,359 | 183 | 2,359 | 193 | 2,359 | 213 |
| MB3 | 431 | 2,420 | 1,428 | 3,260 | 3,171 | 4,939 |
| MB4 | 5,371 | 3,969 | 6,705 | 6,947 | 9,040 | 12,903 |
| MB5 | 4,001 | 416 | 4,204 | 682 | 4,560 | 1,215 |
| MB6 | 1,986 | 176 | 2,026 | 171 | 2,097 | 161 |
| MB7 | 1,480 | 1,182 | 1,665 | 1,459 | 1,988 | 2,013 |
| MB8 | 1,235 | 766 | 1,269 | 999 | 1,329 | 1,465 |
| MB9 | 12,907 | 3,544 | 12,983 | 4,942 | 13,115 | 7,738 |
| **Total** | **33,617** | **21,312** | **36,619** | **27,862** | **41,783** | **40,961** |

## 3.3 Future Population and Employment Estimates

The target years for population and employment forecasts are 2028 (used for 6-year CIP) and 2042 (used for 20-year CIP). Estimated population and employment forecasts were collected for 2050 for each sewer meter basin. GIS shapefiles of the sewer meter basins were submitted to PSRC, and data were returned from the Regional Growth Strategy via the Regional Transportation Plan (RGS/RTP) analysis conducted in fall of 2021. These estimates incorporate the City of Issaquah's higher growth targets. Subsequent outputs using PSRC's anticipated Land Use Vision model set for launch in spring 2023 may show lower growth estimates. Using higher estimates for sewer modeling is considered to be an appropriate, conservative approach, which allows the sewer modeling analysis to prepare for additional capacity. The RGS/RTP model outputs from PSRC also assume growth will focus on high-capacity transit stations, some of which are included in sewer meter basins MB1 and MB4, as shown in Figure 3-2. Red circles in the figure indicate half mile buffers around proposed future light rail stations – V2050 policy calls for focused growth in these areas.

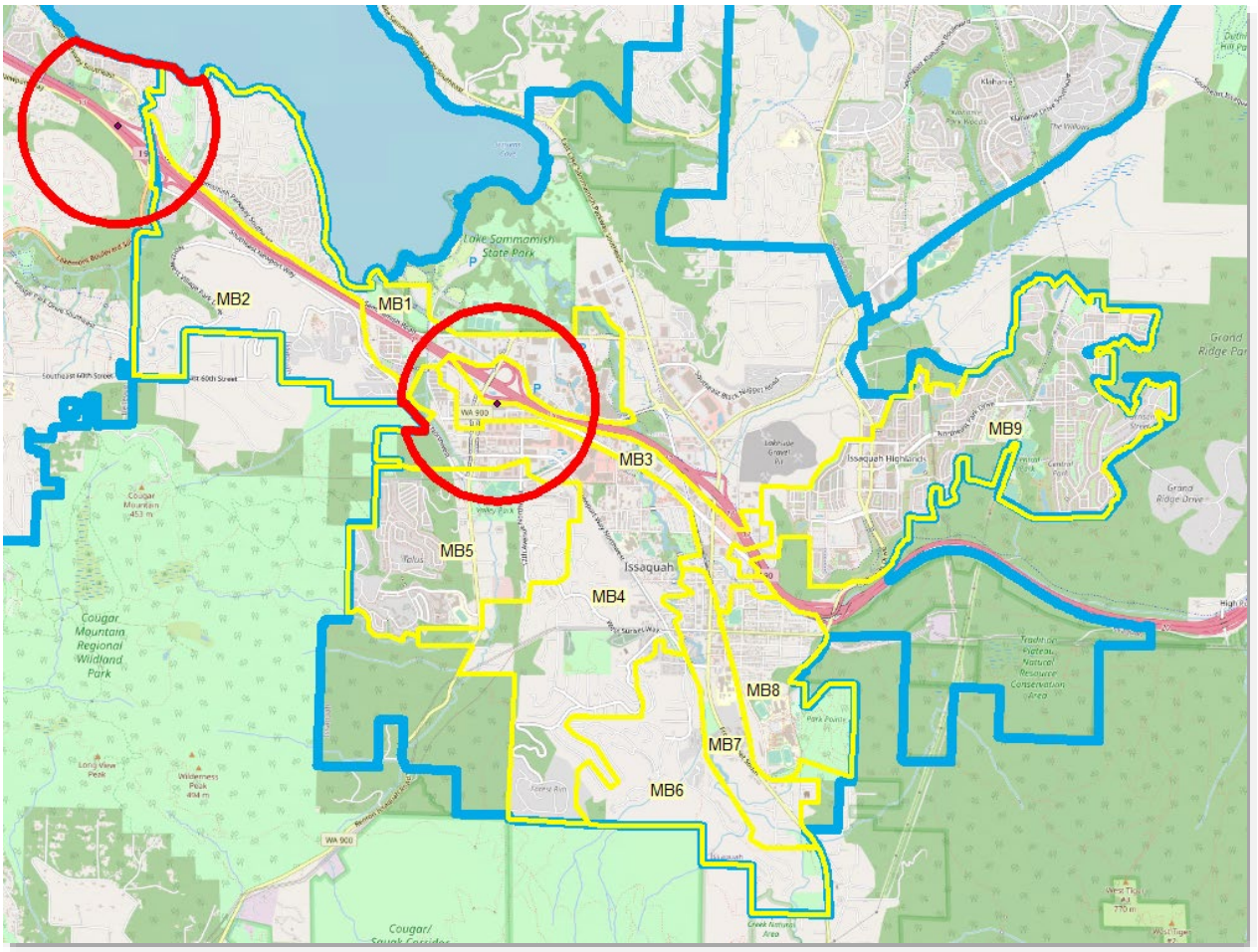


**Figure 3-2 Proposed Future Light Rail Stations**

Straight-line interpolation was used between baseline and 2050 to estimate population and employment for the 6-year and 20-year targets (2028 and 2042). Some of the sewer meter basins that had growth allocations that seemed too high or too low were verified, by coordinating with a City planner. The insight gained from this conversation enabled revisions to growth estimates for MB1, MB2, MB3, and MB9. For MB1, an average of the growth rates from MB5 and MB6 was used since their characteristics were the most similar. For MB2, the negative growth forecasted by PSRC was changed to reflect zero growth. For MB3, 300-400 households were added to the 2050 number. For MB9, an additional 117 residential units were added to meet a development cap for Issaquah Highlands provided by the City planner.

House Bill (HB) 1110 was passed by Washington State legislature in 2023. This bill allows for increased housing density in traditionally single-family detached housing zoning. Since this Plan relies on PSRC data for growth and housing density estimates, it is assumed that future updates to this Plan will account for the increased housing densities, allowed by HB1110.

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# Chapter 4 Regulations and Policies

## 4.1 Overview

The City of Issaquah (City) manages and operates their sewer system in accordance with state, local, and federal regulations and the Issaquah Municipal Code (IMC). The policies and standards described in this Chapter provide a framework for the planning, design, operation, and management of the sewer system, to maintain the desired level of service to sewer utility customers. The policies herein are limited to the sewer system and its design and operation.

While the City has discretion in setting performance and design criteria and standards for its sewer system, the criteria must also meet or exceed the minimum standards for public sewers as established by the Washington State Department of Ecology (Ecology) in Chapters 90.48, 90.52, and 90.54 of the Revised Code of Washington (RCW). The criteria focus on planning, design parameters, and other details that have been developed to establish consistency and to ensure that adequate levels of service are provided throughout the system. The criteria also provide the planning process with measuring tools to identify areas of the existing system that require improvement. Based on the RCW requirements, the City has established the following eight goals for sewer service:

- Goal 1: Provide safe, reliable, and timely sewer service to its consumers at a fair and reasonable price.
- Goal 2: Provide reliable levels of service and ensure adequate capacity within the sewer system by upgrading the system to protect the natural environment, as deemed necessary.
- Goal 3: Ensure that sewer system infrastructure expansion provides an adequate level of public service to support new development consistent with the City's policies, criteria, and standards. In addition, sewer system expansion should also be consistent with current land use plans and development regulations of the State of Washington, King County, and appropriate local planning agencies. Pipes in the sewer collection system located downstream of the new development will accommodate peak flow rates, with maximum pipe surcharging at or below the criteria thresholds defined herein.
- Goal 4: Develop feasible and cost-effective collection system alternatives and improvement recommendations to efficiently operate the sewer system to serve existing and future City customer needs.
- Goal 5: Replace or re-line all asbestos pipes within the next 20 years.
- Goal 6: Protect the health and safety of City of Issaquah residents, businesses, and visitors.
- Goal 7: Protect the environment and the quality of the City's lakes, streams, and groundwater.
- Goal 8: Be responsible water stewards for future generations.

The City of Issaquah Comprehensive Plan (which is currently being updated) also includes goals and policies that address the City's requirement to have safe and cost-effective utilities and public services. Broad policies developed in the new Comprehensive Master Plan will support more specific policies identified in the Sanitary Sewer Master Plan. The policies are summarized in the Comprehensive Master Plan's Utility chapter.

## 4.2 Environmental Checklist and Permits

The State Environmental Policy Act (SEPA) of 1971, Chapter 43.21 RCW, requires that all sewer system plans be accompanied by the appropriate environmental document. A SEPA checklist was completed for this Plan and can be found in Appendix D. The SEPA checklist addresses the Capital Improvement Program (CIP) on a planning level (i.e. as a non-project action). Each individual project, both CIP and developer projects, will undergo subsequent project-specific environmental review as design and engineering are completed. Individual projects will also require construction and use permits from the City and possibly from county, state, and federal regulatory agencies.

## 4.3 Pretreatment

Pretreatment systems may be required to reduce, eliminate, or alter the nature of a pollutant's properties prior to discharging to the City's sewer collection system. Pretreatment systems can include treatment designed specifically for the removal of metals, solvents, high strength biochemical oxygen demand (BOD) and total suspended solids (TSS) wastes or for pH adjustment. Discharges that are corrosive, high temperature, high strength (solids, BOD, TSS), high in fats, oils, and grease (FOG), contain toxic organic compounds (TOC), or emit hydrogen sulfide are typically subject to pretreatment. Pretreatment systems are installed to meet the requirements of IMC Section 13.36.030 and to comply with the federal (40 CFR Part 403), state (Chapter 90.48 RCW and Chapter 173-216 WAC), and local regulations.

Discharges high in BOD are prohibited as described in the IMC Section 13.36.020. Pretreatment is required by the occupant if the BOD of the waste exceeds 250 parts per million by weight. Such pretreatment facilities shall be constructed, operated and maintained by the owner at their own expense.

## 4.4 Sewer Master Plan Policies

The following policies are proposed, to accomplish the goals set forth in Section 4.1:

- Policy 1: Provide safe, reliable and timely sewer service to its consumers at a fair and reasonable price.
- Policy 2: Provide reliable levels of service and ensure adequate capacity within the sewer system by upgrading the system to protect the natural environment, as deemed necessary.
- Policy 3: Ensure that sewer system infrastructure expansion provides an adequate level of public service to support new development consistent with the City's policies, criteria, and standards. In addition, sewer system expansion should also be consistent with current land use plans and development regulations of the State of Washington, King County, and appropriate local planning agencies. Pipes in the sewer collection system located downstream of the new development will accommodate peak flow rates, with maximum pipe surcharging at or below the criteria thresholds defined herein.
- Policy 4: Develop feasible and cost-effective collection system alternatives and improvement recommendations to efficiently operate the sewer system to serve existing and future City customer needs.
- Policy 5: Extend sewers into unsewered neighborhoods located within or adjacent to environmentally sensitive areas.

- Policy 6: Upsize or remediate the adjacent sewer system when the maximum water surface within the conveyance system generated during a 25-year recurrence interval design storm, based on simulation results from the City's current sewer model, is predicted to become equal to or greater than the surcharge criteria. This policy is discussed in detail in Section 4.9.1.
- Policy 7: Developers shall analyze the impacts of the development on the existing sewer system. If the City makes a determination that the development's impact to the existing sewer system requires upgrades, the upgrades shall be made at the cost of the developer as illustrated in Section 4.9.2.
- Policy 8: Ensure businesses contributing FOG to the City's sewer system have appropriate grease interceptors installed or Best Management Practices in place.

The following policies were in the 2002 Sewer Master Plan, and are proposed without change:

- Policy 9: Allow existing single-family homes with septic systems to continue to use them, provided that the systems are functioning properly, as documented by the Seattle-King County Health Department. All septic systems in the City shall be monitored according to Seattle-King County Department of Health regulations.
- Policy 10: Require that property owners connect to the sewer system if a septic system is not functioning properly, as documented by the Seattle-King County Health Department. If a connection is determined to not be feasible, an equally mitigating corrective action shall be required.
- Policy 11: Side sewers shall be owned and maintained by the property owner up to and including the connection to the City-owned sewer main.
- Policy 12: Identify, prioritize, and provide sufficient funding for capital improvement projects and programs that meet one or more of the following criteria:
  - Improve capacity for system growth,
  - Repair failing or deteriorated sewer lines,
  - Extend sewer lines into presently unsewered areas,
  - Maintain appropriate levels of service,
  - Improve system operations, or
  - Minimize health hazards from contamination of ground or surface waters.
- Policy 13: Work with other sewer providers to ensure adequate provision and maintenance of sewer facilities for properties not served by the City.
- Policy 14: Coordinate with King County Wastewater Treatment Division and adjacent jurisdictions in the planning of the City's sewer system, any interties with regional sewer systems, and future demands on wastewater treatment and conveyance.
- Policy 15: Termination of domestic water service to the subject property shall occur if the property owner fails to meet the sewer connection policy or pay utility charges.

## 4.5 Sewer Extensions and Connections

Sewer extensions and connections shall be constructed in accordance with City Standard Plans and with the requirements defined in IMC Section 13.48 – Side Sewer Minimum Requirements. The cost to extend a sewer line and/or connect to the sewer system is determined by IMC Section 13.70 – Rates, Charges and Assessments. Developer provided sewer system extensions are subject to special facility charges, in accordance with IMC Sections 13.70.020 – General Facility Charge - Sewer. The City may require the developer to size new sewer infrastructure to accommodate the increased flows and potential surcharging, as discussed under Policy 6 in Section 4.9.1, below.

The City has a code prohibiting extending service outside the City's limits or service area, per IMC 13.88.010. If an application is approved under the conditions of subsection (A)(2), (A)(3), or (A)(4) of this section, then the following conditions shall also apply:

- If the property boundary is contiguous to the corporate limit line of the City, the property shall annex into the City prior to service being granted in the form of a water availability certificate.
- If the property boundary is not contiguous to the corporate limit line of the City, and is within a potential annexation area of the City, and has had a health hazard declared by the appropriate authority related to their water system, then the applicant shall sign an agreement of no protest as to any proposed annexation of the applicant's property to the City as a condition of providing water service only for the then existing land use.
- If the property boundary is not contiguous to the corporate limit line of the City and is within a potential annexation area of the City, and has not had a health hazard declared by the appropriate authority related to their water system, then service shall be denied until the property is annexed to the City.
- Service being provided outside the City limits under contracts executed prior to the effective date of the ordinance codified in this section are allowed to continue without requiring annexation.

A new policy has been developed to extend sewers into unsewered neighborhoods located within or adjacent to environmentally sensitive areas. This requires sewer connections for all new developments, provided that the connection does not cause significant adverse environmental impact. This requirement excludes single-family residential on existing platted lots, that do not lie within the environmentally sensitive areas as described below, and where sewer is not within 200 feet of the edge of property.

- Tier 1: 100-year plain, shoreline buffer boundary, and commercial/industrial properties. Goal to extend within 20 years.
- Tier 2: Stream buffers, wetland boundaries and documented areas with high ground water. Goal to extend within 30 years.
- Tier 3: Critical Aquifer Recharger Area (CARA) 1-10 wellhead capture zone. Goal to extend within 40 years.

Policies stated in this section are consistent with the King County Countywide Planning Policy PF-12 which requires all development in the Urban Growth Area to be served by a public sewer system except:

- Single-family residences on existing individual lots that have no feasible access to sewers may utilize individual septic systems on an interim basis; or

- Development served by alternative technology that:
  - Provide equivalent performance to sewers;
  - Provide the capacity to achieve planned densities; and
  - Will not create a barrier to the extension of sewer service within the Urban Growth Area.

Prior to the installation of sewer mains, a "Sewer Availability Letter" must be signed by the Developer and approved by the City. The developer is responsible for design, preparation of plans, submittal of permit applications, payment of City fees, dedication of right-of-way and easements, construction, surveying, material testing, construction supervision of all infrastructure improvements, and compliance with City code. All improvements shall be designed per current City Standards and approved by the City Engineer prior to issuance of any permits for construction.

## 4.6 Septic-to-Sewer Projects

The City recognizes the following goals, outlined in Section 4.1, for the transition of On-Site Septic systems (OSS) to the City sewer system:

- Goal 6: Protect the health and safety of City of Issaquah residents, businesses, and visitors.
- Goal 7: Protect the environment and the quality of the City's lakes, streams, and groundwater.
- Goal 8: Be responsible water stewards for future generations.

King County Board of Health (KCBOH) code governs inspection frequencies for OSS systems, requirements for connection to sewer, and permits for OSS installation, repairs, and replacements. Currently, the City supplements KCBOH requirements with requirements in the IMC (connection required and connection waivers) and the OSS Inspection Program, both overseen by Public Works. Public Works staff have historically maintained an inventory of unsewered properties, including inspection status and condition.

Policy 9 and Policy 10 described in Section 4.4 allow existing single-family homes with septic systems to continue to use them and require the property owners to connect to sewer system in case of septic system failures. Property owners must inspect their septic systems in compliance with the proposed City code, which mandates an inspection every 3 years for gravity septic systems and annually for pumped systems, following KCBOH regulations. The completed inspection forms are submitted to City staff, ensuring consistent reporting of failing septic systems to the City.

The City identified the following actions to meet the identified goals for the transition of OSS systems to the City sewer system:

- Update IMC Chapter 13, Division II. Sewers code language regarding OSS inspection and reporting requirements, definitions, connection requirements, connection waivers and code enforcement. This applies to both the City and Sammamish Plateau Water District service areas.
- Formalize the OSS Management Program which includes OSS Inspection Program and Stream Sampling Assessment.

- Plan for sewer extensions in environmentally sensitive areas by identifying target tiers including flood plain, shoreline, stream buffers, wetlands, high groundwater, and Critical Aquifer Recharge Area (CARA) Class I and II. Thresholds that trigger a sewer extension include, but are not limited to:
  - Location within a priority Tier area as defined in the OSS Management Program and will be added to the CIP.
  - Location in areas with groups of five or more homes where there is a 30% failure rate or where at least 50% of property owners desire connection to the sewer system.
  - Redevelopment.
- Ensure the public is informed throughout the code update and implementation process by performing education and outreach and obtaining public comment.

## 4.7 Odor Control and Corrosion

Managing odor and corrosion in sewer systems is important to provide effective sewer conveyance and treatment. Current design standards and inspection processes do not indicate the presence of any odor concerns or corrosion or degradation beyond typical life expectancy of infrastructure outside of planned upgrades. These include materials for conveyance as well as design guidelines to ensure adequate conveyance velocities. The City is able to mitigate odor concerns through active response to public concerns and notifications via source identification and assessment. Public concerns can be communicated to the City via the City website or phone line. Routine maintenance and other operational measures identified in Chapter 9 provide additional detail into the City's operations that directly and indirectly impact odor and corrosion.

## 4.8 Pump Stations

Developers/Owners of developments that may require a pump station to provide sewer service shall contact the City regarding the design requirements of the station and the current City Pump Policies.

The use of individual grinder pumps to serve residential connections shall be limited to connections in which a gravity alternative is not feasibly possible. The City shall make the determination as to which connections qualify for service by grinder pump per WAC 173-240-104(2). Qualifications for determination that no suitable alternatives to the installation of grinder pumps include but are not limited to the following:

- Benefits and costs of social, economic, and environmental effects of the proposed private ownership;
- Economic benefits such as creating or expanding employment, increasing median family income, or increasing the community tax base;
- Providing or contributing to necessary social services;
- Prevention or remediation of environmental or public health threats;
- Societal and economic benefits of better health protection; and
- Benefits associated with improved water quality such as fishing, recreation, and tourism.

Per WAC 173-240-104(2) Ecology must also review the contract or access agreement between the public entity and private grinder pump owner. The purpose of these requirements is to avoid repeating the precedent of failed grinder pumps and non-responsive homeowners creating hazards for the environment and for public health. The City has a standard Temporary Service Agreement for privately-owned grinder pump systems. It is understood that Ecology is in the process of updating requirements related to privately-owned grinder pump systems, and the City plans to review and update their Temporary Service Agreement, as necessary, once the Ecology Guidance has been published in the Orange Book.

## 4.9 Policy 6 and 7: Maintaining Sewer System Capacity

The City policy on maintaining sewer system capacity is divided into the following sections:

- Capacity Policy 6: Inflow and Infiltration Capacity Impacts Thresholds.
- Capacity Policy 7: Developer Capacity Impacts Thresholds.

### 4.9.1 Policy 6: Inflow and Infiltration Capacity Impacts Thresholds

This policy describes the thresholds for the Inflow and Infiltration Capacity Impacts in the sewer system. Improvements to the sewer system should be planned when the maximum water surface within the conveyance system, as generated during a 25-year recurrence interval storm event, based on simulation results from the City's current sewer model, is predicted to become equal to or greater than the surcharge criteria described below.

The hydraulic threshold is defined as a condition where the maximum water surface within the conveyance system generated during a 25-year recurrence interval storm event will become equal to or exceed the following surcharge criteria:

For shallow pipes (with less than 10 feet of ground cover):

- Where freeboard < 8-feet AND surcharge > 1.0: Improvements required.
- Where freeboard < 8-feet AND surcharge < 1.0: Improvements not required.
- Where freeboard > 8-feet: Improvements not required.

For deep pipes (with greater than 10 feet of ground cover):

- Where freeboard > 8-feet AND surcharge > 2.0: Improvements required.
- Where freeboard > 8-feet AND surcharge < 2.0: Improvements not required.
- Where freeboard < 8-feet: Improvements required.

Surcharge depth-to-diameter (d/D) is defined as depth of flow in a pipe, divided by the diameter of the pipe, based on simulation results from the City's current sewer model. Freeboard is defined as distance between ground elevation and the maximum hydraulic grade line based on simulation results from the City's current sewer model. The hydraulic grade line and surcharge d/D for a typical sewer system is illustrated in Figure 4-1.

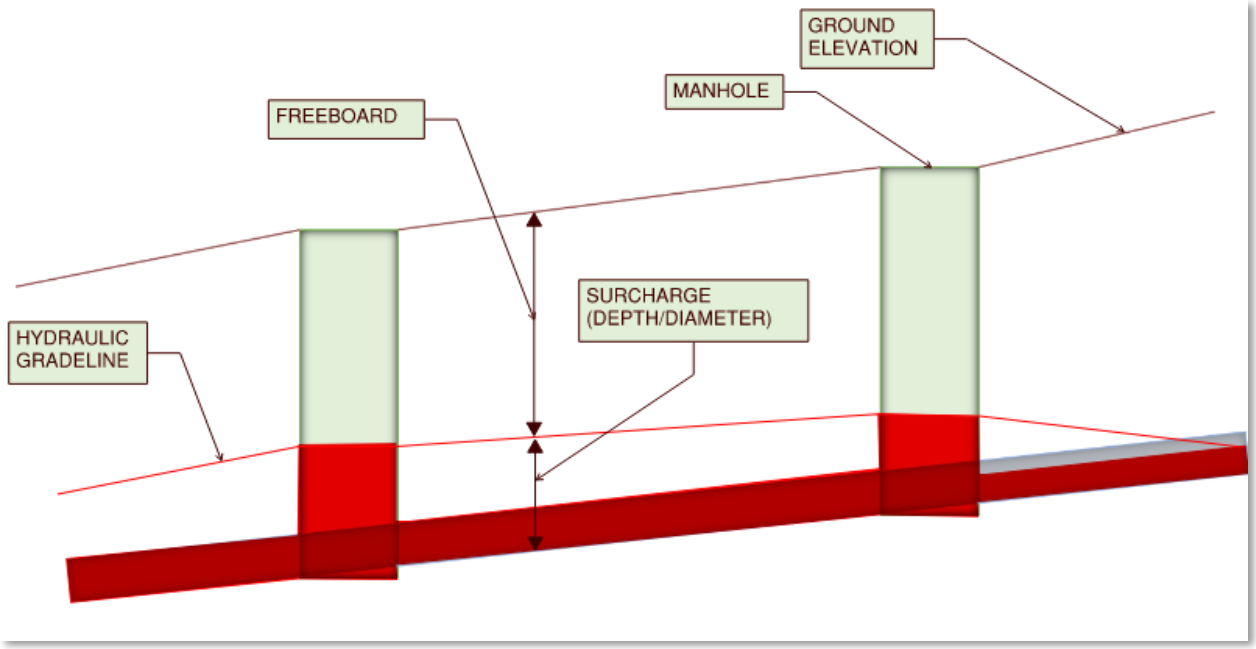


Figure 4-1 Hydraulic Grade Line for a Typical Sewer System

### 4.9.2 Policy 7: Developer Capacity Impacts Thresholds

Developers are required to analyze the capacity impacts of proposed developments on the existing sewer system. If analysis results indicate that the development's impact to the existing sewer system requires upgrades, the developer shall share in the cost of the upgrades, as described below.

When the development proposal is predicted to increase sewer flows in the downstream receiving sewer conveyance system by more than 10% and when existing peak flow rates in the existing sewer system generate a maximum water surface exceeding the criteria identified in Section 4.9.1, the developer shall participate in the cost of upgrading the downstream system in accordance with Table 4-1.

Table 4-1
Developer Contribution Requirements based on Sewer Flow

| Predicted Increase In Sewer Flow Based On Developer Contributions | Developer Financial Participation |
|---|---|
| ≤ 10% | 0% |
| 10% to 20% | 20% |
| 20% to 50% | 50% |
| 50% to 80% | 80% |
| >80% | 100% |

All property owners seeking to connect to the City's sewer system are also assessed a general facility charge. This charge is determined by IMC Section 13.70.020 – General Facility Charge - Sewer.

## 4.10 Design and Construction Standards

City sewer system improvements and extensions shall be designed and constructed in accordance with the following:

- City of Issaquah, Sewer Standards,
- Washington State Department of Ecology's (Ecology) Criteria for Sewage Works Design (Orange Book),
- Washington State Department of Health (DOH) requirements,
- U.S. Environmental Protection Agency (EPA) requirements,
- Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction; and
- The requirements under WAC 173-240 – Submission of Plans and Reports for Construction of Sewer Facilities.

Contract documents for all projects constructed within the City must be prepared based on the current edition of the City of Issaquah Sewer Standards. All construction shall be in accordance with the current edition of the WSDOT Standard Specifications.

Title 13 of City's Municipal Code is located at the following website: https://issaquah.municipal.codes/IMC/13.

The City's Standard Specifications and Details are located at the following website: https://www.issaquahwa.gov/DocumentCenter/View/1046/Sewer-Standards?bidId=.

In addition, per WAC 173-240-030(5), if the City receives general sewer plan and standard design criteria approval from Ecology, then engineering reports, plans, and specifications for sewer line extensions do not require an additional approval process. However, Ecology's approval is necessary for sewer line extensions if either:

1. the proposed sewers or lift station involve installation of overflows or bypasses; or
2. the proposed sewers or lift stations discharge to an overloaded treatment, collection, or disposal facility.

Also, if sewer system piping or lift station projects are funded with grants or loans from Ecology, then engineering reports, plans, and specifications shall obtain approval by Ecology.

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# Chapter 5 Existing Wastewater Facilities

The City of Issaquah's (City) wastewater collection system consists of a network of mains, trunks, force mains, and pump stations that transport collected wastewater to the King County Wastewater Treatment Division (WTD) interceptor at multiple locations including the Downtown Issaquah collection system and South Cove neighborhood. The WTD interceptor conveys all of the City's wastewater, together with wastewater from the Sammamish Plateau, through a 48-inch trunkline paralleling the Lake Sammamish shoreline to the Regional WTD pump station adjacent to Vasa Park and is ultimately conveyed to the Renton Treatment Plant.

This chapter provides an overview of the City's existing collection system and a condition assessment of the lift station facilities. The condition assessment of the City's lift stations was an on-site cursory evaluation conducted on August 10, 2021, to inform an overall understanding of the City's major collection system infrastructure. This evaluation included a review of lift station capacity, age, remaining useful life and recent maintenance issues and records. The assessment is useful for identifying and documenting maintenance needs and necessary upgrades, to extend the useful life of the City's sewer pumping facilities and reduce the chances of failure in the system.

## 5.1 System Background and History

The City's sewer system was installed beginning in 1939 in the Issaquah Valley. Collection system piping in Tibbets Valley dates back to the 1960's with the majority of the existing system constructed in the 1960's and 1970's, coinciding with a period of significant growth. Today it serves 9.7 square miles of primarily residential and commercial customers within the Urban Growth Area (UGA) boundary. The sewer system is separate from the stormwater system, and consists of gravity sewers, lift stations, grinder pump systems, and on-site septic systems. The City owns, operates and maintains approximately 88 miles of sewer lines, including 2 miles of force main ranging in size from 2-inch to 6-inch, 86 miles of gravity sewer ranging in size from 4-inch to 24-inch and four lift stations, The existing collection system is illustrated in Figure 5-1. The collection system conveys sewage to the King County Metro and Issaquah Creek Interceptors and ultimately to the King County South Treatment Plant in Renton.

All sewer lift stations, and water system facilities are connected to the City's supervisory control and data acquisition (SCADA). The City's SCADA system collects and stores operational information that is used by engineering and operations staff. Operations staff are able to receive and respond to various alarms from their mobile devices.

## 5.2 Sewer Basins

A sewer basin is the area from which the collection system drains to a specified discharge point of interest. Delineations of sewer basins are dependent on existing sewer service areas and topography upstream of each discharge point. Nine sewer basins have been delineated within the City's service area as illustrated in Figure 5-2. The discharge point of each sewer basin coincides with a manhole where flow data was collected for hydraulic model calibration, as discussed in Chapter 7. Population and employment projections presented in Chapter 3 are also summarized per sewer basin. Table 5-1 summarizes the City's sewer basins and area.

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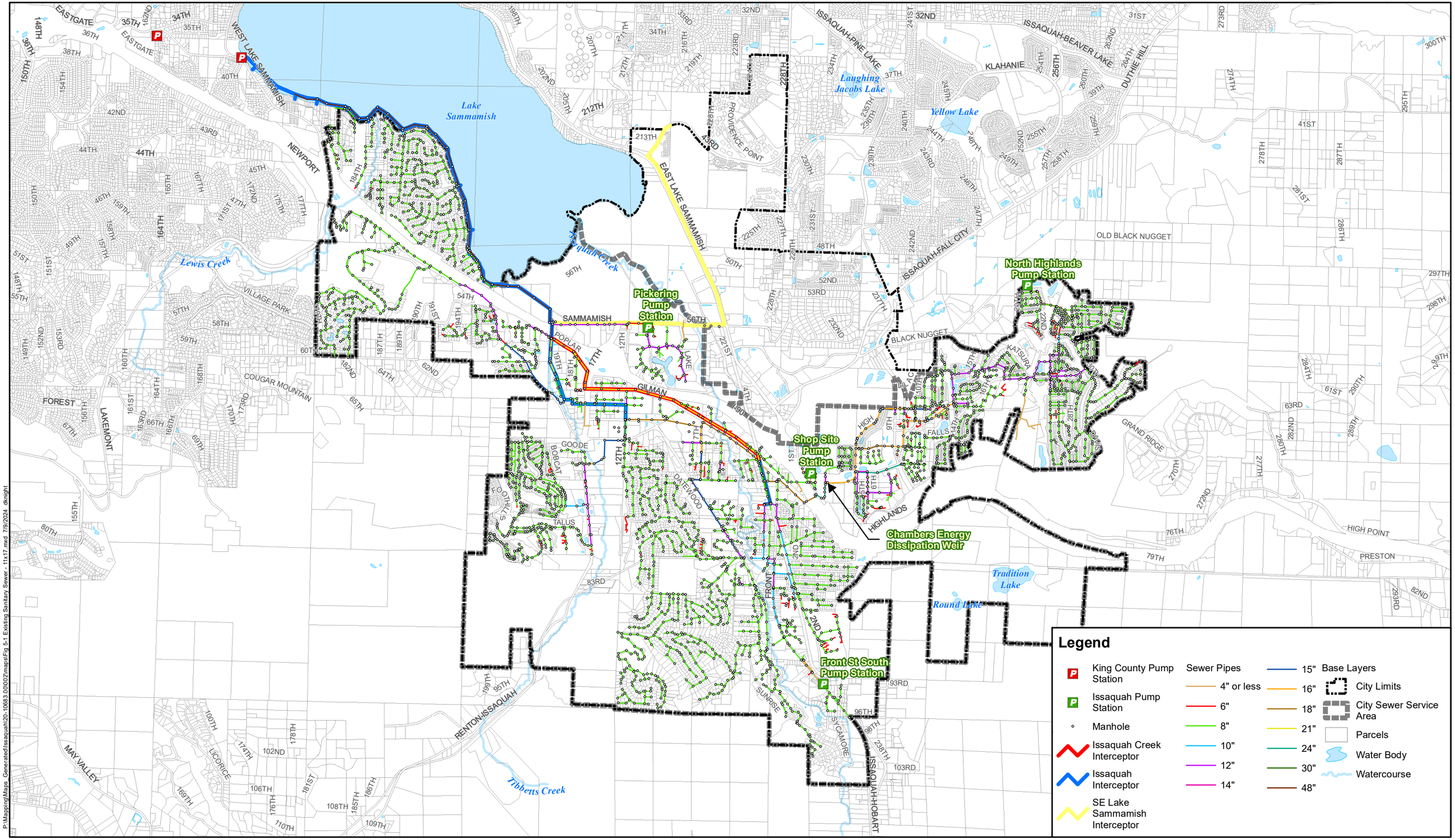


P:\Mapping\Maps Generated\Issaquah\20-10683.00002\maps\Fig 5-1 Existing Sanitary Sewer - 11x17.mxd 7/9/2024 dknight

Sewer System: City of Issaquah.
GIS Base data: King County.
Data sources supplied may not reflect current or actual conditions. This map is a geographic representation based on information available. It does not represent survey data. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.
BHC Consultants LLC., assumes no responsibility for the validity of any information presented herein, nor any responsibility for the use or misuse of the data.

0 1,500 3,000 6,000 Feet

N

CITY OF ISSAQUAH WASHINGTON

# Existing Sanitary Sewer System

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure 5-1

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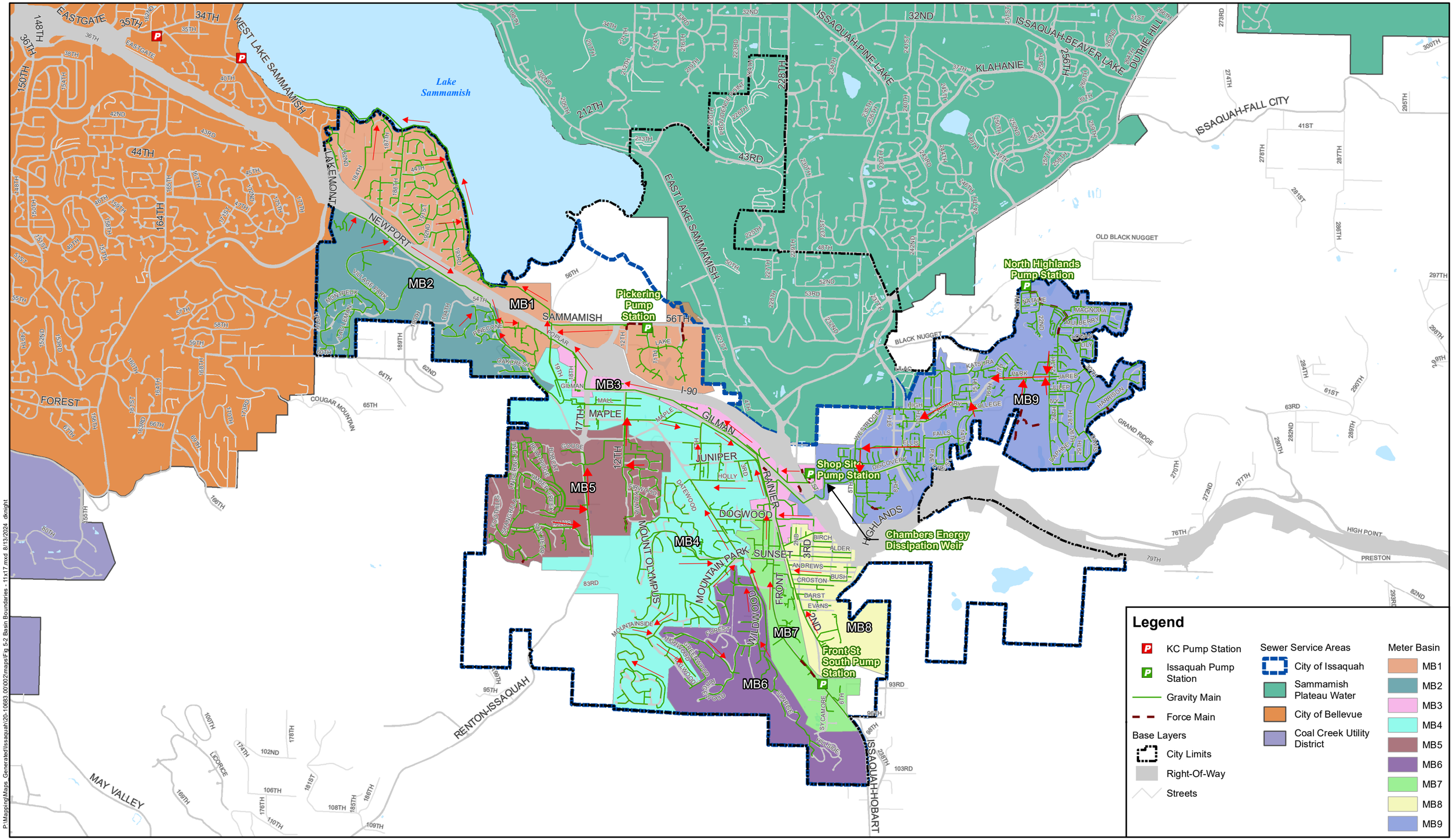


P:\Mapping\Maps_Generated\Issaquah\20-10683.001002\maps\Fig 5-2 Basin Boundaries - 11x17.mxd 8/13/2024 dknight

Sewer System: City of Issaquah.
GIS Base data: King County.
Data sources supplied may not reflect current or actual conditions. This map is a geographic representation based on information available. It does not represent survey data. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.
BHC Consultants LLC., assumes no responsibility for the validity of any information presented herein, nor any responsibility for the use or misuse of the data.

0 1,500 3,000 6,000 Feet

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# Sewer Collection System Basin Boundaries

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**5-2**

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### Table 5-1
### Sewer Basins

| City Basins | | |
|---|---|---|
| **Basin No.** | **Basin Name** | **Area (acres)** |
| MB1 | 2736 | 658 |
| MB2 | 1974 | 549 |
| MB3 | ISSCK39A | 178 |
| MB4 | ISSAQ038 | 935 |
| MB5 | 2423 | 515 |
| MB6 | 0249 | 429 |
| MB7 | 0990 | 225 |
| MB8 | 0962 | 278 |
| MB9 | 1703 | 945 |

## 5.3 Wastewater Mains and Manholes

The City's Geographic Information Systems (GIS) inventory of gravity sewer lines totals 455,676 linear feet of pipe, with sizes up to 24-inches in diameter. The system also includes approximately 2,623 manholes not including County or privately owned manholes. Conveyance pipe materials include Polyvinyl Chloride (PVC), Reinforced Concrete Pipe (RCP), Vitrified Clay Pipe (VCP), Ductile Iron (DI), Cast Iron (CI), Asbestos Cement (AC), Steel, High-Density Polyethylene (HDPE) and Corrugated HDPE (CPP). Table 5-2 presents a summary inventory of the City-owned piping, summarized for each pipe diameter in the inventory. Table 5-3 summarizes the piping inventory according to pipe material.

### Table 5-2
### Inventory of Pipe Sizes

| Pipe Size | Length of Pipe (feet) | % of Total Length |
|---|---|---|
| ≤6-inch | 4,539 | 1.0% |
| 8-inch | 380,689 | 83.5% |
| 10-inch | 8,603 | 1.9% |
| 12-inch | 31,689 | 7.0% |
| 14-inch | 159 | 0.03% |
| 15-inch | 9,168 | 2.0% |
| 16-inch | 8,902 | 2.0% |
| 18-inch | 9,474 | 2.1% |
| 24-inch | 2,453 | 0.5% |
| **Total** | **455,676** | **100%** |

## Table 5-3
## Inventory of Pipe Materials

| Pipe Material | Length of Pipe (feet) | % of Total Length |
|---|---|---|
| AC | 7,898 | 1.7% |
| CI | 2,465 | 0.5% |
| CPP | 1,615 | 0.4% |
| DI | 31,897 | 7.0% |
| HDPE | 9,128 | 2.0% |
| PVC | 280,203 | 61.5% |
| RCP | 95,977 | 21.1% |
| STL | 221 | 0.05% |
| VCP | 26,273 | 5.8% |
| **Total** | **455,676** | **100%** |

The City's inventory of sewer force main (FM) line totals 9,310 feet, ranging in size from 2 inches to 6 inches in diameter. An inventory of the City-owned sewer force main piping is summarized by diameter in Table 5-4. Table 5-5 summarizes the FM piping inventory according to pipe material.

## Table 5-4
## Inventory of Force Main Sizes

| FM Size | Length of FM (feet) | % of Total Length |
|---|---|---|
| 2-inch | 3,726 | 40.0% |
| 4-inch | 1,597 | 17.2% |
| 6-inch | 3,987 | 42.8% |
| **Total** | **9,310** | **100%** |

## Table 5-5
## Inventory of Force Main Materials

| FM Material | Length of FM (feet) | % of Total Length |
|---|---|---|
| DI | 3,726 | 25.1% |
| HDPE | 1,597 | 41.1% |
| PVC | 3,987 | 33.8% |
| **Total** | **9,310** | **100%** |

## 5.4 Sewer Lift Stations

The City's sewer collection and conveyance system currently includes four active sewer lift stations:

- Front Street South Lift Station
- North Highlands Lift Station
- Pickering Sewer Lift Station
- Shop Site Sewer Lift Station

Table 5-6 summarizes the City's lift stations and includes the location, capacity, year constructed, manufacturer, motor information, and on-site power generation. Lift station locations are also illustrated in Figure 5-1 and Figure 5-2.

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## Table 5-6
## Lift Station Inventory

| Lift Station | Street Address | Year of Last Upgrade | Type | Pump Manufacturer & Model | Pump (HP) | Pump Capacity P1/P2 (GPM) | Wet Well Diameter (feet) | Wet Well Top Elevation (feet) | Wet Well Bottom Elevation (feet) | Wet Well Depth (feet) | Emergency Power (Y/N) | Generator Size (kW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shop Site | 670 1st Avenue NE | 1996 | Grinder/ Submersible | Flygt CP3085.095 | 3 | 60/60 | 6 | 91.25 | 72.25 | 19 | Y | 1 MW (Gen. runs entire Shop) |
| Front Street South | 1040 Front Street South | 1995 | Grinder/ Submersible | Flygt CP3127.090 | 3 | 210/200 | 8 | 129.5 | 103.5 | 26 | Y | 35 |
| North Highlands | 2080 NE Newton Lane | 2004 | Grinder/ Submersible | Flygt CP3201.095 | 3 | 160/1,160 | 10 | 570.2 | 554.25 | 15.95 | Y | 125 |
| Pickering | 1885 12th Avenue NW | 2018 | Grinder/ Submersible | Flygt NP3127.090 | 3 | 450/450 | 6 | 51 | 30 | 21 | Y | 50 |

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### 5.4.1 Front Street South Lift Station

The Front Street South Lift Station is located at the intersection of Front Street South and 2nd Avenue SE. It was constructed in 1995 and resides in sewer basin MB7, as illustrated in Figure 5-2. It consists of an 8-foot diameter wet well with a depth of 26 feet. Pump 1 has a capacity of 210 gallons per minute (gpm) and Pump 2 of 200 gpm. The two pumps discharge to the northwest, along Front Street, through 1,123 feet of 4-inch force main, to receiving Manhole (MH) 1046.

Typical peak dry weather flow at this station is not high, with the pumps generally cycling only about five to seven times per day. Under normal conditions, there are no issues with this station. However, it was noted by Operations staff that during significant storm events that cause flooding of nearby Issaquah Creek and the Sycamore neighborhood, high inflow to the lift station can exceed the capacity of the pumps. Vactor trucks are needed to assist in managing the flow in these situations, which have occurred approximately three times in the last 12 years. The source of these inflows has been attributed primarily to a direct stormwater runoff connection. The City investigated and discovered a direct inflow connection from stormwater runoff and will work to eliminate this connection to the sewer system, thereby addressing the capacity issue at the lift station. Sewerage from the Sycamore neighborhood is not connected to the lift station.

### 5.4.2 North Highlands Lift Station

The North Highlands Lift Station is located north of NE Newton Lane and was upgraded and retrofitted in 2004. It is part of the Highlands basin. It consists of a 10-foot diameter wet well with a depth of 16 feet. It has two pumps discharging to the southeast, through a 2,700 foot 6-inch force main to receiving MH 1371, connecting to the 10-inch gravity main in NE Magnolia Street. Pumps 1 and 2 have measured capacities 120 gpm and 160 gpm, respectively.

The North Highlands Lift Station is the City's highest capacity lift station and also pumps through the highest elevation gain of over 150 feet. Due to the high flow, the previous pumps would cycle frequently (about once every 5 minutes) during peak hour flow conditions. Pump 1 is aging due to the frequent pump cycling and needs replacement. Pump 2 was replaced with a new, higher capacity pump, measured at about 1,160 gpm. The area contributing to the station has developed rapidly, increasing the capacity needs of the station.

Numerous rocks, rags and foreign materials end up in the wet well. The rocks may have entered the system from upstream construction activity or from storm runoff connections. A number of storm runoff cross connections have been discovered in the upstream collection system piping, which can exacerbate high peak flows. Operations staff would ideally prefer that a shutoff valve be installed on the downstream side of the lift station flow meter. Retrofitting a shutoff valve into the force main may be a challenge because of the volume of flow that would drain down the long force main from a high elevation. This volume of flow could be managed, however, by diverting it into tanker trucks. The wet well level sensing probe should be cleaned weekly.

### 5.4.3 Pickering Sewer Lift Station

The Pickering Sewer Lift Station is located at the intersection of 11th Avenue NW and NW Sammamish Road. It was constructed in 1996 and is located in the eastern portion of sewer basin MB1. The station is equipped with two 450-gpm pumps in a 6-foot diameter wet well with a depth of 21 feet. The station

discharges to a 6-inch force main that traverses about 815 feet west along NW Sammamish Rd. This lift station serves the primarily commercial areas to the south and east.

There is little change in pump cycling between dry and wet weather flows, indicative of little upstream infiltration and inflow. A substantial portion of the contributing flow to this station is from commercial activity, including a number of restaurants and food shops. Operations staff believe it would be beneficial to install an additional upstream grease trap. Other foreign material is also found in the wet well.

Pump removal for maintenance is complicated due to the current configuration of the pump brackets. Offset brackets or notching of the overhead grating would be beneficial. The lift station exhibits a minor issue with electrical pump start communication.

### 5.4.4 Shop Site Sewer Lift Station

The Shop Site Lift Station is located on the grounds of the City maintenance facility shop site at 670 1st Avenue NE. The lift station is a low-flow facility that provides support for the shop bathroom and for the shop decant facility. Pump cycling is infrequent and heavily dependent on decant facility operation. The lift station is under capacity however, due to the age of the pumps, they are approaching the end of their useful life. The lift station wet well is unlined but is cleaned and pressure-washed once a year.

## 5.5 Chambers Energy Dissipation Weir

The conveyance system also includes an energy dissipation weir. The Chambers Sewer Weir is located adjacent to and east of the City shop site at 670 1st Avenue NE. It is located in a rectangular vault with a screw-down lid to minimize odors. The purpose of the weir is to dissipate energy in the sewer flow discharging from the Highlands, through the steep-sloped piping to the valley floor. It has no moving parts. All sewer flow discharging from the Highlands is conveyed through this weir. The weir structure has a level sensor but no flow monitoring capabilities. The level sensor periodically becomes detached from the wall. Flow depth measured from the sensor can be monitored remotely from the shop via telemetry. Rags occasionally accumulate in the weir. It is checked on a weekly basis and cleaned annually. There are no other reported issues with the weir.

## 5.6 King County WTD Transmission Facilities

City sewage is intercepted by King County regional mains and conveyed to the County's Sunset Pump Station, located adjacent to Vasa Park on the shore of Lake Sammamish. The Sunset Pump Station pumps through a series of interceptors and pump stations, ultimately to the County's South Treatment Plant in Renton. Sewage from the City is currently discharged into two King County interceptors that are located within the City limits: the Issaquah and the Issaquah Creek Interceptors. The Issaquah Interceptor was completed in 1969, and the Issaquah Creek Interceptor was completed in 1982 to supplement the Issaquah Interceptor, which was flowing at full capacity. Upon completion of the Issaquah Creek Interceptor, much of the Issaquah Interceptor was incorporated as part of the City's sewer system.

## 5.7 Flow Monitoring Program

The City currently does not have a flow monitoring program or any active flow meters in the collection system. Flow meters were temporarily installed to collect flow data for hydraulic model calibration. Establishment of a permanent flow monitoring program would result in increased data collection that would improve future system analysis.

# Chapter 6 Sewer Flow Characteristics

## 6.1 Introduction

Sewer flow data recorded at various locations in the City of Issaquah's (City) sewer collection system for the period between October 2020 and April 2021 were analyzed to determine current sewer flow characteristics, such as unit flows, diurnal flow variations, infiltration and inflow (I/I) rates, and peaking factors. Population and employment data from Chapter 3 were used to develop the per capita flow rates that were used to project future flows.

## 6.2 Existing Sewer Flows

The City does not have permanent flow meters in its collection system, to conduct continuous flow monitoring. Seven temporary flow meters were installed by the City for this Plan effort and flows were recorded between October 9, 2020, and April 30, 2021, for the purpose of flow characterization and hydraulic model calibration. King County (County) also has six flow meters installed on County interceptors, at various locations within the City service area. Data from the County meters was obtained, covering a range of periods, to supplement the City flow meter data. The combination of the City and County flow meters provides measured flows for the majority of the City collection system, with the exception of the area tributary to and just downstream of the Pickering Lift Station. These flow monitoring locations are illustrated in Figure 6-1.

The following flow parameters were calculated from the meters:

- Average Annual Flow (AAF) – This flow condition is defined as the average flow during the year.
- Average Dry Weather Flow (ADWF) – This flow condition is defined as the average of each flow meter for a period during the month of October, when little rainfall was recorded. The intent of identifying this data is to capture the base domestic flow conditions with minimum impact from infiltration and inflow (I/I).
- Average Wet Weather Flow (AWWF) – This flow condition is defined as the average flow for the months of November through March. All flows during this period were analyzed regardless of the amount of precipitation.
- Maximum Month Flow (MMF) – This flow condition is defined as the highest monthly average flow. Since National Pollution Discharge Elimination System (NPDES) general permits are written with monthly discharge limitations, the MMF flows are of particular interest for Wastewater treatment plants (WWTPs). The City contracts with King County for treatment and does not own or operate WWTP.
- Peak Day Flow (PDF) – This flow condition is defined as the maximum daily flow during the months of October 2020 to April 2021.
- Peak Hour Flow (PHF) – This flow condition is defined as the maximum hourly flow during the months of October 2020 to April 2021.

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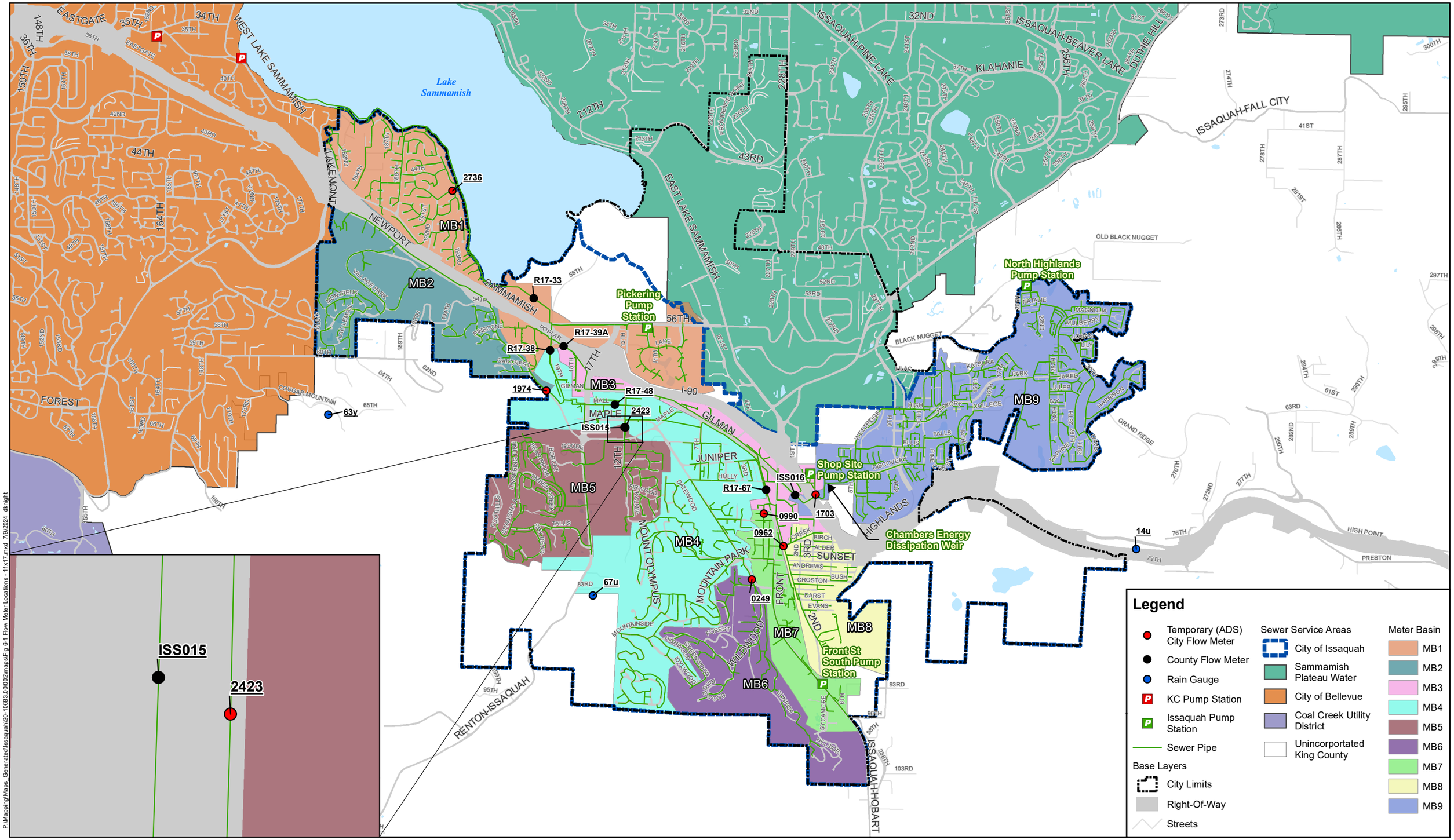


P:\Mapping\Maps_Generated\Issaquah\20-10683.000002\maps\Fig 6-1 Flow Meter Locations - 11x17.mxd 7/9/2024 dknight

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Sewer System: City of Issaquah.
GIS Base data: King County.
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CITY OF ISSAQUAH WASHINGTON

# Sewer Collection System Flow Meter Locations

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure **6-1**

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Meter basin MB1 was divided into sub-basins 2736-North and 2736-East and meter basin MB5 was divided into sub-basins 2423-East and 2423-West for modelling and population projection purposes. Since the flow meters 2736 and 2423 did not cover their entire respective basin tributary areas, population and employment estimates were used in the model to calculate the ADWF for basins 2736 and 2423. The model assumed that basin 2736-North consists entirely of a residential population of 3,847 and that basin 2736-East consists entirely of the commercial population of 8,656, as described in Chapter 3. Basin 2423 consists of a total population of 4,001 and total employment of 416. Assuming 226 equivalent residential units (ERU) in the basin and 2.4 residents per ERU, 542 residents are calculated for the 2423-East subbasin. This resulted in 3,459 residents in 2423-West sub basin. For the employment estimates, 25% of total commercial employment was assumed to be in the 2423-East sub basin and 75% was assumed to be in the 2423-West subbasin. Detailed calculations can be found in Appendix E.

Average annual, average dry weather, average wet weather, maximum month, peak day flow, and peak hour flow, as calculated from flow meter data, are summarized in Table 6-1.

### Table 6-1
### Flow Meter Sewer Flow Summary

| Meter Basin ID | Sub-basin ID (Flow Meter #) | Average Annual (MGD) | Average Dry Weather (MGD) | Average Wet Weather (MGD) | Maximum Month (MGD) | Peak Day (MGD) | Peak Hour (MGD) |
|---|---|---|---|---|---|---|---|
| MB1 | 2736-North | 0.064 | 0.060 | 0.064 | 0.072 | 0.121 | 0.220 |
| MB2 | 1974 | 0.185 | 0.164 | 0.187 | 0.207 | 0.317 | 0.404 |
| MB3 | ISSCK39A | 1.68 | 1.44 | 1.77 | 2.07 | 2.90 | 3.65 |
| MB4 | ISSAQ2 | 1.05 | 0.875 | 1.09 | 1.25 | 2.31 | 3.48 |
| MB5 | 2423-East | 0.123 | 0.102 | 0.128 | 0.134 | 0.199 | 0.340 |
| MB6 | 0249 | 0.190 | 0.131 | 0.207 | 0.257 | 0.687 | 0.838 |
| MB7 | 0990 | 0.209 | 0.169 | 0.222 | 0.299 | 0.504 | 0.680 |
| MB8 | 0962 | 0.124 | 0.084 | 0.133 | 0.167 | 0.212 | 0.264 |
| MB9 | 1703 | 0.930 | 0.860 | 0.984 | 1.05 | 1.51 | 1.96 |

The monitoring period, from October 9, 2020 – April 30, 2021, saw an average annual flow range from 0.064 to 1.68 MGD between meter basins 1-9 as shown in Table 6-1. Maximum month flows ranged from 0.072 to 2.07 MGD. Peak Day flows ranged from 0.121 to 2.90 MGD and Peak Hour flows ranged from 0.220 to 3.65 MGD.

These numbers are provided for informational purposes and should not be used for planning purposes. The calculated average annual flow is not based on a full year of data, and two of the City flow meters (2736 and 2423) did not provide coverage for the entire basin contributing area. Also, two of the County flow meters (ISSCK39A and ISSAQ2) include combined flow from upstream tributary basins.

## 6.3 Water Meter Data

Water meter data for single-family residential, multi-family residential, public, irrigation, non-revenue and commercial categories were obtained from the City from 2017 to 2022 and are summarized in Table 6-2. Total water demand increased each year except for 2019, which was approximately 3% lower than the average 2017 to 2022 demand. Residential (single- + multi-family) demand accounts for 56% of the total water demand and approximately 29% of the water demand corresponds to commercial flow, for the period from 2017 to 2022.

Water usage was assumed to correlate with sewer flows. Therefore, an analysis of water usage data was performed to provide a basis for allocating sewer flows. Water usage rates were collected from the City for 2017. Irrigation was subtracted from totals and a factor of 0.9 was applied to the water demand to account for water usage that does not have a sewer component. The percentage of combined residential and commercial water use compared with total water use was then calculated. This percentage was then used to allocate the flow for each sub-basin to the nearest node as a percentage of the total sub-basin flow.

**Table 6-2**
**Water Demand (MG) 2017-2022**

| Period | Single-Family Residential | Multi-Family Residential | Public | Commercial | Irrigation | Non-Revenue | Total |
|---|---|---|---|---|---|---|---|
| 2017 | 372.8 | 185.5 | 12.9 | 283.0 | 132.4 | 26.3 | 1012.9 |
| 2018 | 366.7 | 184.5 | 14.9 | 294.7 | 135.5 | 23.3 | 1019.6 |
| 2019 | 353.7 | 191.0 | 15.4 | 295.7 | 129.8 | 20.0 | 1005.7 |
| 2020 | 381.8 | 209.3 | 5.7 | 284.0 | 112.8 | 30.3 | 1024.0 |
| 2021 | 395.3 | 211.5 | 6.5 | 302.5 | 135.7 | 12.9 | 1064.2 |
| 2022 | 380.1 | 209.8 | 6.5 | 324.1 | 119.5 | 32.6 | 1072.6 |

## 6.4 Industrial Flows

The City does not have large industrial contributions to the sewer system, with the notable exception of the Darigold processing plant at 611 Front Street North. Based on City water meter data, the plant has an average daily water demand of approximately 144 gallons per minute (gpm). The plant has approximately 100 employees. An inquiry with Darigold plant operations confirmed that the 144-gpm water demand estimate is correct and based on usage directly translates to an equivalent sewer flow. Plant operations indicated that no impactful growth is anticipated for the foreseeable future. Therefore, the 144 gpm was input into the model at a fixed rate for all scenarios.

## 6.5 Unit Sewer Flow Calculations

The estimation of sewer flows for the 6- and 20-year scenario projections is based on the population forecasts outlined in Chapter 3, and calculation of unit sewer flows in gallons per capita per day (gpcd), described herein. Existing residential and commercial unit or per capita flows were calculated for each basin based on the modeled basin flow. The existing domestic sewer flow component of basin flows includes both residential and commercial sources. In order to calculate projections for residential and for commercial sewer flows individually, per capita rates need to be identified for both categories. Residential per capita rates were therefore assumed to be six times than commercial rates, a commonly used multiplier. This resulted, however, in significant variability in unit flow rates between the basins, in both the residential and commercial categories, as shown in Table 6-3. While some variability is to be expected, the resultant variability in rates is somewhat excessive. This variability can be attributed to multiple factors, including some natural variability in customer usage rates between basins, inaccuracies in flow meter data, population and employment estimates and estimates of the base I/I flow that typically occurs, even during relatively dry flow periods.

Because the variability in unit flow rates calculated from modeled flows was considered unacceptable, an analytical approach was used. The 2018 Water System Plan Update assumed a water usage rate of 150 gallons per day (gpd)/ERU. This value was factored by 0.9 to account for irrigation and non-sewer water. Assuming 2.4 residents per ERU as per the 2020 Census, yields a per capita sewer flow rate of 56 GPCD. However, in discussions with the City, more conservative planning level values of 65 GPCD for residential and 10 GPCD for commercial population were identified.

**Table 6-3**
**Modeled and Assumed Unit Flows**

| Sub-Basin ID | Average Dry Weather[1] (GPD) | Modeled Per Capita DWF | | Assumed Per Capita DWF | |
|---|---|---|---|---|---|
| | | Residential (GPCD) | Commercial (GPCD) | Residential (GPCD) | Commercial (GPCD) |
| 2736-North | 199,286 | 34 | | 65 | |
| 2736-East | 90,916 | | 6.9 | | 10 |
| 1974 | 163,715 | 49 | 8.1 | 65 | 10 |
| ISSCK39A | 117,193 | 106 | 17.6 | 65 | 10 |
| ISSAQ2 | 464,429 | 62 | 10.4 | 65 | 10 |
| 2423 (2423-East) | 102,103 | 64 | 10.6 | 65 | 10 |
| ISS015 (2423-West) | 122,016 | 38 | 6.3 | 65 | 10 |
| 0249 | 130,882 | 46 | 7.7 | 65 | 10 |
| 0990 | 170,130 | 63 | 10.6 | 65 | 10 |
| 0962 | 83,822 | 59 | 9.8 | 65 | 10 |
| 1703 | 1,025,526 | 47 | 7.9 | 65 | 10 |

Note:
1) Average Dry Weather flows from calibrated existing conditions model results.

## 6.6 Infiltration and Inflow Analysis

Stormwater infiltration and inflow (I/I) are rainfall dependent components of sewer flow. Inflow is runoff entering the sewer system directly, typically from storm sewer connections, basement sump pumps, roof drains, and submerged manholes. Infiltration occurs as groundwater migrates into the sewer system through cracked or broken pipes, leaky manhole covers or through loose joints and connections. Infiltration and inflow is an important component in determining peak day and peak hour flows in the collection system. Infiltration and inflow can vary significantly due to the overall condition of collection system piping, changes in groundwater tables, rainfall intensity, rainfall duration, and rain event peak timing during the day. Infiltration and inflow is an important component of the total sewer flow in the collection system in that it can utilize significant amounts of available capacity in the piping, potentially contributing to surcharged flow conditions and inadequate pump station capacities during periods of peak flows. Infiltration and inflow calculations are presented in Chapter 7.

Additionally, consideration was given to King County's 1,100 gallons-per-acre-per-day-standard per King County Code 13.24.010 H. One sewer basin in the City (0249) has peak I/I levels equal to the 1,100 gallons-per-acre-per-day for the design storm event. CIP project 1A includes funding for an I/I investigation in this basin, prior to performing the identified piping upgrades to convey the elevated flow. King County's ongoing work on reducing I/I in the region will be used to recommend and influence programmatic steps taken by the City to reduce I/I as discussed in Chapter 10.

## 6.7 Diurnal Curves

Regular variations in domestic sewer flows over a daily cycle are known as diurnal flow patterns. Sewer flows are typically lowest overnight and exhibit peaks during the morning and evening hours. These diurnal patterns, or curves are used by the hydraulic model as described in Chapter 7, to simulate daily flow variations throughout the modeled time period.

Diurnal curves were developed for each sewer basin by normalizing the daily flow on an hourly basis, for flow data recorded on October 15, 2020, which has been identified as a dry weather flow day based on the absence of preceding precipitation. A normalized diurnal curve is unitless and contains varying hourly flow multipliers that average 1.0 over the entire 24-hour period. These hourly multipliers are applied to average daily flows loaded into each sewer basin to determine hourly flows throughout the day. The diurnal curve for meter basin MB6 (Flow Meter 0249) represents a typical diurnal flow pattern, as illustrated in Figure 6-2. Diurnal patterns for all nine meter basins are included in Appendix F.

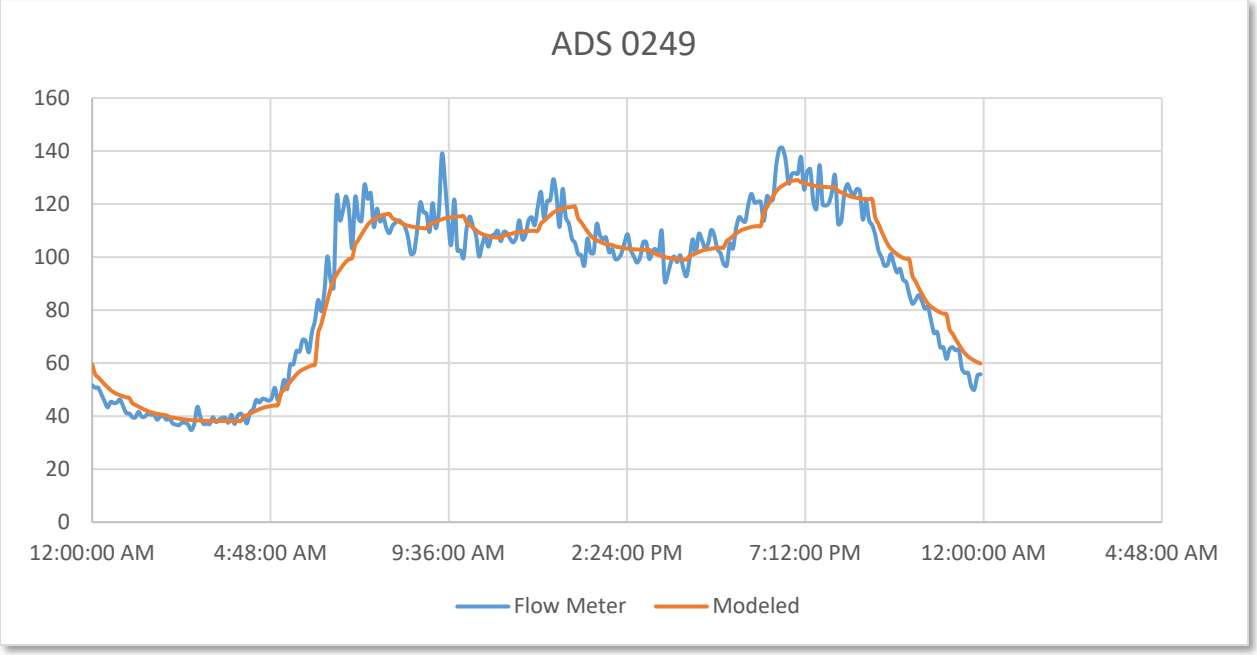


**Figure 6-2 Diurnal Curve**

## 6.8 Peaking Factors

The peaking factors shown in Table 6-4 were calculated by dividing the maximum month, peak day, and peak hour flows by the average annual flow.

**Table 6-4**
**Sewer Basin Peaking Factors**

| Sewer Meter Basins | Maximum Month Peaking Factor | Peak Day Peaking Factor | Peak Hour Peaking Factor |
|---|---|---|---|
| MB1 | 1.12 | 1.90 | 3.44 |
| MB2 | 1.12 | 1.72 | 2.19 |
| MB3 | 1.23 | 1.73 | 2.17 |
| MB4 | 1.20 | 2.21 | 3.33 |
| MB5 | 1.09 | 1.62 | 2.76 |
| MB6 | 1.35 | 3.61 | 4.40 |
| MB7 | 1.43 | 2.41 | 3.26 |
| MB8 | 1.34 | 1.70 | 2.12 |
| MB9 | 1.13 | 1.62 | 2.11 |
| **Average** | **1.22** | **2.06** | **2.86** |

The maximum month, peak day, and peak hour factors are related to the served population. Based on the flow data recorded from 2020 to 2021, the average peaking factor for maximum month to annual average flow is 1.22 and the average peaking factor for peak day to annual average flow is 2.06. The average peaking factor for peak hour flow to annual average flow is 2.86.

These numbers are provided for informational purposes and should not be used for planning purposes due to the limitation noted in Section 6.2.

## 6.9 Projected Sewer Flows

Sewer flows were calculated for the 6- and 20-year scenarios based on the population and employment projections described in Chapter 3. Unit flows developed in Section 6.5 and presented in Table 6-3 are assumed to remain constant throughout the planning horizon. Baseline flows are based on the calibrated existing conditions dry weather flow model results rather than the flow meter flows from Table 6-1. Modeled flows represent the entire basin. The unit flows were applied to the additional population above the 2020 baseline and the projected flows added to the modeled 2020 flows, for their respective flow scenarios. A summary of projected flows for the planning horizon is shown in Table 6-5. The 2050 scenario was not modeled, but the flows are provided for informational purposes.

## Table 6-5
## Summary of Unit Flows and Projected Flows

| Meter Basin ID | Sub-basin ID | Residential Flow (GPCD) | Employment Flow (GPCD) | 2020 Average Daily Flow[1] (GPD) | 2028 Average Daily Flow (GPD) | 2042 Average Daily Flow (GPD) | 2050 Average Daily Flow (GPD) |
|---|---|---|---|---|---|---|---|
| MB1 | 2736-North | 65 | - | 199,286 | 207,931 | 223,011 | 231,786 |
| MB1 | 2736-East | - | 10 | 90,916 | 96,446 | 107,496 | 113,816 |
| MB2 | 1974 | 65 | 10 | 163,715 | 163,815 | 164,015 | 164,135 |
| MB3 | ISSCK39A | 65 | 10 | 86,178 | 159,583 | 289,658 | 364,073 |
| MB4 | ISSAQ2 | 65 | 10 | 625,055 | 741,545 | 952,880 | 1,073,630 |
| MB5 | 2423 (2423-East) | 65 | 10 | 102,103 | 104,556 | 109,023 | 111,579 |
| MB5 | ISS015 (2423-West) | 65 | 10 | 132,047 | 145,449 | 169,452 | 183,196 |
| MB6 | 0249 | 65 | 10 | 130,882 | 133,432 | 137,947 | 142,247 |
| MB7 | 0990 | 65 | 10 | 170,130 | 184,925 | 211,460 | 226,645 |
| MB8 | 0962 | 65 | 10 | 83,822 | 88,362 | 96,922 | 101,792 |
| MB9 | 1703 | 65 | 10 | 1,025,526 | 1,044,446 | 1,080,986 | 1,101,906 |

Note:
1) Sewered residential population assumes no septic tanks in the City.

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# Chapter 7 Sewer Conveyance System Analysis

## 7.1 Introduction

Analysis of the City of Issaquah's (City) sewer conveyance system is a critical component in determining the suitability of the existing infrastructure and its ability to accommodate future growth. This chapter provides the analysis necessary for strategic, long-term infrastructure planning and development of the Capital Improvement Program (CIP) in Chapter 10. The City's conveyance system was analyzed using a truncated hydraulic model that simulates the primary gravity trunk and interceptor mains. This approach creates a more manageable model and is considered reasonable since capacity issues are not likely to be a concern for the smaller upstream pipes. The system was analyzed for existing conditions (2022), a 6-year planning horizon (2028), and a 20-year planning horizon (2042). The study area includes the City's entire sewer collection network and is bounded by the City's Urban Growth Management Area (UGMA).

The City's existing sewer system and basin delineation is shown on Figure 7-1.

## 7.2 Model Software

InfoSWMM 15.0 by Innovyze was the hydraulic modeling software selected by the City to model the City sewer system. InfoSWMM 15.0 is a dynamic hydraulic model (model) that utilizes the United States Environmental Protection Agency (EPA) SWMM 5.0 hydraulic engine for hydraulic simulation. The model is designed specifically for modeling urban sanitary and combined sewer systems. The current version operates within an ArcGIS (ArcMap) platform.

## 7.3 Model Development

### 7.3.1 Existing Sewer System

The following information was used in developing the model of the existing sewer collection system:

- Geographic Information System (GIS) information provided by the City, including the following information:
  - Pipe:
    - Gravity sewers
    - Force mains
  - Manholes
  - Lift stations
- Construction record drawing computer-aided design (CAD) drawings and anecdotal information (e.g., areas with inverse pipe slopes) from the City
- The previously developed model, illustrating portions of the collection system (e.g., InfoSEWER)
- Lift station data sheets

The resulting modeled system is illustrated in Figure 7-2.

Additional details on the existing sewer system are included in Chapter 5.

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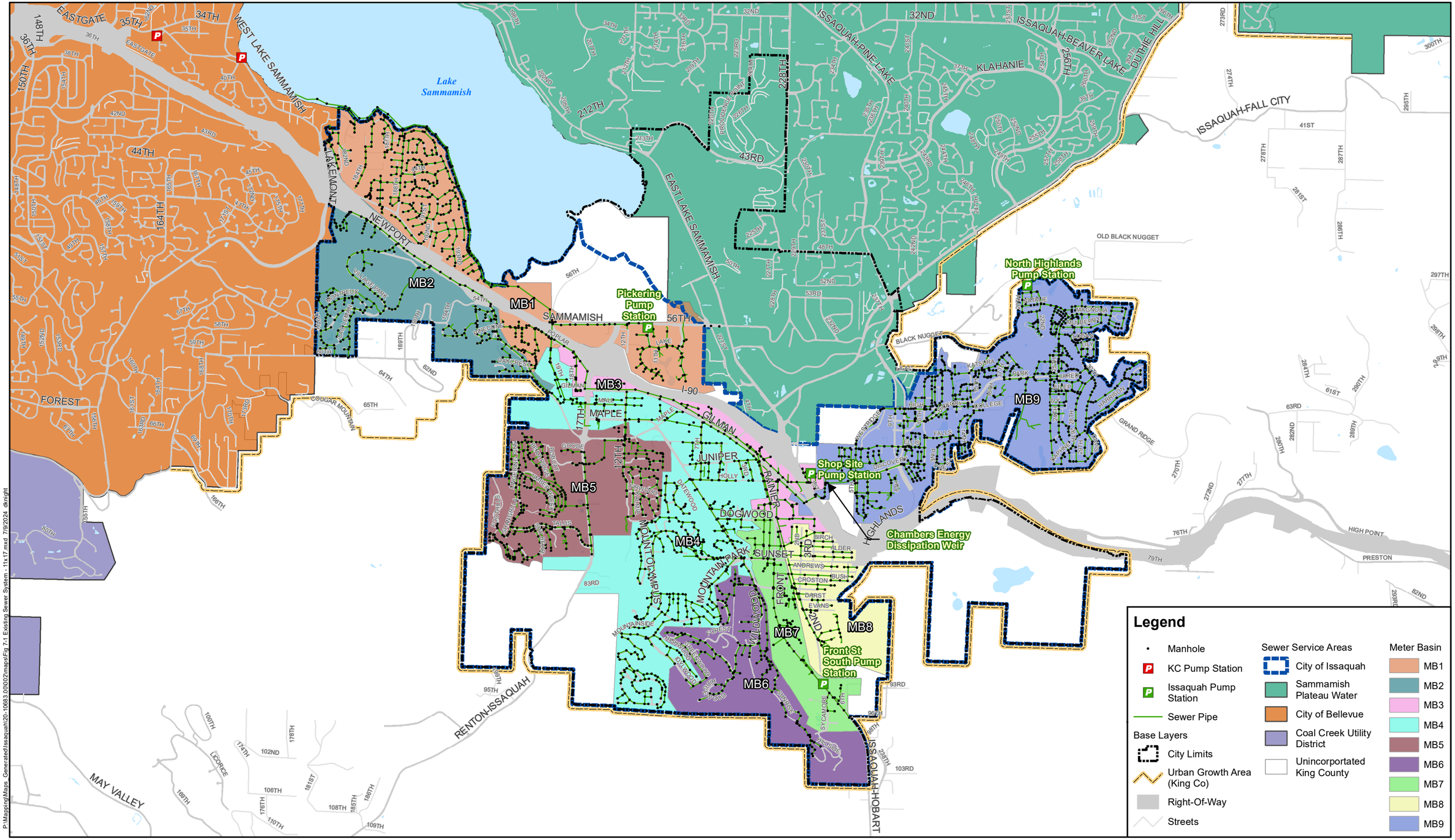


P:\Mapping\Maps_Generated\Issaquah\20-10683.00002\maps\Fig 7-1 Existing Sewer System - 11x17.mxd 7/9/2024 dknight

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# Existing Sanitary Sewer System

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**7-1**

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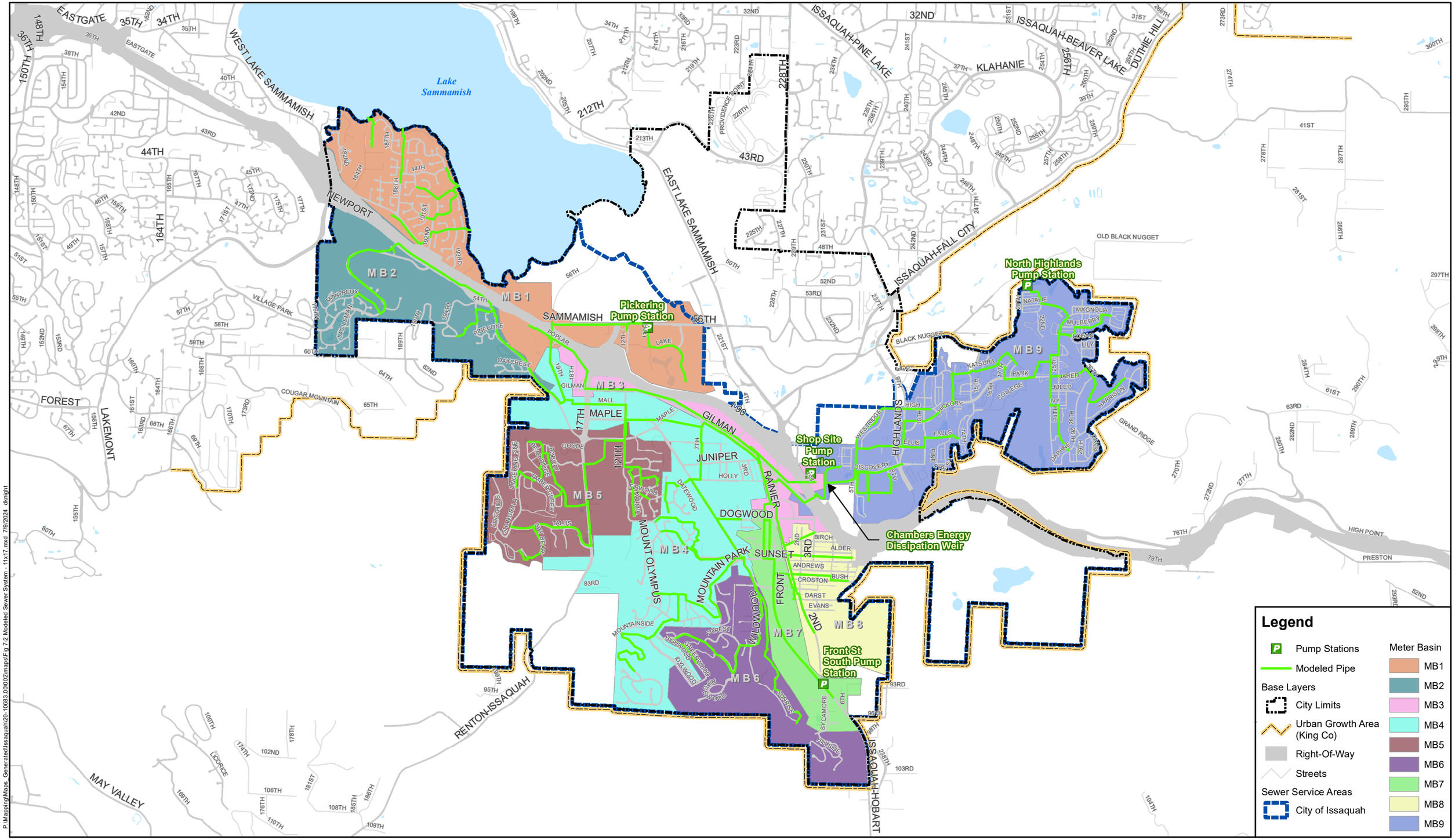


P:\Mapping\Maps_Generated\Issaquah\20-10683.00002\maps\Fig 7-2 Modeled Sewer System - 11x17.mxd 7/9/2024 dknight

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CITY OF ISSAQUAH WASHINGTON

# Modeled Sewer System

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**7-2**

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### 7.3.2 Gravity Sewers

Gravity sewers make up the majority of the City's sewer collection system. The City's primary collection system, including pipes, manholes, and other hydraulically significant features, was imported into the model from the previous InfoSEWER model provided by the City. Collector pipes and sewer lines ending in clean-outs or similar features were typically omitted from the City model to reduce the size to below the 4,000-pipe limit of their current software license and to increase performance. There were 912 pipe segments included in the model, although this number includes several pipes that are not gravity sewer, such as force mains. Engineering judgment was used to ensure that the accuracy of the model was retained.

All gravity pipes are connected at manholes, which are represented as nodes in the model. There are 918 nodes included in the model. Some of these nodes are 'dummy' nodes which represent other physical features of the sewer system. Record drawings were used to evaluate, confirm or correct pipe invert elevations in areas where abnormal or adverse grades were present.

### 7.3.3 Lift Stations

Lift stations were imported to the model from the GIS database provided by the City. Pump curves were not available for all pumps. Simplified pump curves based on a flow/depth relationship were added to represent pump operation. Wet wells are modeled based on lift station data sheets maintained by Operations and Maintenance (O&M) staff. Depth to volume relationships and pump on/off set points are also added to increase accuracy. Modeled pumping rates were compared against factory pump curve data when available and validated against City-provided information to ensure model accuracy and that the model outputs were within a range of reasonably expected values.

## 7.4 Model Loading

Meaningful modeling results can only be obtained if the quantity of flows (loading) and the location where they enter the system in the model reasonably reflect actual conditions. Sewer flow consists of two unique elements: sanitary sewer flow and infiltration and inflow (I/I). Sanitary sewer flow is typically referred to as Dry Weather Flow (DWF) in the model, although DWF in the collection system usually includes a minor amount of base groundwater generated I/I that is accounted for in the model I/I loading. Infiltration and inflow is loaded into the model separately from sanitary flow, as an external source of flow. All flow is loaded to model nodes to represent the spatial distribution of loading from service connections, inflow, and infiltration.

### 7.4.1 Sanitary Sewer Flows

Existing and projected sanitary sewer flow rates were initially developed for each basin in accordance with the following information:

- Population and employment data from the 2020 Census (described in Chapter 3)
- Population and employment projections from the Puget Sound Regional Council (PSRC) (described in Chapter 3)
- Basin areas (described in Chapter 5)
- Existing measured flow rates (described in Chapter 6)
- Unit sewer flows (described in Chapter 6)
- Diurnal curves (described in Chapter 6)

Model loading was initially assigned based on GIS demand data included with water system service points, that were the basis for developing the baseline sewer flows. Model loading was later updated to account for the newly documented land use changes described in Chapter 6. Loading from the original GIS demand data service points was then globally factored up or down, to match the updated loading developed from the zoning updates. The modeling software assigns flow to the model nodes, based on the closest node to each GIS water system service point, as calculated for each node using the Thiessen polygon method.

## 7.5 Model Calibration

The model is calibrated to ensure that the modeled collection system is a reasonably accurate representation of the physical system. Calibration is an iterative process of adjusting model parameters that control simulated sanitary and I/I flow until model output matches measured flow data within acceptable limits.

### 7.5.1 Flow Monitoring

As discussed in Section 6.2, the City installed flow meters at a number of locations that defined the basins upstream of the meters. The flow meter data is valuable for characterizing diurnal variations in sanitary flow during dry weather, the I/I response to rainfall and potential areas of concern in the collection system. The flow data provided a basis for calibration of the hydraulic model, especially in capturing a dry period in early October of 2020 and a peak storm event in January 2021.

Basin 2736, adjacent to Lake Sammamish, is comprised of four mini basins that each discharge directly into the County's sewer trunk main. The flow meter for Basin 2736 was located on one of these mini basins. Since the overall Basin 2736 area is largely built-out and homogeneous, calibration results from this flow meter data were applied to the entire basin.

The two County flow meters that were utilized in this analysis captured flow from basins that were downstream of City-metered basins. Therefore, the flow from the upstream basins had to be subtracted out of the downstream flow meter data. Although, due to flow attenuation, a direct subtraction of flows is not entirely accurate, it is assumed to be somewhat conservative and reasonable for this analysis.

### 7.5.2 Dry Weather Flow

Model calibration is first performed to Average Dry Weather Flow (ADWF), to achieve a match between simulated and metered flow for this primarily domestic component of sewer flow. Diurnal flow patterns discussed in Chapter 6 are applied to this component of flow since ADWF is contributed by users (e.g., residences, businesses) and the calibration accounts for the repetitive diurnal variations in these flows.

Using the flow meter data for each basin, a dry period was identified and used to represent base sanitary sewer flows. One-day ADWF patterns for each basin were derived from this period using an average of the weekday, Saturday, and Sunday metered flows, at 5-minute intervals. Only the weekday flows were used as a basis for calibration. The initial model loadings were globally factored as needed to adjust the amplitude of the modeled flow curve to match the meter-derived flow curves. Total volume is also checked to verify the calibrated loading results in an acceptable volume match between simulated and metered flow. Average Dry Weather Flow (ADWF) calibration is illustrated for flow meter 0249 in Figure 7-3.

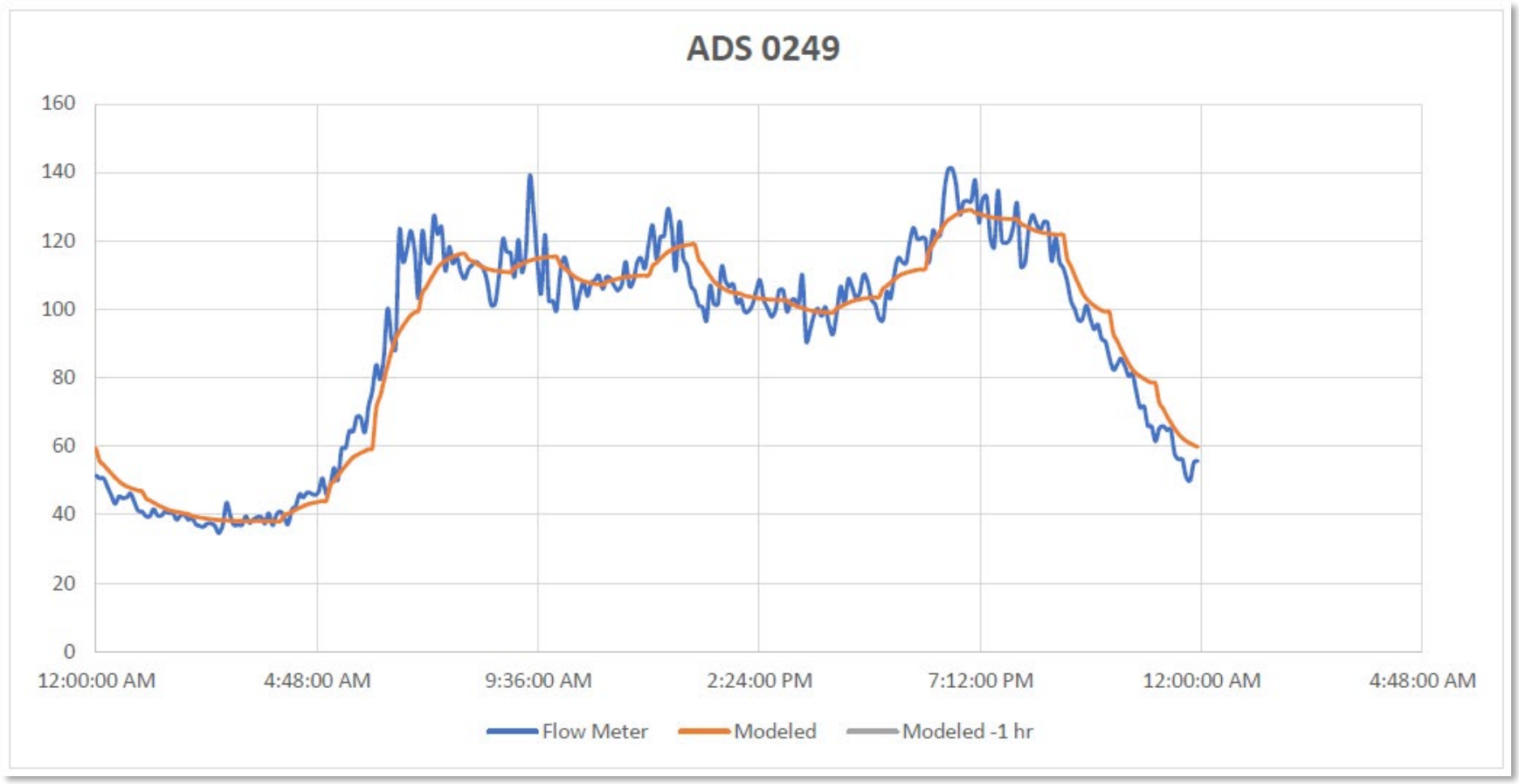


Figure 7-3 ADS 0249

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### 7.5.3 RDII

After an acceptable match is achieved between modeled and metered ADWF, the model is calibrated to wet weather flow by applying local rainfall data and adjusting parameter values in the model that govern the hydrologic response to rainfall. Rainfall Derived Infiltration and Inflow (RDII) consists of storm runoff that flows directly into sewer infrastructure, such as unsealed manhole covers or combined sewer inflows, and slower subsurface infiltration into deteriorated pipes or manholes. The RTK method for RDII model simulation and calibration was chosen in coordination with the City.

The RTK method separates the I/I storm event into three periods that represent short-term, medium-term, and long-term responses to inflow and infiltration. The short-, medium-, and long-term responses are approximately represented by overlapping hydrographs. Short-term response RDII is generally comprised of rainfall falling on impervious surfaces and flowing directly into the collection system (inflow). This typically appears as a narrow but "spikey" hydrograph from the high intensity but short duration of the runoff. Medium-term response RDII is from semi-impervious surfaces and is assumed to consist of both infiltration and inflow. A typical hydrograph from medium response RDII may have a shape similar to a bell curve. Slow response RDII is from predominantly pervious areas and takes longer from the start of the storm event to reach the collection system and longer to subside after the rainfall event has ended. A typical slow response hydrograph will be relatively long and flat. The total RDII storm hydrograph is represented by the summation of these three hydrographs, with the total combined RDII volume being the area under the curve. The RDII response will be affected by the intensity and duration of the storm as well as initial soil moisture. Saturated soil conditions typically produce a faster and higher response.

The fast, medium, and slow hydrographs are each defined in the model by the RTK parameters, wherein R is the fraction of rainfall that becomes I/I, T is the time to hydrograph peak (in hours), and K is the ratio of recession time to peak time. In addition, three other parameters, known as initial abstraction parameters, are used to define the RDII response. These are Maximum Depth, Recovery Rate, and Starting Depth, and generally represent soil moisture conditions.

Calibrating the model for wet weather flow, or RDII, is done to a selected storm event that occurred when the flow meters were active. The calibration process involves modifying the RTK parameters until the model output reasonably matches the recorded flow data from the storm event, including appropriate representation of the initial response, peak instantaneous flow and recessional limb of the flow hydrograph. This is typically an iterative process and when done manually can be very time-consuming with mixed results. InfoSWMM includes an add-on module, RDII Analyst, for semi-automating the calibration process. The module disaggregates the flow data into distinct DWF and RDII components, using the rainfall data to identify dry and wet weather periods. The RDII component is then further analyzed implicitly in the software, to determine RDII events and to calibrate the RTK parameters using a genetic algorithm optimization routine, until the simulated RDII flow reasonably matches metered flow.

For the Issaquah model, each basin defined by a City flow meter was calibrated for RDII using the RDII Analyst module.

Since I/I tends to increase over time as the conveyance system ages and degrades, King County practices indicate that I/I degradation be taken into consideration when analyzing future projected flow rates. The standards indicate that peak I/I flow rates can increase by 7% per decade. For each modeled future scenario (2028, 2042), the RTK parameters were therefore adjusted such that the peak flow rate of the I/I

component of the total projected flow, increased at a rate equivalent to approximately 7% per decade (or 0.7% per year) from the baseline.

### 7.5.4 Flow-Recurrence and Surcharge Criteria

To evaluate the sewer conveyance system model, the City selected a 2-day storm event that occurred over February 27-28, 2022. This storm approximates the rainfall total from a 25-year event and is used to compare the performance of the existing collection system and current population/flows with projected future population/flows.

To evaluate the performance of the conveyance system, surcharging criteria were established. These are outlined below:

- The City's conditional surcharging criteria standard defines two thresholds that are dependent of the depth of the sewer line:
  - For pipe inverts that are less than or equal to 8-feet below the ground surface:
    - The maximum allowable surcharge is 1 foot above the crown of the pipe.
  - For pipe inverts that are greater than 8-feet below the ground surface:
    - The maximum allowable surcharge is 3 feet above the crown of the pipe.
- Modeled pipes were then sorted into the following four classes based on the predicted level of surcharging during the 20-year design storm (February 27-28, 2022):
  - Class 1 - Surcharging exceeds manhole rim elevation and the potential for a sanitary sewer overflow exists.
  - Class 2 - Surcharging is below the manhole rim elevation but exceeds the City's conditional surcharge criteria.
  - Class 3 - The pipe is surcharging but is within the City's conditional surcharging criteria.
  - Class 4 - The pipe is not surcharging.

### 7.5.5 Model Results

Model results for the 2028 and 2042 scenarios are illustrated in Figure 7-4 and Figure 7-5, respectively. Results indicate that most of the City's infrastructure has sufficient capacity to convey the projected increase in flow rates through the planning horizon, with one notable Class 1 exception and two locations with Class 2 surcharging.

- Class 1:
  - Location 1: A section of 8-inch and 10-inch sewer main along Newport Way SW between Sunset Way and approximately SW Hepler Lane. The upper portion of this section is adjacent to Issaquah Creek through Mine Hill Park. See profile Figure 7-6.
- Class 2:
  - Location 2: A section of 8-inch sewer main along Wildwood Blvd SW between SW Gibson Lane and SW Hepler Lane. Refer to profile Figure 7-7.

  - Location 6: Sections of 16-inch sewer main along 5th Place NE in the Highlands basin. Refer to Figure 7-8.
- Class 3:
  - Location 3: Sections of 21-inch sewer main along Gilman Boulevard. Refer to profile in Figure 7-9.
  - Location 4: Sections of 16-inch and 18-inch sewer main between 7th Avenue NW and NW Maple Street. Refer to profile in Figure 7-10.
  - Location 5: Two 12-inch pipe segments along Newport Way NW between NW Dogwood Street and NW Alder Court. Refer to profile in Figure 7-11.

Flow exceedances at Location 1 occur with the 2028 scenario and should be considered a priority. Class 2 exceedances at Location 6 do not occur until the 2042 scenario and assume several large upstream development proposals that are currently under consideration have been constructed. This section should be reevaluated at a future date when the status of these development proposals is finalized. The other locations should be placed on a watch list.

These results are used to develop recommended CIP which are outlined in Chapter 10 – Capital Improvements Program.

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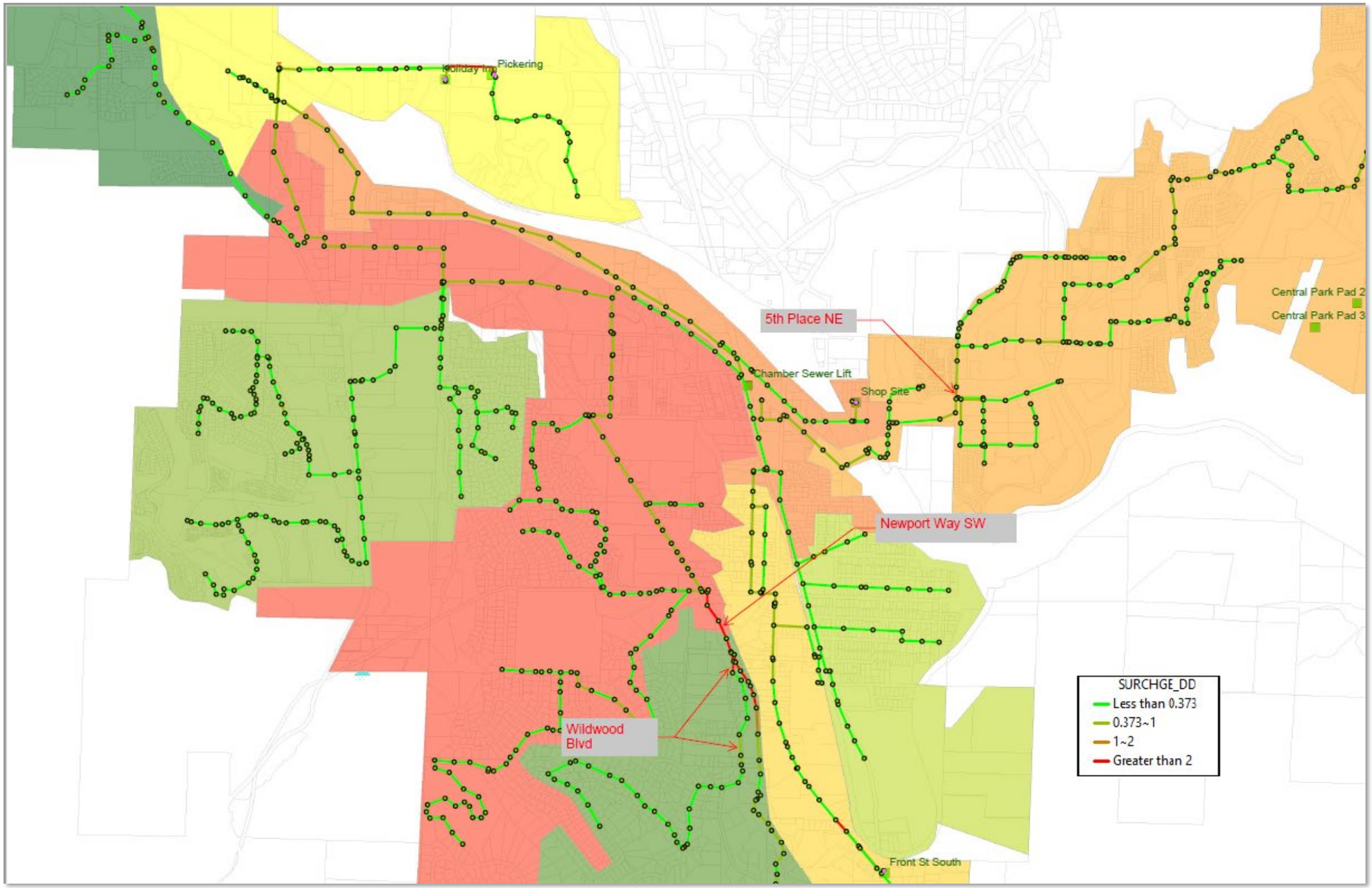


Figure 7-4 Surcharge d/D – Plan View

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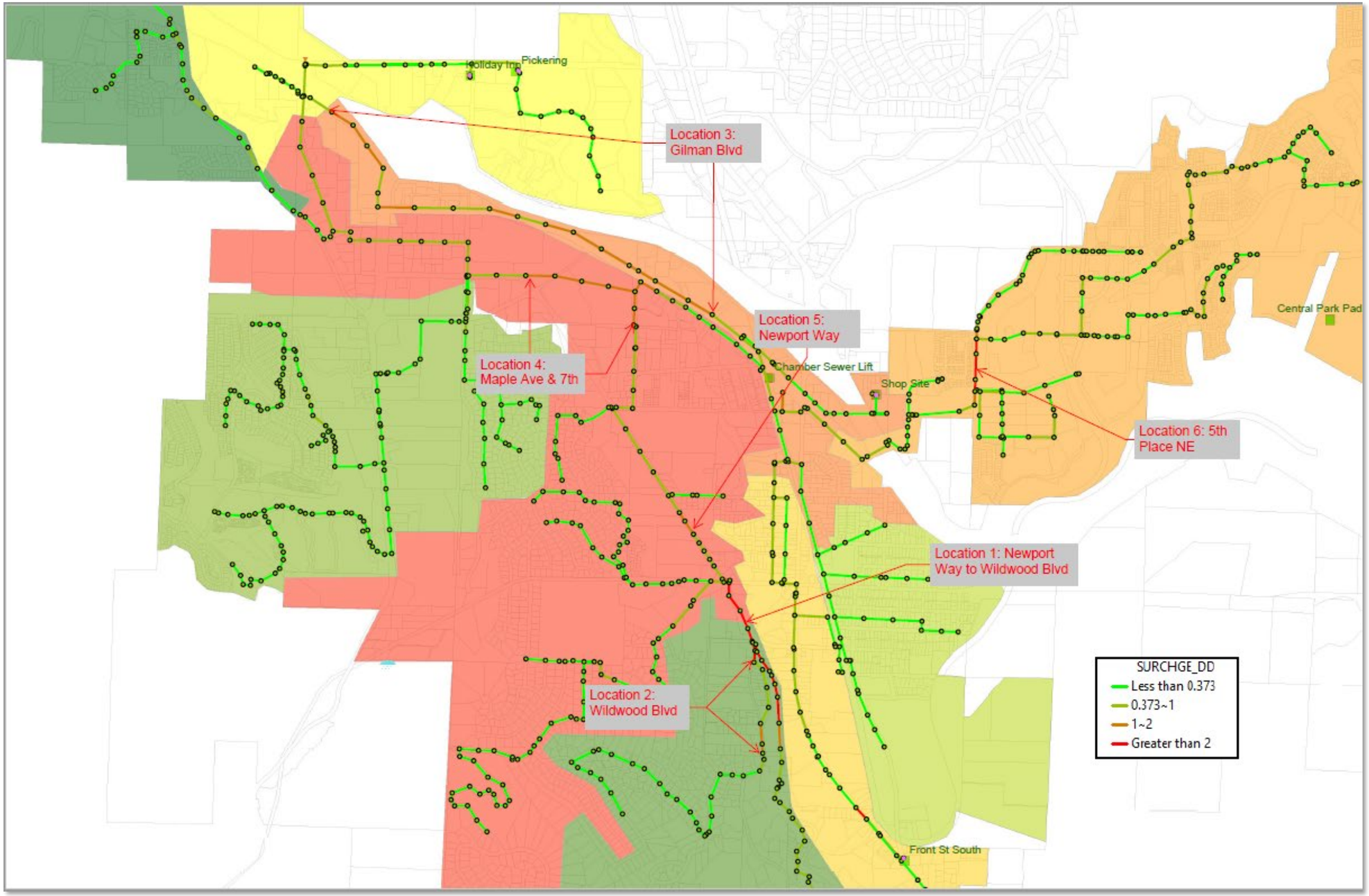


**Figure 7-5 Surcharge d/D**

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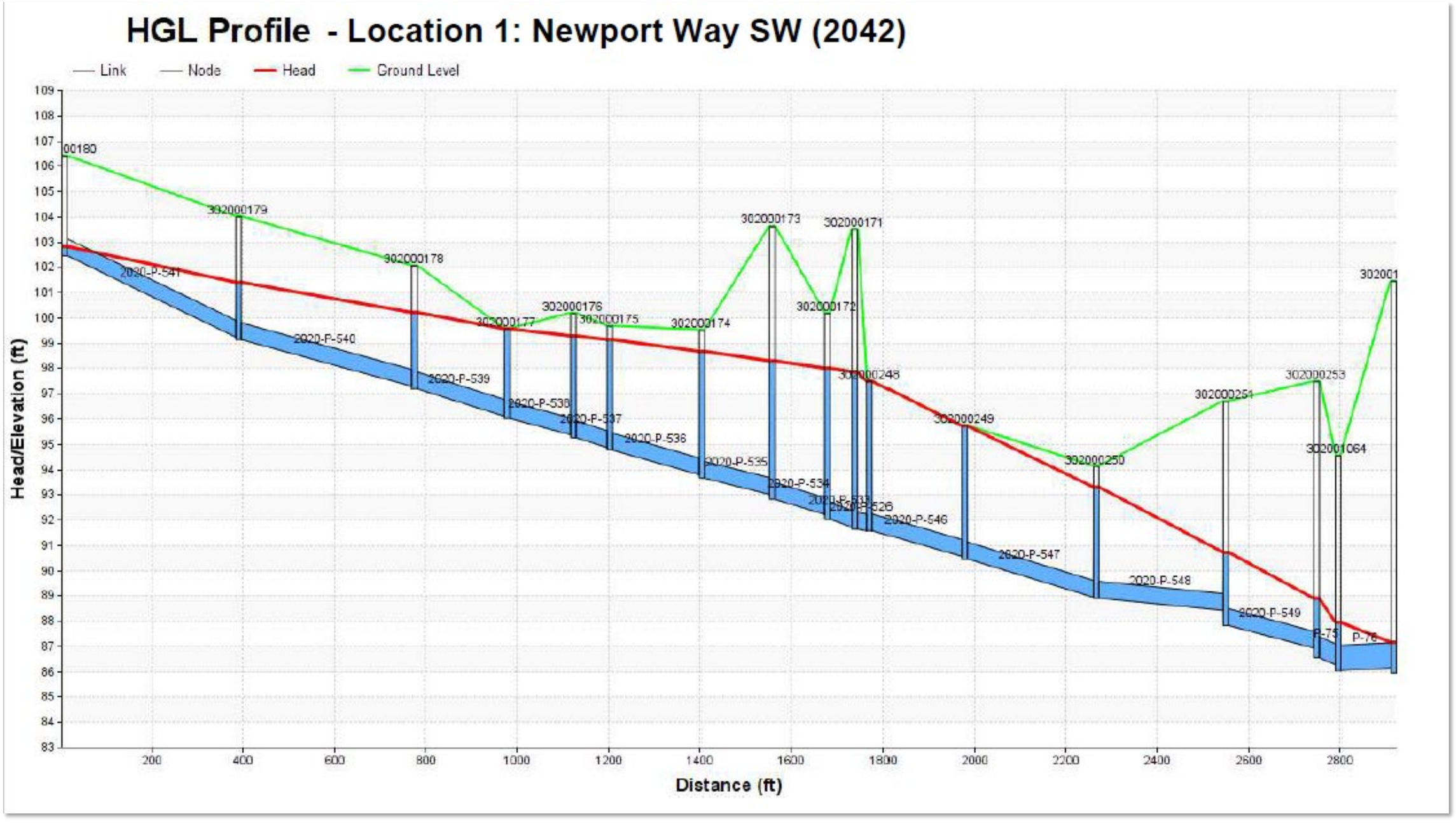


Figure 7-6 HGL Profile – Location 1: Newport Way SW (2042)

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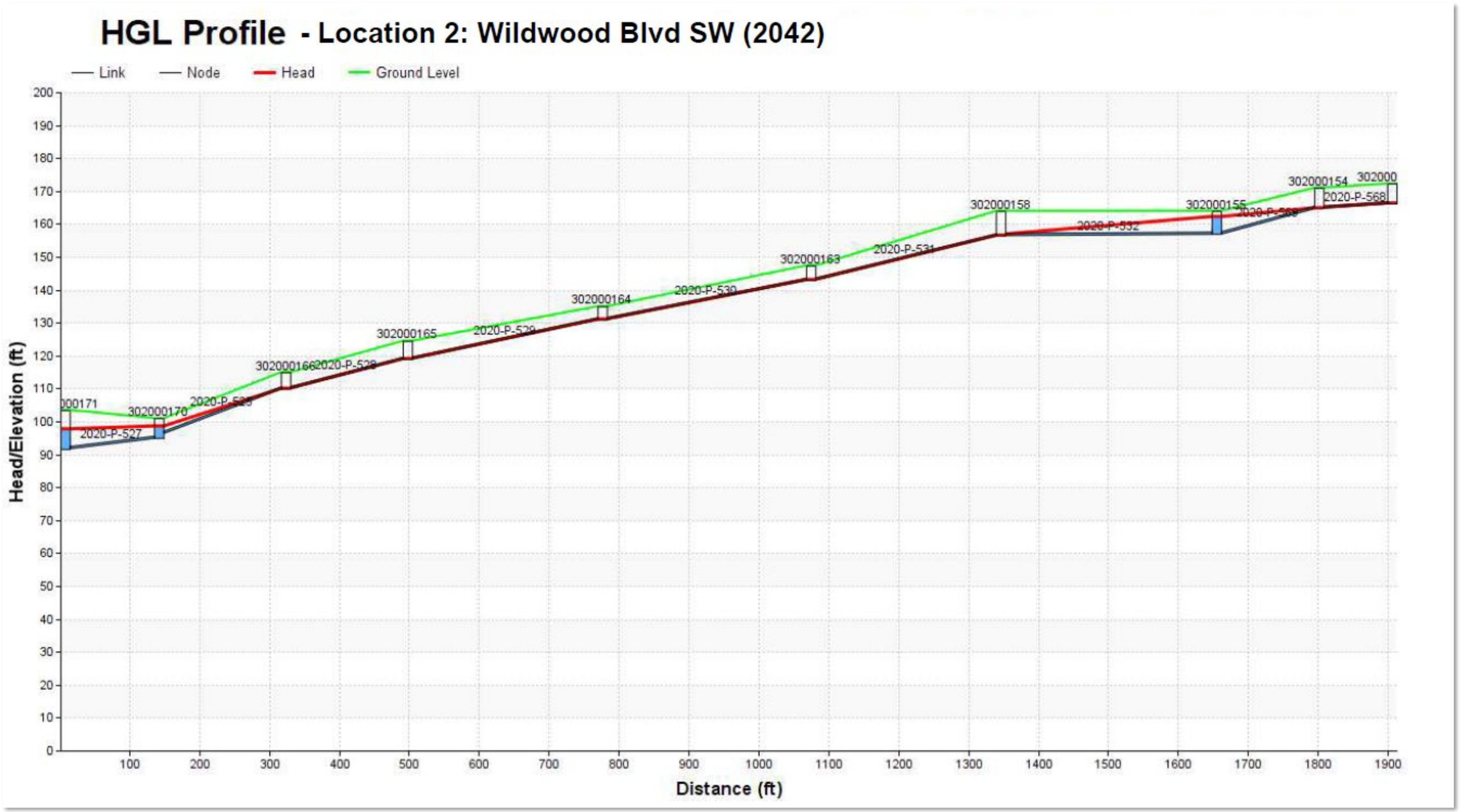


Figure 7-7 HGL Profile – Location 2: Wildwood Blvd SW (2042)

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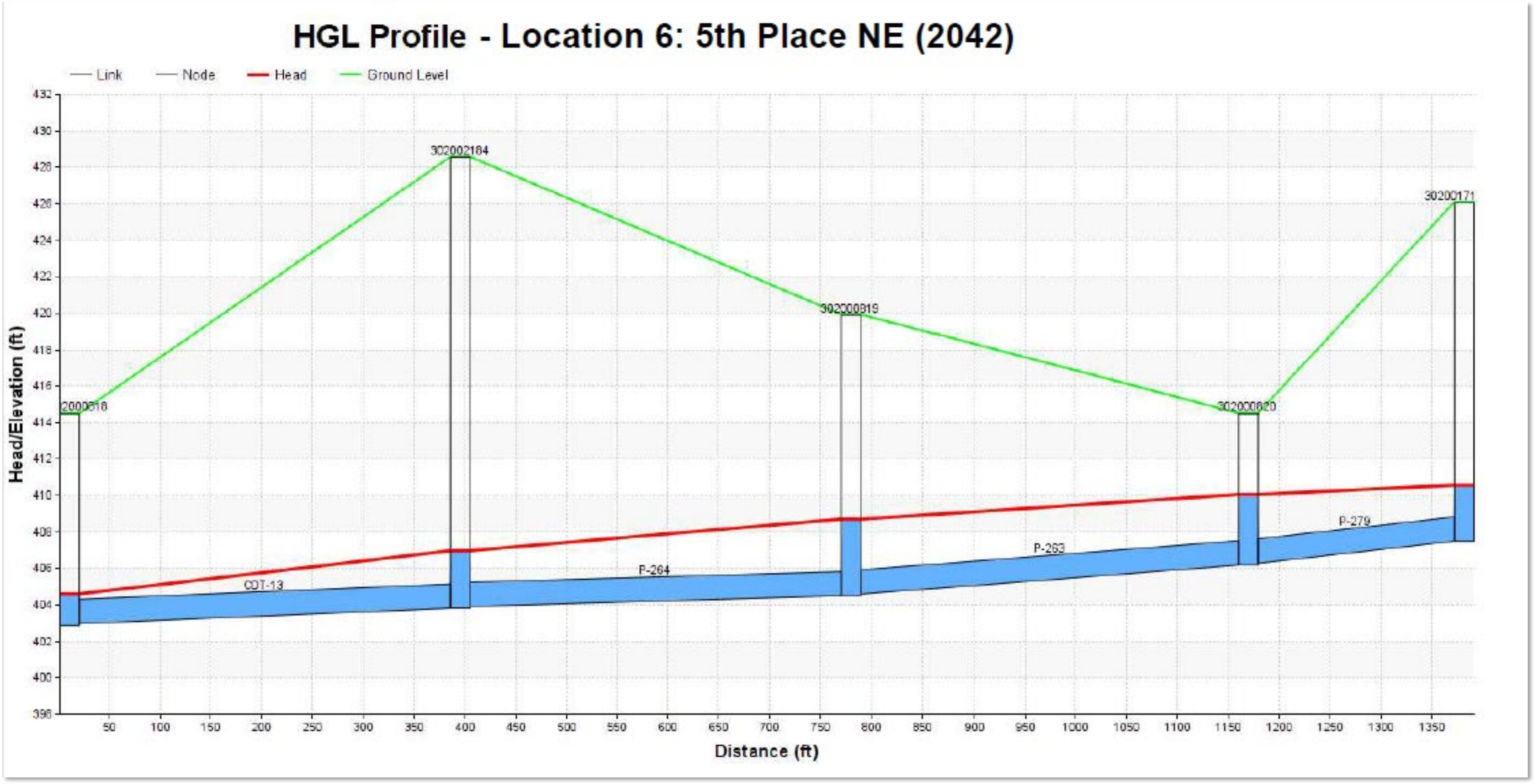


Figure 7-8 HGL Profile – Location 6: 5th Place NE (2042)

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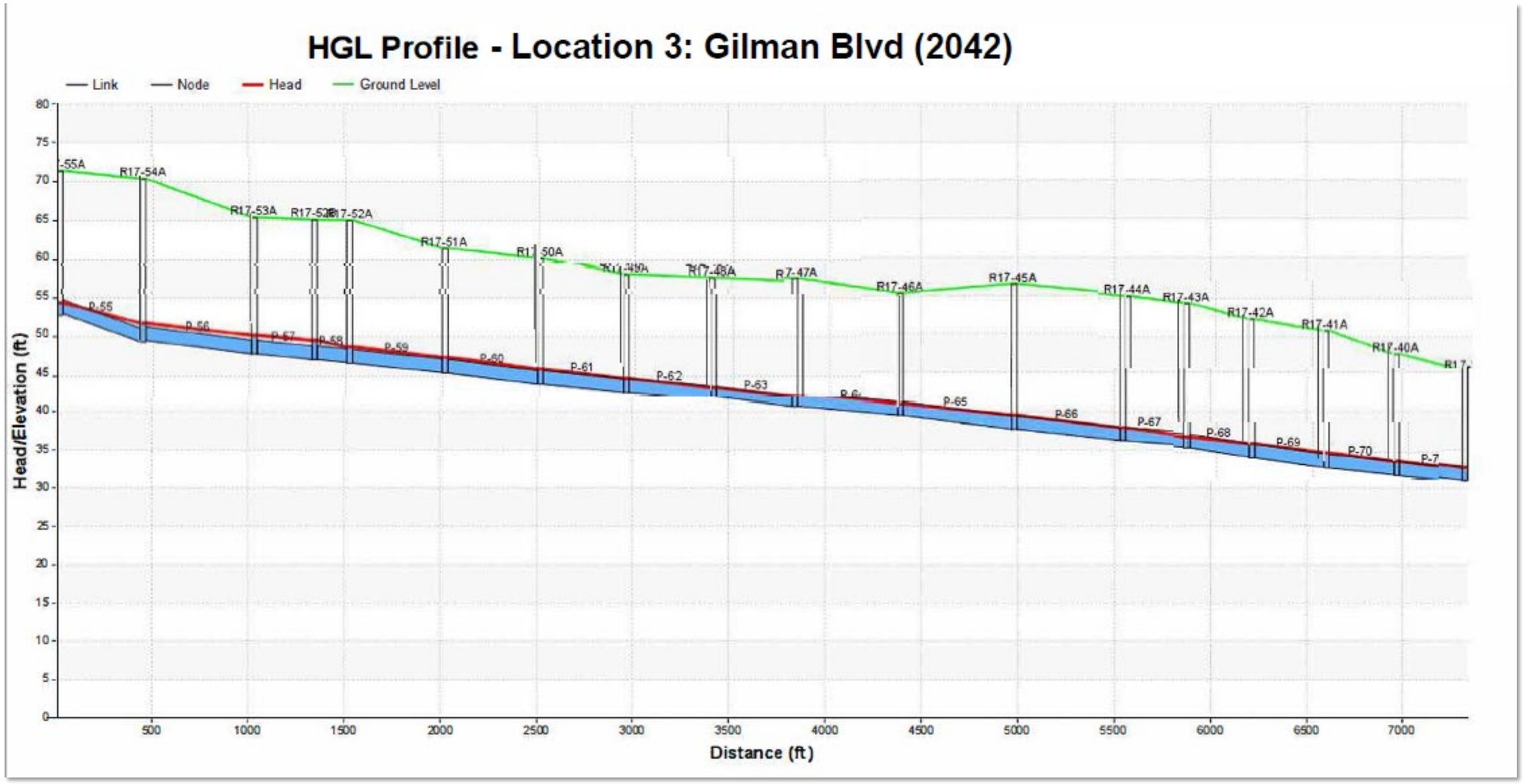


Figure 7-9 HGL Profile – Location 3: Gilman Blvd (2042)

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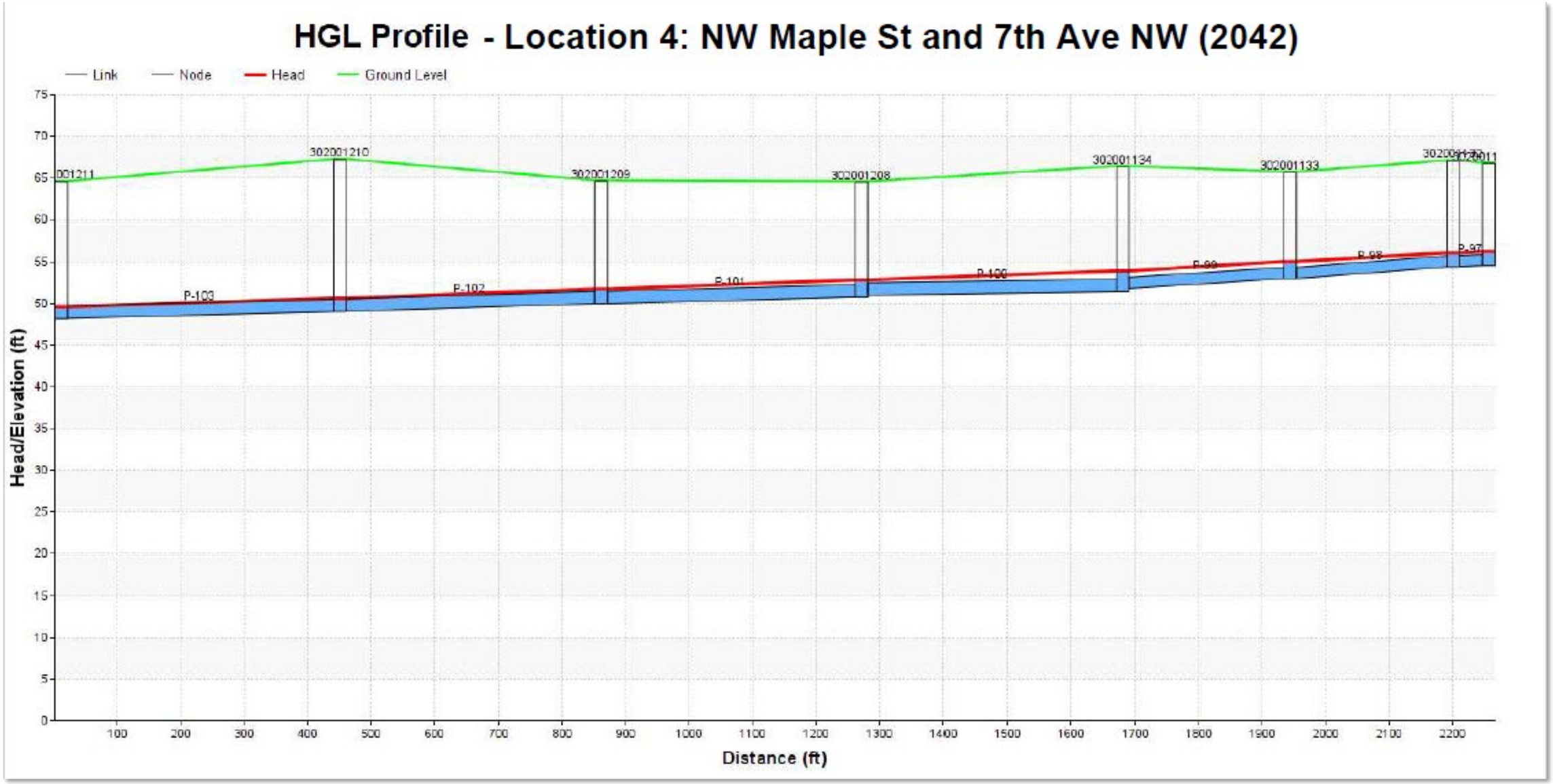


Figure 7-10 HGL Profile – Location 4: NW Maple St and 7th Ave NW (2042)

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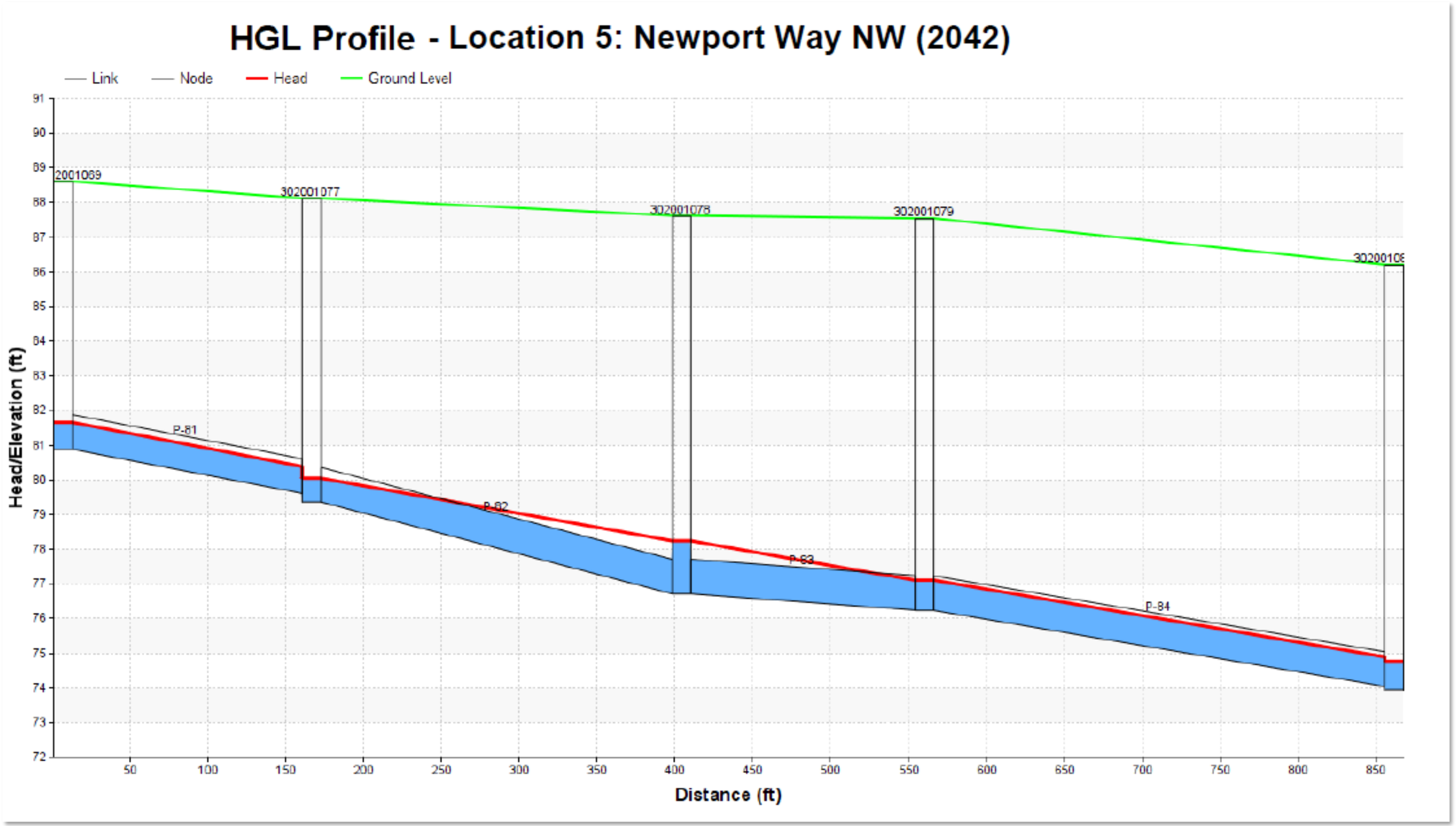


Figure 7-11 HGL Profile – Location 5: Newport Way NW (2042)

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# Chapter 8 Wastewater Reclamation and Reuse

## 8.1 Reclaimed Water Evaluation

### 8.1.1 Introduction

Wastewater reclamation and reuse can have benefits for a community's water supply and wastewater management. Production of reclaimed water for use in non-potable applications can be especially beneficial to public water systems facing water supply shortages through physical or water rights supply limitations. Reclaimed water can delay or eliminate the need for additional water rights or potable water system capital improvements. The utility may be able to generate additional revenue by selling reclaimed water. Water reclamation may also provide benefits to wastewater disposal requirements, where receiving water constraints preclude increased discharge into a surface water body. Beyond the benefits to utilities, reclaimed water may provide environmental and aesthetic benefits to the community, such as augmenting stream flow, creating wetlands habitat, or improving recreational opportunities.

In accordance with the Revised Code of Washington (RCW), RCW 90.48.112, any plans or engineering reports submitted under RCW 90.48.110 must include consideration of opportunities for the use of reclaimed water.

## 8.2 Water Reclamation and Reuse Standards

In the State of Washington, any type of direct beneficial reuse of municipal wastewater is defined as water reuse or reclamation. Reclaimed water standards are defined in Washington Administrative Code (WAC) 173-219, which was enacted in January 2018. These standards require coordination between the Washington State Department of Health (DOH), and the Washington State Department of Ecology (Ecology), with one acting as lead agency and the other as nonlead agency. The lead agency will be responsible for providing a reclaimed water permit. The *Department of Ecology Reclaimed Water Facilities Manual* (Purple Book) was prepared by Ecology with assistance from DOH to provide guidance on the reclaimed water production. The State of Washington reclaimed water standards can be broken down into the four following areas:

- Treatment Standards
- Allowable Uses of Reclaimed Water
- Use Area Requirements
- Operational and Reliability Requirements

### 8.2.1 Treatment Standards

The State of Washington's current standards for municipal wastewater reuse has two classifications based on the type of treatment provided: Class A and Class B. Class A+ is another designation identified in the WAC for direct potable reuse. Class A+ reclaimed water must meet Class A standards, with any additional criteria met on a case-by-case basis. The classifications are shown in Table 8-1.

**Table 8-1**
**Reclaimed Water Treatment Standards**

| Reclaimed Water Classification | Biological Oxidation[1] | Coagulation | Filtration | Disinfection |
|---|---|---|---|---|
| Class A | Required | Required[2] | Required | 4-log virus removal, 2.2 MPN/100 mL |
| Class B | Required | Not Required | Not Required | 23 MPN/100 mL |

Notes:
1) Biological oxidation is defined as meeting the criteria established in WAC 173-219-330.
2) Coagulation can be omitted through the use of membrane filtration or a membrane bioreactor.

Additionally, the distribution system is required to maintain a minimum chlorine residual of 0.2 mg/L of free chlorine or 0.5 mg/L of total chlorine for both Class A and Class B reclaimed water. The reclaimed water standards are provided in Section 6.2 of *Department of Ecology Reclaimed Water Facilities Manual* (Purple Book).

### 8.2.2 Allowable Uses of Reclaimed Water

Reclaimed water can be reused for a variety of applications based on its classification. The allowed uses per classification are presented in Table 8-2, as identified in Tables 8-1 and 9-1 of the Purple Book. Most of the listed uses have limited potential due to their relatively small quantities and seasonal nature. Two reuse methods that offer the potential for large volume reuse on a year-round basis are groundwater recharge and stream flow augmentation. The general basis for the reuse criteria is that when unlimited public access to the point of use is involved, Class A reclaimed water will be required. Therefore, for a water reclamation project to have a degree of flexibility as well as a potential for relatively unrestricted use, the reclaimed water should meet the Class A reuse standard.

## Table 8-2
## Reclaimed Water Classification Requirements for Allowed Uses

| Use | Class of Reclaimed Water Required | |
|---|---|---|
| | Class A | Class B |
| **Irrigation of Non-Food Crops** | | |
| Trees and fodder, fiber, and seed crops and pastures access by milking animals | Yes | No |
| Trees and fodder, fiber, and seed crops in pastures to which milking animals do not have access | Yes | Yes |
| Uses with public contact | Yes | No |
| **Irrigation of Food Crops** | | |
| Irrigation of all food crops that do not undergo processing before consumption | Yes | No |
| Irrigation - Orchards and vineyards | Yes | Yes |
| Irrigation for frost protection of orchards | Yes | Yes |
| Irrigation of food crops that undergo physical or chemical processing sufficient to destroy all pathogenic agents | Yes | Yes |
| **Landscape Irrigation** | | |
| Restricted access areas (e.g., cemeteries, freeway landscaping) | Yes | Yes |
| Open access areas (e.g., golf courses, parks, playgrounds, etc.) | Yes | No |
| **Commercial and Institutional** | | |
| Toilet and urinal flushing | Yes | No |
| Street washing, spray | Yes | No |
| Exterior pressure washing of building and sidewalks | Yes | No |
| Street sweeping, brush dampening | Yes | Yes |
| Decorative fountains or water features | Yes | No |
| Flushing/cleaning of sanitary sewers | Yes | Yes |
| Washing of corporation yards, lots, and sidewalks | Yes | No |
| Dust control (dampening unpaved roads and other surfaces) | Yes | Yes |
| Dampening of soil for compaction (at construction sites, landfills, etc.) | Yes | Yes |
| Water jetting for consolidation of backfill around pipelines | Yes | Yes |
| Aerial firefighting and prevention | Yes | Yes |
| Interior fire hydrants or sprinkler systems | Yes | No |
| **Industrial** | | |
| Boiler feed-water | Yes | Yes |
| Closed loop cooling – No creation of aerosols or other mist | Yes | Yes |
| Cooling aerosols or other mist created (e.g., use in cooling towers, forced air evaporation, or spraying) | Yes | No |
| Process water - Without exposure of workers | Yes | Yes |
| Process water - With exposure of workers | Yes | No |
| Ship ballast | Yes | Yes |
| Washing aggregate and making concrete | Yes | Yes |
| **Residential (Indoor)** | | |
| Toilet and urinal flushing | Yes | No |
| Sprinkler systems in buildings | Yes | No |
| Other indoor uses permitted by local plumbing codes | Yes | No |
| **Residential (Outdoor)** | | |
| Lawn and garden irrigation | Yes | No |

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### 8.2.3 Use Area Requirements

The reclaimed water standards establish criteria for siting and identifying water reclamation projects and their facilities. Water reclamation storage facilities, valves, and piping must be clearly labeled and no cross connections between potable water and reclaimed water pipelines are allowed. Additional setback requirements from public access or other environmentally sensitive areas may be required for each use; these are noted in the Purple Book.

### 8.2.4 Operational and Reliability Requirements

The reclaimed standards establish operational and reliability requirements for water reclamation facilities. The most relevant requirements are listed below:

- Minimum Class III operator for Class A, Minimum Class II for Class B
- Critical equipment and process failures must be signaled by an alarm
- Emergency storage/disposal in the event of facility failure
- Operating records provided to DOH and Ecology
- No bypass reuse areas of untreated or partially treated water
- A standby power supply or long-term disposal or storage facilities

## 8.3 King County Wastewater Treatment Division

The King County Wastewater Treatment Division's Regional Wastewater Services Plan (RWSP) was adopted in 1999. The annual report for 2017 was last completed in September 2018, and is provided in Appendix G. The RWSP outlines programs and projects through 2030 to increase wastewater system capacity and function, gives guidance on recovering and recycling beneficial resources from the wastewater treatment process, and provides direction on protecting and monitoring water quality and meeting permit conditions. The RWSP major components and the policy areas most directly affecting the City are summarized below and include conveyance system improvements, inflow and infiltration, and water reuse. Several of these programs impact the City's wastewater service.

### 8.3.1 Conveyance System Improvement Program

An update to King County's (County) Conveyance System Improvement Program was last completed in 2017 (refer to Appendix G). Conveyance system improvements are identified and sized to meet build-out population estimates and the 20-year peak flow. King County has identified two conveyance system improvements within the City's service area that are planned for construction within the next 20 years. Timing of construction is subject to field verification (flow monitoring) for projects, budgeting, and construction schedules.

The projects in the South Lake Sammamish planning area are Issaquah Interceptor Section 2 Replacement and Issaquah Creek Highlands Storage project. These projects are expected to be designed in 2040-2060. The 2017 projects costs are $3.42M and $6.22M, respectively. Detailed information on these projects is available through the 2017 King County RWSP (Appendix G).

### 8.3.2 Infiltration and Inflow Control Program

The County infiltration and inflow (I/I) control program was created in 1999 as part of an effort to reduce the amount of I/I that enters the regional wastewater system. Previous studies have indicated that the majority of I/I occurs in private side sewers. Recent County efforts have therefore been focused on concepts to reduce I/I programmatically through region-wide standards and training, side sewer inspection and repair programs, and side sewer grant/loan programs.

### 8.3.3 Reclaimed Water

One policy and program focus area for King County is an evaluation of opportunities and implementation of reclaimed water use. The County currently produces reclaimed water at the Brightwater, West Point, South, and Carnation Treatment Plants. The South Treatment Plant produced about 55 milligrams (MG) of filtered effluent for process water, as documented in the 2017 RWSP annual report. About 3.2 MG of Class A reclaimed water was distributed and used offsite by reclaimed water customers.

According to the 2017 RWSP, reclaimed water is used for irrigation of the Starfire Sports Complex (Tukwila), City Soil Community Farm Project (Renton, WA), City of Tukwila landscaping irrigation, and for public works uses such as street sweeping and sewer flushing. It is currently not viable for the City to implement water reuse projects since the nearest source is in Renton and examination of the feasibility of wastewater reuse is beyond the scope of this Sanitary Sewer Master Plan (Plan) update. The effect of water reuse on wastewater flow rates to King County could be significant depending on the extent of proposed reuse projects. If incorporation of reuse projects by the City becomes feasible in the future, the wastewater flow rates developed in this Plan will be reevaluated.

## 8.4 Water Conservation

A review of potential customers and reuse sites within the City was performed based on the above water reclamation standards and associated requirements. Water conservation is required by DOH through the Water Use Efficiency Rule (WAC 246-20-100(4)). Less water use through conservation can reduce wastewater flows, which can result in delays or reduced need for wastewater infrastructure improvements.

The City does not currently have any goals of reclaimed water production, as no opportunities for substantial beneficial use of reclaimed water have been identified. This Plan takes a fiscally conservative approach for budgeting purposes that assumes there will not be a significant reduction in wastewater flows due to additional water conservation. The wastewater flow can be reduced through the continued implementation of low flow plumbing fixtures, such as shower heads, and the change in irrigation patterns or outdoor water uses. Since the I/I identified in Chapter 6 contributes to a high percentage of wastewater flow component, reduction of wastewater flows due to water conservation is not considered to be significant. The City anticipates the rate of new development and redevelopment within its service area to be the most significant contributing factor to future wastewater flows.

# Chapter 9 Operations and Maintenance

## 9.1 Introduction

The City of Issaquah (City) has a residential population of approximately 40,000 and is served primarily by the City-owned sewer collection system. A portion of the City north of the I-90 corridor is served by the Sammamish Plateau Water District, as shown in Figure 2-1. There are also a number of unsewered parcels within the City that rely on septic systems. The City collection system is comprised of approximately 86.3 miles of sewer pipelines ranging from 6 to 24 inches in diameter, including approximately 1.8 miles of force mains and four lift stations (LS). The lift stations pump sewer from low-lying areas into gravity sewers that discharge into the King County (County) Regional collection system at multiple locations and ultimately into one of two regional sewer treatment facilities operated by the County.

This chapter summarizes the operation and maintenance (O&M) activities performed by the City to ensure performance and reliability of the collection system. Chapter 5 provides a detailed summary and description of the sewer facilities that are operated and maintained by City staff.

The Sewer Utility Operations Department operates and maintains the City of Issaquah's sewer system. The department currently is staffed by the following key positions:

- Sewer/Stormwater Operations Manager
- Maintenance Senior Lead
- Operations Specialist
- Utilities Engineering Manager
- Maintenance Workers

Figure 9-1 shows the organization and staffing of the Public Works Department overall, including O&M staff.

## 9.2 City Management and Personnel

The City is governed by the City Council which serves as the City's legislative body, the Mayor who is Issaquah's chief administrative officer, and the Public Works Director who oversees the Public Works Department. The Public Works Department is responsible for the operation and maintenance of the City's streets, water distribution system, storm and surface water management system, sewer collection system and facilities. The City's Public Works Department has 66 full-time equivalents (FTE) that perform operations and maintenance activities on the City's water, sewer, storm and surface water and road utilities.

City operations staff are responsible for the operation and maintenance of the sewer collection system piping, lift stations, and discharges to the regional County system. The Public Works Operations employee workload is split between utilities and includes 2.78 FTEs of operations staff dedicated to operation and maintenance of the sewer collection system. The Public Works Engineering employee workload is also split between utilities, with 2.11 FTEs allocated to the collection system. A summary of City operations and engineering staff and their sewer utility allocations are listed in Table 9-1.

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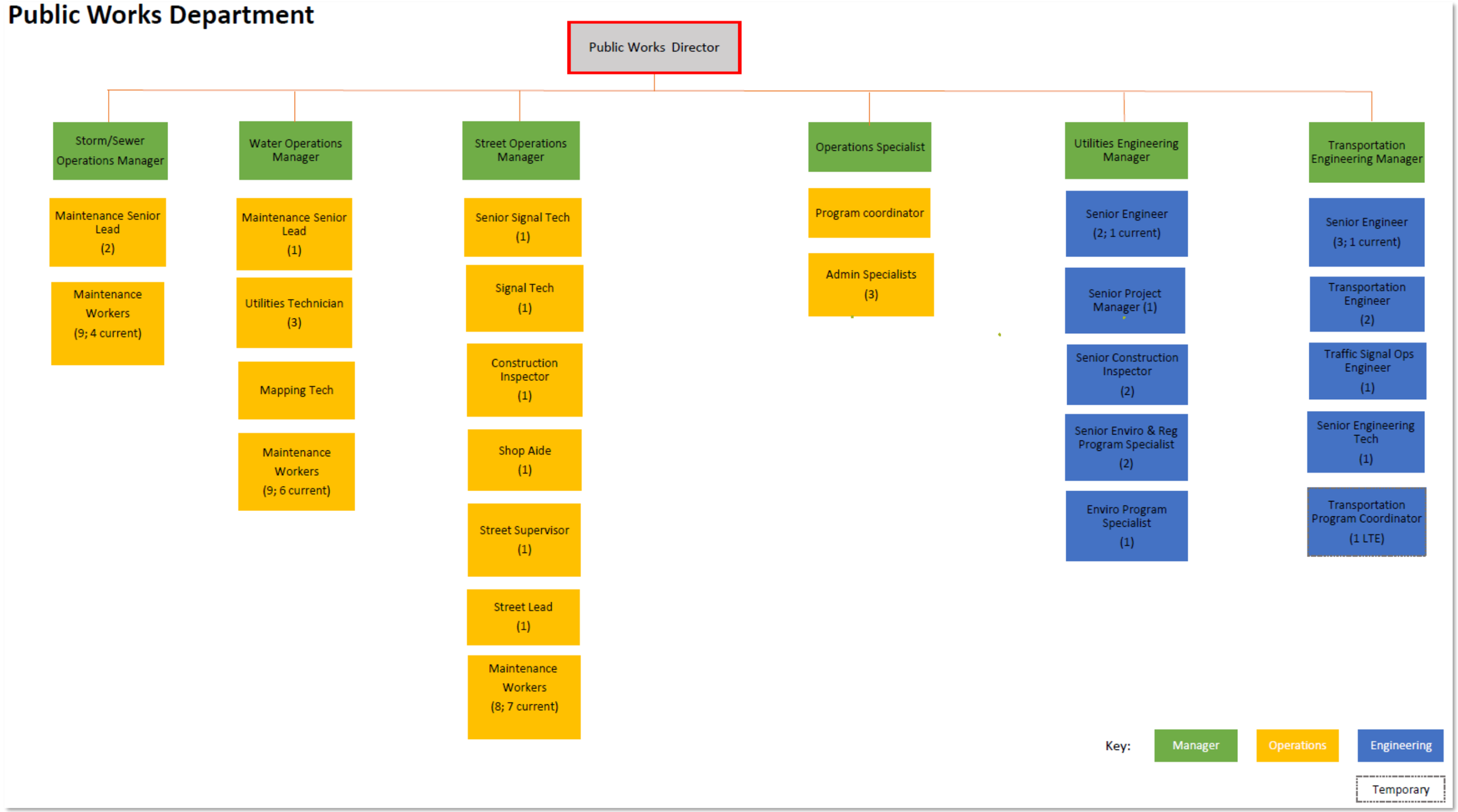


Figure 9-1 Public Works Department

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**Table 9-1**
**Collection System Operations Staffing**

| Position | Number of Employees | Percent Dedicated to Sewer Utility | Number of FTEs[1] |
|---|---|---|---|
| **Public Works Engineering** | | | |
| Public Works Director | 1 | 10 | 0.1 |
| Utility Engineering Manager | 1 | 20 | 0.2 |
| Senior Engineer | 3 | 56/3 | 0.56 |
| Engineer | 1 | 20 | 0.2 |
| Environmental and Regulatory Program Administrator | 3 | 23/3 | 0.23 |
| Senior Engineering Technician | 1 | 34 | 0.34 |
| Department Operations Specialist | 1 | 4 | 0.04 |
| Senior Construction Inspector | 2 | 24/2 | 0.24 |
| Administrative Specialist | 2 | 20/2 | 0.2 |
| | | **Total Engineering FTEs** | **2.11** |
| **Public Works Operations** | | | |
| Public Works Operations Manager | 1 | 18 | 0.18 |
| Maintenance Senior Lead | 1 | 100 | 1.0 |
| Mapping Technician | 1 | 10 | 0.1 |
| Maintenance Worker III | 1 | 100 | 1.0 |
| Maintenance Worker I | 1 | 50 | 0.5 |
| | | **Total Operations FTEs** | **2.78** |
| | | **TOTAL FTEs for Sewer Utility** | **4.89** |

Notes:
1) FTE = Full-time equivalent.
2) Workload distribution is based on sewer fund financial contributions to staff salary.

## 9.3 Sewer Operations Department

### 9.3.1 Sewer/Stormwater Operations Manager

The Sewer/Stormwater Operations Manager manages the operations and maintenance of the City's sewer collection system in a manner which protects the public investment, protects the environment and human health, ensures compliance with state and federal mandates, and ensures that reliable service is available to all customers. Eleven full-time staff are managed and trained to maintain both the sewer and stormwater conveyance systems (refer to Figure 9-1). The Sewer/Stormwater Operations Manager also manages short- and long-term planning for sewer operations by developing priorities for improving the sewer system, including maintenance of levels of service, infiltration and inflow (I/I) and capacity management and LS operation. In addition, the Sewer/Stormwater Operations Manager collaborates with Utility Engineering staff

on long-range system development and comprehensive planning, capital facility program management and feasibility studies.

### 9.3.2 Maintenance Senior Lead

The Maintenance Senior Lead is responsible for direct oversight of crews and individuals associated with the maintenance and repair of City services, systems, and infrastructure related to sewer facilities. This position also assists with the development of short- and long-term planning for the Department to improve the sewer collection system. This position provides support to Development Services, Planning, Construction and Utility Engineering; and develops and fosters relationships and coordination with state and local agencies.

### 9.3.3 Operations Specialist

The Operations Specialist is responsible for direct oversight of Program Coordinator and Administrative specialists, and supports staff with invoice submittals, contract procurement, and construction document management.

### 9.3.4 Utility Engineering Manager

The Utilities Engineering Manager plans, directs, organizes, and oversees all activities of the Water, Sewer, and Stormwater Divisions to provide efficient, effective, and timely services to utility customers. This position manages and coordinates regional sewer utility activities with adjacent cities, districts, King County and state agencies, for recommendation to the Public Works Director and City Council. This position is responsible for personnel management, financial administration, long-range strategic planning, and development of complex operational changes.

### 9.3.5 Maintenance Workers

The Sewer Maintenance worker positions perform sewer maintenance and operation activities that ensure proper operation of the collection system. These activities include but are not limited to: closed-circuit television (CCTV) inspection of gravity collection mainlines; high-pressure hydro-cleaning; mainline and manhole rehabilitation; assistance with LS repair and maintenance; and customer service. The maintenance worker also ensures efficient daily operation of the City's four lift stations through maintenance, troubleshooting, and repair of electrical systems, pumping equipment, standby power systems, telemetry equipment, supervisory control and data acquisition (SCADA), and other related systems found in the City's sewer lift stations.

## 9.4 Major System Components and Routine System Operation

Major components of the City's collection system are shown on Figures 5-1 and 7-1. A detailed inventory of system components is included in Chapter 5. Routine system operations include checking lift stations, daily monitoring of the SCADA system, high-pressure cleaning, CCTV inspection, assisting engineering, and responding to customer inquiries.

Each major system component has a hardcopy O&M manual. The City has hardcopy manuals for its lift stations as well, which are located at the Operations and Maintenance facility.

Staff have developed Standard Operating Procedures for hydro-cleaning, CCTV inspection, LS inspections, LS troubleshooting and repair, manhole rehabilitation, and combination vehicle operation. These documents are intended to:

- Help ensure that all staff members know the correct procedure.
- Establish performance expectations.
- Aid in the development of a cross-trained workforce.
- Help ensure compliance with federal and state regulations and laws.

## 9.5 Operations and Maintenance Activities

The City has an active preventive maintenance program for its sewer collection system and lift stations, intended to provide reliable operation, protect the City's capital investment, and ensure compliance with federal and state regulations and laws. The preventative maintenance program includes monitoring, inspections, cleaning, LS maintenance, CCTV inspection, and rehabilitation of facilities.

Typical operations and maintenance activities, including preventive maintenance and corrective actions, are summarized in this section. A summary of the sewer collection system recommended maintenance standards is provided in Table 9-2.

**Table 9-2**
**Recommended Collection System Maintenance Standards**

| Maintenance Task | Quantity or Length | Recommended Standard[1] |
|---|---|---|
| LS Inspections | 4 | Inspected weekly; maintenance is performed annually (1) |
| Gravity Sewer CCTV Inspections | 455,676 LF | Inspected on a 3 to 5-year rotation, or as needed |
| Gravity Sewer Cleaning | 455,676 LF | Inspected on a 3 to 5-year rotation, or as needed |
| Force Main Flushing | 9,310 LF | Annual Inspection; flushing[2] |

Notes:
1) Recommendation based on EPA 832-F-00-073, Wastewater Technology Fact Sheet, Sewers, Lift Station, September 2000.
2) Recommendation based on EPA 832-F-00-071, Wastewater Technology Fact Sheet, Sewers, Force Main, September 2000.

The City collection system maintenance activities either comply with or exceed the Environmental Protection Agency (EPA) recommendations identified in Table 9-2.

Gravity sewers are flushed and inspected with CCTV on 4-year rotations. Gravity lines which are known for minimal slope, fats, oils, and grease (FOG) and solids accumulation, and/or defects are flushed on a more frequent basis varying between monthly to yearly. During any gravity line flushing, the manholes associated with the lines being flushed are also inspected and cleaned, if needed.

The City's force mains are flushed every 4 years. Whenever there is an unforeseen increase in force main pressure, the force mains are flushed regardless of this maintenance schedule.

### 9.5.1 Monitoring

The Sewer Operations Department uses data gathered by staff performing routine collection system maintenance, LS maintenance and operation, source control inspections, and CCTV inspections to determine the overall health of the City's sewer collection system. This data, used in prioritizing the workload plan, also provides the City's utility engineering staff with critical information needed for planning capital improvement projects.

### 9.5.2 Inspections

The Sewer Operations Group, in partnership with the Community Planning and Development Department, works to ensure that both newly constructed assets as well as existing structural repairs being accepted into the City of Issaquah infrastructure are constructed using industry-accepted materials and practices. The City inspects force mains every 4 years. It is recommended that force mains be inspected on an annual basis in accordance with EPA 832-F-00-071.

### 9.5.3 Cleaning

Preventative maintenance for the gravity sewer lines includes programs for inspection and cleaning. Inspections should include visual observations of manholes and a program of CCTV inspections of the sewer pipes. Problematic pipes should be cleaned more frequently. Gravity lines are currently cleaned by flushing or jetting on a routine 4-year cycle. More problematic or critical lines and flat-sloped pipes are cleaned three times a year. The goal of the cleaning and inspection program is to identify the majority of problems so that they may be addressed in the maintenance or capital improvement programs, thereby avoiding a potential failure or overflow.

### 9.5.4 Sewer Lift Station Maintenance

Uninterrupted sewer conveyance relies heavily on the efficient, reliable operation of the City's four lift stations. Lift station operations are monitored on a daily basis using a SCADA system which affords the LS technician the ability to monitor the sites for alarms, record pump runtimes and make minor pumping modifications from the sewer office. Lift stations are field inspected weekly by operations maintenance staff during the course of normal maintenance activities, which include but are not limited to:

- Electrical component troubleshooting and repair
- Pump motor and pump component repair
- General facility maintenance
- Emergency standby generator repair
- Cleaning the level sensing probe in the Highlands LS, which results from foreign material being flushed into the system from upstream services

The City currently has the Front Street South, North Highlands, and Pickering Sewer Lift Stations on telemetry that have a station generator. The Shop Site LS runs off a Public Works facility generator. The Pickering LS is cleaned weekly due to grease inflow. Pickering LS also has solvent added to the wet well at the beginning of every month to break up grease and control odor. The North Highlands LS employs a Wet Well Wizard, which is an aeration tube that is placed into the center of the wet well to aggressively agitate and mix the wet well volume to address grease build up.

Emergency generators at each LS are used to provide uninterrupted service in the event of a power failure and are exercised weekly using an auto-start control mechanism. Generators at the three stations are visually checked (battery, fuel, hours) weekly during weekly inspection. The generators are load-tested annually to ensure proper function in the event of an extended power outage.

A more thorough lift maintenance procedure is performed on a weekly basis. The weekly maintenance procedures include:

- Visual wet well inspection
- Manual pump checking

Wet well cleaning and pressure washing is performed on an annual basis. This cleaning interval serves to remove deposits that may readily obstruct the pumps and also extends pump service life. The weekly Inspection consists of logging pump hours, Amps, Voltage, flow in gallons per minute (gpm) for each pump and weekly total station flow. Telemetry testing is done on an annual basis. Lift station maintenance appears sufficient, and it is recommended that maintenance continue at this level.

### 9.5.5 Chambers Sewer Weir Energy Dissipator

The energy dissipator is a critical facility for the City, since it restricts excessive energy/velocity of the flow down the steep incline from the Highlands to the valley floor, and all sewer flow from the Highlands discharges through it. It becomes obstructed with rags and debris occasionally. There are no moving parts to maintain in the energy dissipator, however the level sensor periodically becomes detached from the wall. Weir inspection is performed on a weekly basis, during pump runs. It is cleaned out annually.

### 9.5.6 Pipeline CCTV Inspection

The City uses a CCTV system to inspect the entire sewer collection system on a 4-year cycle. Each of the City's sewer basins have been prioritized and are inspected to determine the overall condition of the conveyance system. Maintenance staff are trained through the Pipeline Assessment Certification Program (PACP) provided by the National Association of Sewer Service Companies (NASSCO). This program trains staff to identify problems in the pipeline utilizing standardized assessment techniques. Newly Constructed pipelines are inspected by the contractor before they are accepted.

The City currently has nine trained staff members who are certified in this program. The City began implementing its CCTV Pipe Inspection Program in 2023. All the staff members are NASSCO Certified while a few are fully trained and knowledgeable on the WinCan-Sewer Inspection and Asset Management system. All the staff members can also operate push camera.

### 9.5.7 Capacity Management, O&M Program

Capacity Management, Operations and Maintenance (CMOM) is a planning and management framework to be used by wastewater utilities for the analysis and assessment of their systems' capacity management, operations, and maintenance. At the federal level, CMOM programs are a suggested requirement of the state and regionally administered National Pollutant Discharge Elimination System (NPDES) permits. The County's permit does not require satellite collection systems, such as the City, under its permit to create and maintain CMOM programs. The City, however, is currently employing most, if not all of the key CMOM program components.

The EPA Office of Enforcement and Compliance Assurance offers CMOM guidance. The guidance document is not a regulation, nor does it impose legally binding requirements of the Clean Water Act or other related EPA regulation. The document is intended as a guide for evaluators of wastewater collection systems such as EPA or state inspectors, collection system owners and operators, consultants, third-party evaluators, or compliance assistance providers.

## 9.6 Sanitary Sewer Overflow Response Plan

The Sanitary Sewer Overflow (SSO) Response Plan describes the procedures that the Sewer Maintenance staff follows in the event of an SSO. The plan is designed to ensure compliance with state and federal mandates and ensures that staff are aware of the appropriate response actions to take for a given situation. The SSO Response Plan includes emergency response actions designed to contain, mitigate, and clean up residuals from an overflow event. The Sewer Operations Department is primarily responsible for the successful resolution of any SSO.

The objectives of the SSO Response Plan include:

- Protect public health and the environment.
- Ensure compliance with regulatory requirements.
- Protect public and private property.
- Protect City staff.
- Protect City-owned facilities.
- Provide excellent customer service.

The City has developed a Sewer LS Emergency Bypass Plan to execute in the event of an LS pump failure. The Bypass Plan is included in Appendix H and is designed to minimize the chances of an SSO event during a LS failure.

## 9.7 Staffing Assessment

### 9.7.1 Collection and Conveyance System Staffing

The Public Works Department workload is shared between utilities, with approximately 2.78 FTEs performing collection system work and operating and maintaining the lift stations. One metric used to compare staffing rates among sewer utilities is the number of employees per 100,000 linear feet (LF) of pipe. While this does not account for variations in the number of lift stations, customers served, or treatment plant operations, it is a useful way to compare approximate staffing efficiency with similar utilities. A summary of the sewer utility staffing for a sample of utilities and the City is presented in Table 9-3 and Table 9-4.

## Table 9-3
## Sewer Utility Staffing Comparison per Total Length of Pipe

| Agency | Total Current Staff | Total Length of Pipe (LF) | Employees per 100,000 LF of Pipe |
|---|---|---|---|
| City of Monroe | 4 | 223,600 | 1.79 |
| City of Kirkland | 6.6 | 649,650 | 1.02 |
| City of Port Orchard | 3.5 | 369,600 | 0.95 |
| Midway Sewer District | 7 | 756,570 | 0.93 |
| City of Kent | 9 | 1,056,000 | 0.85 |
| City of Mercer Island | 4 | 509,905 | 0.78 |
| Sammamish Plateau Water & Sewer District | 7 | 972,000 | 0.72 |
| City of Lacey | 6 | 897,600 | 0.67 |
| City of Lynden | 2 | 302,800 | 0.66 |
| City of Redmond | 8 | 1,246,080 | 0.64 |
| **City of Issaquah** | **2.78** | **460,000** | **0.60** |
| City of Bellevue | 12 | 2,720,000 | 0.44 |
| City of Puyallup | 3.67 | 1,027,700 | 0.36 |
| | | **Average Employee per 100,000 LF of Pipe** | **0.8** |
| | | **Median Employee per 100,000 LF of Pipe** | **0.72** |

**Table 9-4**
**Sewer Utility Staffing Comparison per Lift Station**

| Agency | Total Current Staff | Lift Stations | Employees per Lift Station |
|---|---|---|---|
| City of Kirkland | 6.6 | 6 | 1.10 |
| City of Kent | 9 | 11 | 0.82 |
| **City of Issaquah** | **2.78** | **4** | **0.70** |
| Midway Sewer District | 7 | 13 | 0.54 |
| City of Monroe | 4 | 10 | 0.40 |
| City of Redmond | 8 | 23 | 0.35 |
| Sammamish Plateau Water & Sewer District | 7 | 21 | 0.33 |
| City of Bellevue | 12 | 46 | 0.26 |
| City of Mercer Island | 4 | 18 | 0.22 |
| City of Port Orchard | 3.5 | 16 | 0.22 |
| City of Puyallup | 3.67 | 18 | 0.20 |
| City of Lynden | 2 | 14 | 0.14 |
| City of Lacey | 6 | 47 | 0.13 |
| | | **Average Employee per Lift Station** | **0.42** |
| | | **Median Employee per Lift Station** | **0.33** |

Based on these results, the City is below the average and median in the number of employees per 100,000 LF of pipe, but somewhat above the average and median number of employees per LS. Using these metrics, it can be concluded that the City's Sewer Division may be understaffed.

## 9.8 Recommended Operation and Maintenance Improvements

The City is proactive in managing operations and maintenance procedures, performing regular maintenance and in responding to critical maintenance issues. Specific improvements are therefore not identified herein. It is recommended, however, to increase total operations and maintenance staffing, based on the staffing comparison illustrated in Table 9-3. It is also recommended that the City continue to adjust operations and maintenance procedures as issues arise.

# Chapter 10 Capital Improvement Program

The City of Issaquah's (City's) Capital Improvement Program (CIP) incorporates recommended improvements identified through the collection system analysis and modeling to provide additional capacity where deficiencies were identified.

This chapter provides a brief description of the basis of the cost estimates and assumptions used, planned improvement projects, and the funding sources utilized for the CIP. These projects are derived primarily from the system analysis and discussions with the City's staff. Each project is accompanied by a planning level opinion of probable project cost (OPPC). The City reviews the CIP periodically to adjust for changes in the priority of each project, its cost, and scope.

## 10.1 Opinion of Probable Construction and Project Cost

The opinions of probable costs presented within this Plan are planning-level opinions. Preliminary risk assessment is assumed as high for all projects. The OPPCs in the following Sections include the following markups: 10.1% Washington State sales tax, 40% contingency, 15% costs for engineering design and permitting services, and 7% for inspection and services during construction. These planning-level opinions are based on industry experience for similar work. Changes in project scope, volatility in the bidding climate, inflation rates, supply chain issues, the number of contractors bidding on a project, and their approach to bidding and completing the work will all impact actual project costs. Detailed opinions of probable project cost are presented in Appendix I.

## 10.2 Capital Improvement Program

Table 10-1 provides a summary of the projects included in the Capital Improvement Program. The specific location of each project is shown on figures in Capital Improvement Project Summary in Appendix I. The Capital Improvement Project Summary also includes a scope and basis for each project.

The City is projecting sufficient revenues to fund the planned projects included in Table 10-1. CIP project 1A is designated for the 6-year CIP. CIP projects 1A, 1B, and 2 are dependent however, on completion of the I/I study identified in CIP 1A. If the study identifies significant sources of I/I that can be mitigated, then further analysis is recommended to determine if 1A, 1B, and 2 can be downsized or removed from the CIP list. CIP project 3 is slated for the 30-year timeframe. Refer to Chapter 11 for a discussion on funding of the CIP projects.

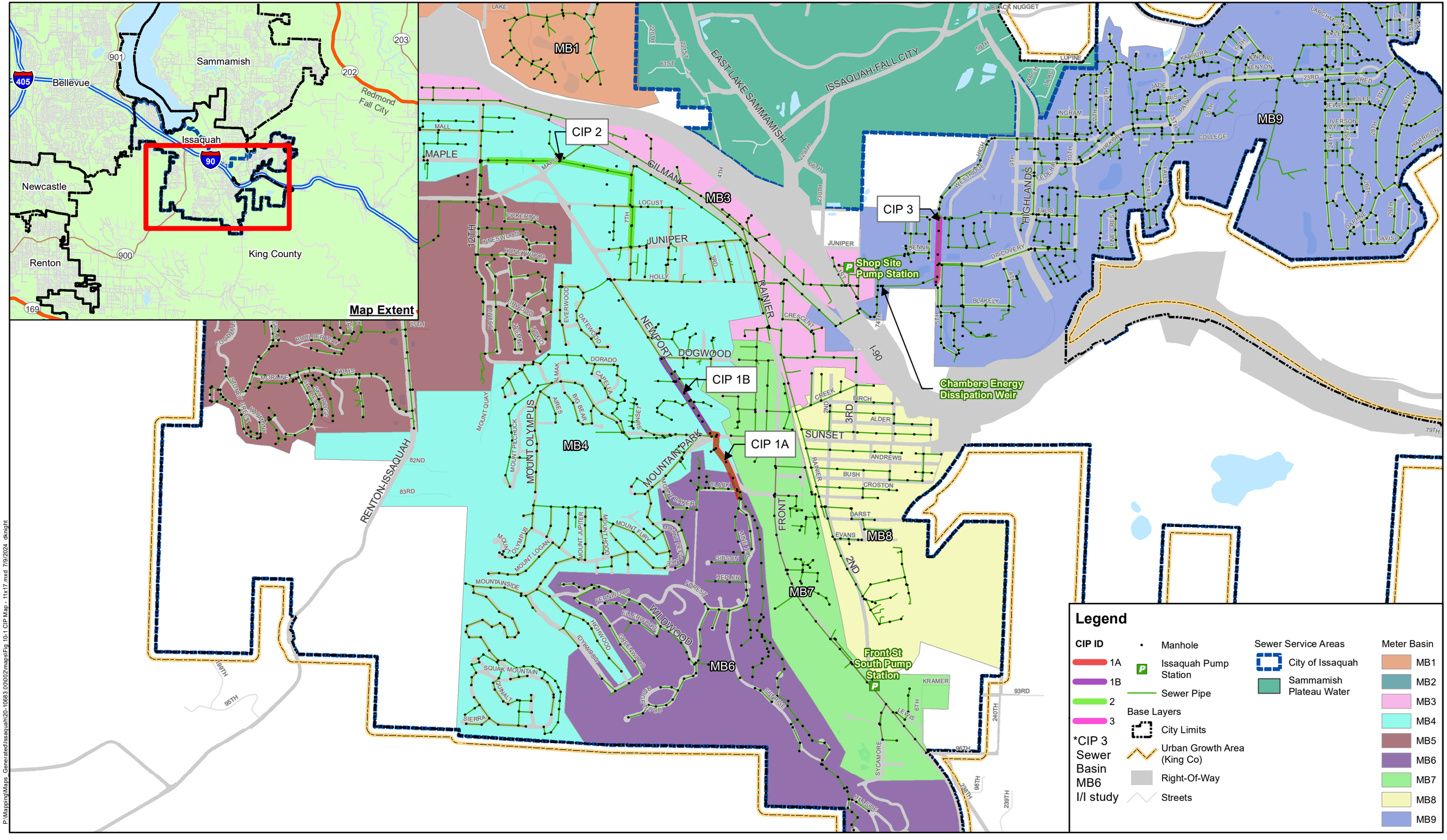
## Table 10-1
## Capital Improvement Projects

| Basin | Project No. | Project Description | Opinion of Probable Project Cost[1] | Planning Horizon |
|---|---|---|---|---|
| MB6/MB4 | CIP 1A*,[2] | Perform field I/I investigation in MB6, upstream of CIP 1A, 1B, and 2. Replace and/or upsize the gravity sewer trunk on Newport Way SW between Wildwood Blvd SW and W Sunset Way. | $1,826,000 | 5-10 year (2025-2030) |
| MB4 | CIP 1B* | Replace and/or upsize the gravity sewer trunk on Newport Way NW between W Sunset Way to NW Dogwood St. | $2,893,000 | 30-year (2020-2050) |
| MB4 | CIP 2* | Replace and/or upsize the gravity sewer trunk on 7th Ave NW between NW Maple St and NW Juniper St and NW Maple St between 12th Ave NW and 7th Ave NW. | $7,384,000 | 30-year (2020-2050) |
| MB9 | CIP 3[3] | Replace and/or upsize the gravity sewer trunk on 5th Place NE between NE Ellis Dr and just south of NE Discovery Dr. | $2,039,000 | 30-year (2020-2050) |
| | | **Total Projected Project Costs** | **$14,142,000** | |

Notes:
*Indicates field I/I investigation (CIP 1A) is required/recommended prior to project implementation.

1) Costs are not escalated for future construction.
2) The cost for performing I&I investigation is $75,000 and for upsizing the gravity sewer trunk on Newport Way SW is $1,751,000. Detailed information on cost estimate is present in Appendix I.
3) CIP 3 is dependent on the implementation of multiple development proposals including Bellevue College and Swedish Hospital projects.

The Capital Improvement Projects are shown graphically City-wide on Figure 10-1.




P:\Mapping\Maps_Generated\Issaquah\20-10683.00\002\maps\Fig 10-1 CIP Map - 11x17.mxd 7/9/2024 dknight

Sewer System: City of Issaquah.
GIS Base data: King County.
Data sources supplied may not reflect current or actual conditions. This map is a geographic representation based on information available. It does not represent survey data. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.
BHC Consultants LLC., assumes no responsibility for the validity of any information presented herein, nor any responsibility for the use or misuse of the data.

0 750 1,500 3,000 Feet

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CITY OF ISSAQUAH WASHINGTON

# CIP Map

Sewer Master Plan
City of Issaquah, Washington
July 2024

Figure
**10-1**

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## 10.3 Funding Sources

Chapter 11 describes the City's financial program and funding sources in greater detail.

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# Chapter 11 Financial Program

The City of Issaquah (City) updates their utility rate study every 5 years. Their current rate study was adopted in 2020. (see Appendix J). A new rate study will be conducted in early 2024, covering the period 2026 through 2030, with an opportunity to adjust 2024 and 2025 as needed. As a result, sewer utility projects slated for 2026 through 2030 will be reevaluated as part of the upcoming rate study. Through this process the operating and capital costs of the utility are analyzed to determine the level of rate revenue necessary to appropriately fund operational and capital needs of the utility.

The City also has a new biennial budget adoption process, moving from an annual budget cycle starting in 2023. This budgeting process provides for review of both revenues and expenditures. Each enterprise fund, including the sewer utility fund, must be self-supporting and self-sustaining.

Capital projects are funded through a combination of rates, capital facilities charges, debt and reserves, as well as outside funding sources for special projects. Some of the projects listed in Chapter 10 (Capital Improvement Program) of this Sanitary Sewer Master Plan have been included in the City's latest rate projections. Those projects that are new will be included in the next rate projection, and in upcoming biennial budgets at the time the project is needed.

The City has a long history of adequately funding capital improvements and operations of the sewer utility to maintain infrastructure, safe operating conditions, level of service and to provide the facilities necessary to serve projected growth. The City's approved biennium budgets are available on the City's website at:

https://www.issaquahwa.gov/Archive.aspx?AMID=37

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# APPENDICES

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# Appendix A

# Interlocal Agreements

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City Clerk's Office
Records Management

# CONTRACTS & AGREEMENTS
## ECM INDEX DATA

*INTRLOC_00* — File Location

*CITY OF ISSAQUAH* — Vendor Name

| | |
|---|---|
| **Document Type:** | Interlocal Amendment |
| **Vendor Name:** | CITY OF ISSAQUAH |
| **PO# Location:** | INTRLOC_000 |
| **Effect Date:** | 10/15/2015 |
| **Term Date:** | 10/15/2050 |
| **CR#:** | 64328 |
| **Related CR#:** | 56062 |
| **Ordinance:** | |
| **Resolution:** | 8981 |
| **Leg Date:** | |
| **Vendor #:** | 34657 |
| **Description:** | AMD #1 WATER & SEWER UTILITY ASSUMPTION AGREEMENT PO 1510581-001 X-REF 56062 |

**Notes:**

**Feb 08, 2017** FSU: JJ JDE: DJ SI: DJ ECM: DJ

INTRLOC_00
INTERLOCAL AGREEMENTS
10/31/2015

CB 64328 DATE 2/8/17 LOC 1510581.001

**AMENDMENT NO. 1 to WATER AND SEWER UTILITY ASSUMPTION AGREEMENT**
**between**
**CITY OF BELLEVUE**
**and**
**CITY OF ISSAQUAH**

This First Amendment to the Interlocal Agreement Implementing the Water and Sewer Utility Assumption Agreement (Agreement) ("First Amendment") is made and entered into by and between the City of Issaquah ("Issaquah") and the City of Bellevue ("Bellevue") this 31 day of December 2016, as follows:

WHEREAS, Issaquah and Bellevue entered into a certain Interlocal Agreement Implementing the Water and Sewer Utility Assumption Agreement (Agreement) that was fully executed on October 22, 2015; and

WHEREAS, Bellevue made water and sewer improvements in the Assumption Area in 2003 and the cost of these improvements are recovered from benefitting properties as they connect to the improved utility system; and

WHEREAS, Bellevue made capital investments in capacity-related facilities to support future new development throughout Bellevue's water and sewer service area, including the Assumption Area; and

WHEREAS, the Agreement assigns Bellevue the responsibility for continuing to collect and dispose of outstanding Direct Facility Connection Charges (DFCCs) and Capital Recovery Charges (CRCs) in the area; and

WHEREAS, Issaquah, will assume approximately 1,000 water and sewer customer accounts located in the South Cove and Greenwood Pointe communities; and

WHEREAS, because Issaquah will assume the customer accounts, it is in the parties best interests for Issaquah to collect outstanding DFCCs and CRCs and remit to Bellevue either annually or in one lump-sum payment; and

WHEREAS, the Agreement lacks a provision allowing for administrative amendments necessitating action by Issaquah's and Bellevue's respective City Council's for even administrative amendments, such as Amendment 1;

WHEREAS, the parties desire to amend the Agreement to clarify their respective rights and responsibilities regarding the collection of DFCCs and CRCs within the area to be assumed by Issaquah, as more fully set forth below;

NOW THEREFORE, the parties agree as follows:

1. Section 1 is amended as follows:

A. Paragraph L is deleted in its entirety.

2. Section 2 is amended as follows:

A. A new paragraph "H" is added to Section 2 as follows:

H. As of the Assumption Date, assume billing and collection of DFCCs and CRCs from the properties listed in Table 1 below.

B. A new paragraph "I" is added to Section 2 as follows:

I. To assure seamless transition for customers upon transition of billing responsibility, DFCCs will be collected upon redevelopment of the property against which the charge is assessed. CRCs will continue to be billed bi-monthly until the customer pays off the outstanding balance.

C. A new paragraph "J" is added to Section 2 as follows:

J. Issaquah will remit payment annually to Bellevue on December 31 of each year that amount of outstanding DFCCs and CRCs collected from the properties listed in Table 1 below and as shown in detail in Attachments B and C to Amendment 1.

Table 1: DFCC and CRC Outstanding Balances by Service Address

| Service Address | Water DFCC | Sewer DFCC | Water CRC | Sewer CRC |
|---|---|---|---|---|
| 4212 184TH AVE SE [a] | $14,177.38 | | | |
| 4304 184TH AVE SE [a] | $21,188.76 | | | |
| 4328 184TH AVE SE [a,b] | $63,373.92 | $116,792.80 | | |
| 4352 184TH AVE SE [a,b] | $21,188.76 | $39,049.10 | | $72.18 |
| 4364 184TH AVE SE [a,b] | $10,594.38 | $19,524.55 | | |
| 4414 184TH AVE SE [a,b] | $21,188.76 | $39,049.10 | | |
| 4460 184TH AVE SE [a,b] | $74,160.66 | $156,196.40 | | |
| 4505 185TH AVE SE | | | $784.38 | $419.56 |
| 4509 185TH AVE SE | | | $784.38 | $419.56 |
| 4511 185TH AVE SE | | | $130.56 | |
| 4513 185TH AVE SE | | | $408.42 | $221.22 |
| 4517 185TH AVE SE | | | $544.56 | $221.22 |
| 4521 185TH AVE SE | | | $400.68 | $216.54 |
| 4525 185TH AVE SE | | | $400.68 | $216.54 |
| 4529 185TH AVE SE | | | $738.24 | $394.88 |
| 4532 185TH AVE SE | | | $408.42 | $221.22 |
| 4533 185TH AVE SE | | | $738.24 | $394.88 |
| 4536 185TH AVE SE | | | $408.42 | $245.80 |
| 4537 185TH AVE SE | | | $784.38 | $419.56 |
| 4540 185TH AVE SE | | | $453.80 | $221.22 |
| 4541 185TH AVE SE | | | $784.38 | $419.56 |
| 4545 185TH AVE SE | | | $784.38 | $419.56 |
| 4549 185TH AVE SE | | | $784.38 | $419.56 |
| 4553 185TH AVE SE | | | $784.38 | $419.56 |

| | | | | |
|---|---|---|---|---|
| 4557 185TH AVE SE | | | $784.38 | $419.56 |
| 4560 185TH AVE SE | | | $267.12 | $168.42 |
| 4872 194TH AVE SE | | | $738.24 | $294.96 |
| 4500 W LAKE SAMMAMISH [a,b] | $10,594.38 | $19,524.55 | | |
| 4510 W LAKE SAMMAMISH PKWY SE | | | | $48.12 |
| 4528 W LAKE SAMMAMISH PKWY SE | | | | $120.30 |
| 18408 SE 44TH ST [a,b] | $21,188.76 | $39,049.10 | | |
| 18415 SE 44TH ST [a,b] | $31,783.14 | $58,573.65 | | |
| 19500 SE 51ST ST | | | $2,673.52 | $1,241.08 |
| VACANT LOT / PARCEL 1824069093 [a,b] | $21,188.76 | $39,049.10 | | |
| **TOTALS** | **$310,627.66** | **$526,808.35** | **$14,585.94** | **$7,655.06** |

[a]: Date of Water DFCC origination: June 18, 1994
[b]: Date of Sewer DFCC origination: November 27, 2001

D. A new paragraph "K" is added to Section 2 as follows:

I. Alternatively, Issaquah may pay Bellevue the full amount owing for the DFCCs and CRCSs in lieu of remitting the fees annually as required in Section 2, paragraph H.

E. A new paragraph "L" is added to Section 2 as follows:

J. The obligation to collect and remit DFCCs and CRCs on behalf of and to Bellevue shall terminate when the outstanding balance for the DFCCs and CRCs is zero.

3. Section 6, General Provisions, is amended as follows:

A. A new paragraph "I" is added to Section 6 as follows:
Amendment. The parties, by mutual agreement, may amend, modify or alter this Agreement where the change is for administrative convenience, or greater efficiency and effectiveness has no fiscal impact and furthers the objectives of the Agreement; provided the following sections may not be amended without action by the parties' respective City Councils:

1. Section 1, paragraphs A, B, C, D, and G.
2. Section 2, paragraphs A and D
3. Section 4
4. Section 5
5. Section 6, paragraphs A, B, C, D, E, G, and H.

4. Except as modified by this Amendment No. 1, the Agreement remains in full force and effect and has not been modified or amended.

Approved as to Form

CITY OF BELLEVUE ("Bellevue")

# ATTACHMENT A
# ASSUMPTION AREA MAPS

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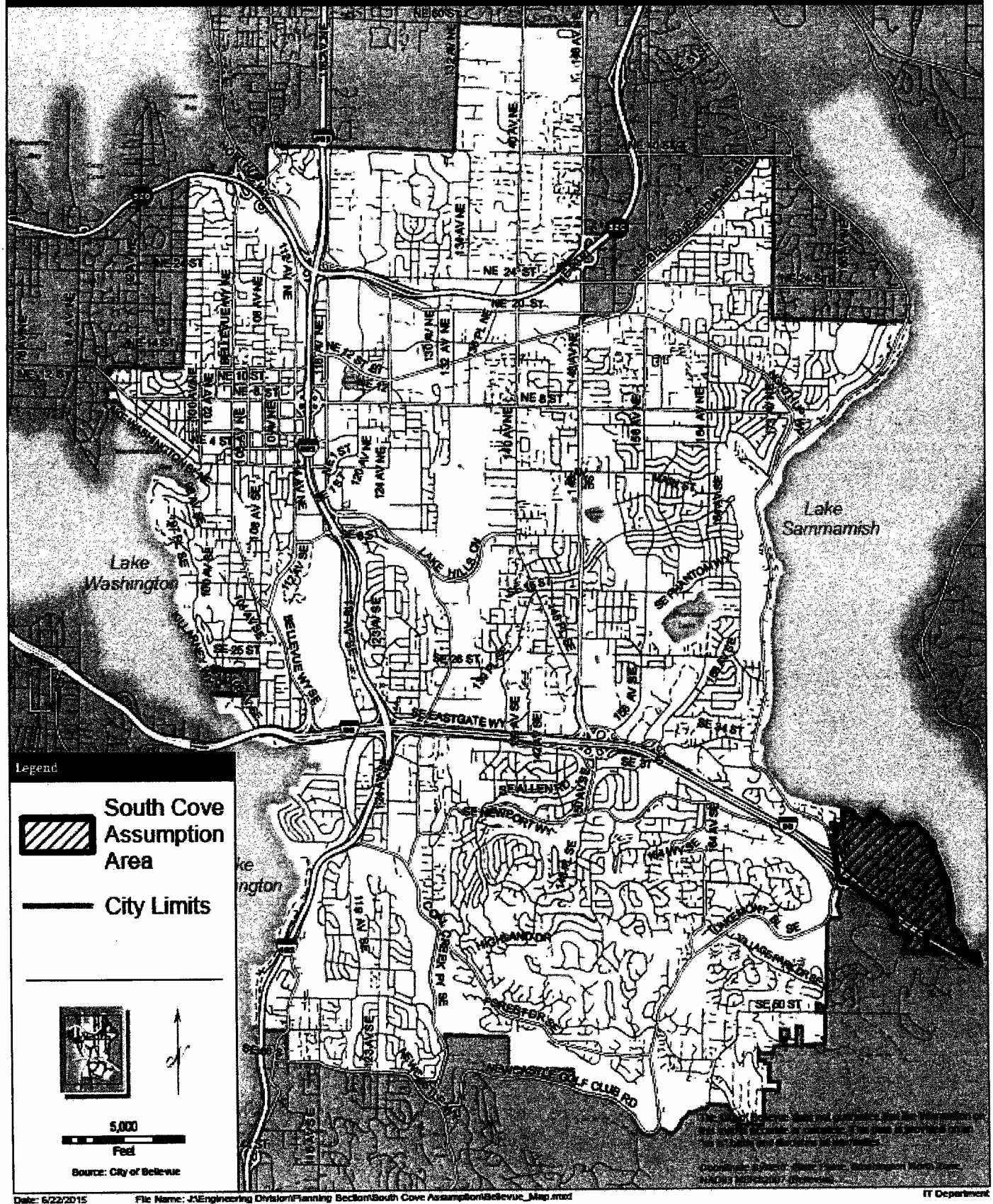
# City of Bellevue Vicinity

South Cove Assumption

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# CITY OF ISSAQUAH

## WATER AND SEWER ASSUMPTION

## VICINITY MAP

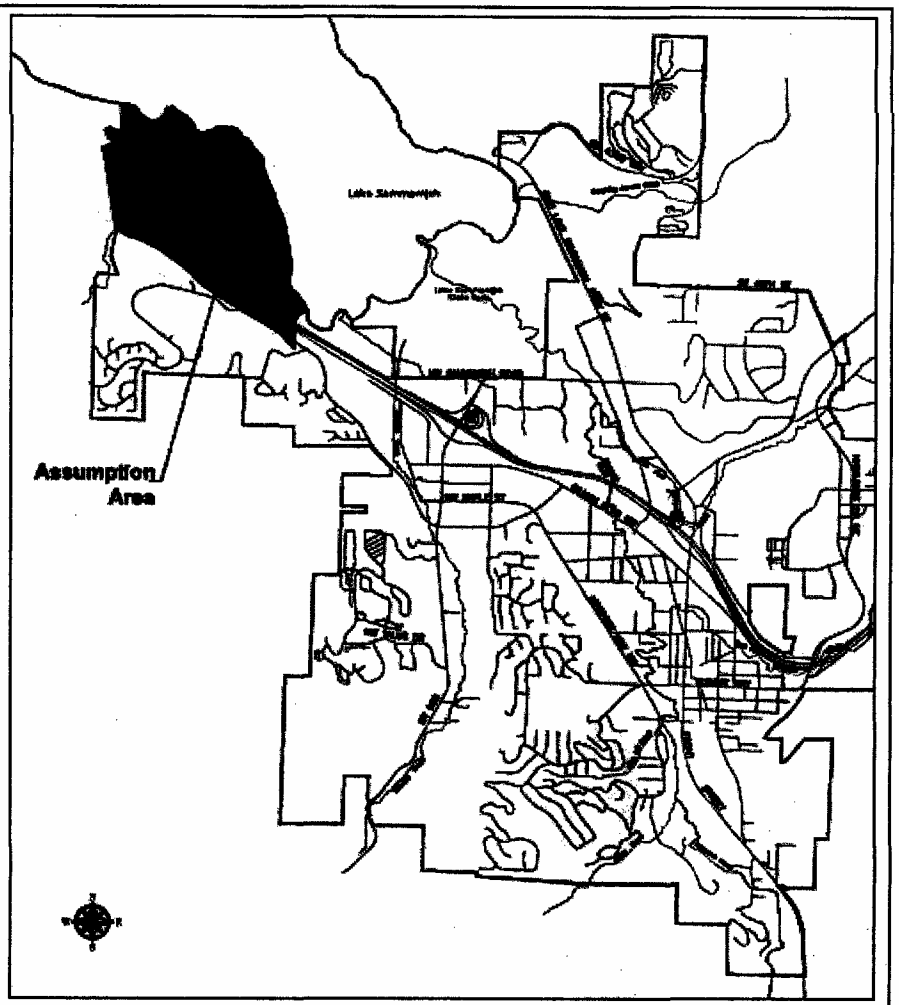
**CITY OFFICIALS**

**MAYOR**
FRED BUTLER

**DIRECTOR OF PUBLIC WORKS**
SHELDON LYNNE

**CITY ATTORNEY**
WAYNE TANAKA

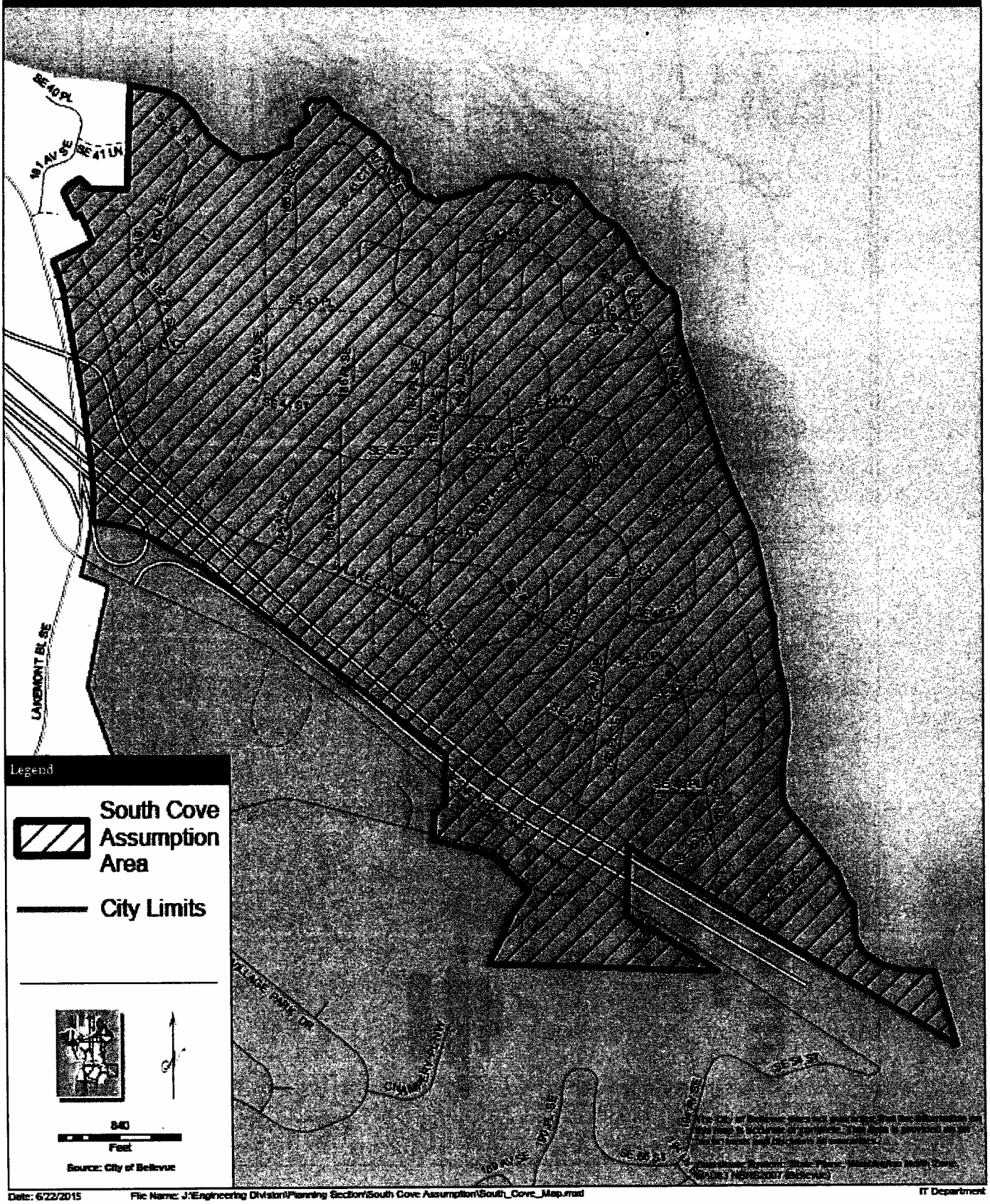
**CITY COUNCIL MEMBERS**
EILEEN BARBER
STACY GOODMAN
TOLA MARTS
NINA MILLIGAN
MARY LOU PAULY
JOSHUA SCHAER
PAUL WINTERSTEIN



# South Cove Vicinity

South Cove Assumption

City of Bellevue GIS Services

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## ATTACHMENT B
## OUTSTANDING WATER AND SEWER DIRECT FACILITY CONNECTION CHARGES (DFCCS)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project:** | **184th Ave SE Water Extension (Timberlake Park)** | | | | | | | | | **Water Connection Charge Per Single Family Lot:** | | **$8,244** |
| **JDE Revenue Account:** | **496690999.379100.0535** | | | | | | | | | | **Amanda Speed! Code:** | **49-75** |
| **Total Project Cost:** | **$288,539** | **[35 potential single family lots, as of 12/10/03 Cost Allocation Memo]** | | | | | | | | | | |
| **Cost Recovered:** | **$46,073** | **Dollar Wise Collected [Principal Amount Paid to Date]** | | | | | | | | | | |
| **Difference:** | **$242,466** | | | | | | | | | | | |
| **Date of Charge Origination:** | **6/18/1994** | | | | | | | | | | | |
| **Address/ King County Parcel** | **# of Potential SF Lots** | **Allocated Project Cost** | **Allocated Project Interest** | **Total Allocated Project Principal + Interest** | **Actual SF Lots Paid** | **# of Potential SF Lots Left to Pay** | **Principal Amount Paid to Date** | **Interest Amount Paid to Date** | **Total [Principal + Interest] Collected to Date** | **Outstanding Principal Balance to Date** | **Outstanding Interest Balance to Date** | **Outstanding Principal & Interest Balance to Date** |
| 18408 SE 44th St Issaquah WA 98027/ 1824069099 | 2 | $16,488.00 | $4,700.76 | $21,188.76 | 0 | 2 | $0.00 | $0.00 | $0.00 | $16,488.00 | $4,700.76 | $21,188.76 |
| 18415 SE 44th St Issaquah WA 98027/ 1824069092 | 3 | $24,732.00 | $7,051.14 | $31,783.14 | 0 | 3 | $0.00 | $0.00 | $0.00 | $24,732.00 | $7,051.14 | $31,783.14 |
| 4212 184th Ave SE Issaquah WA 98027/ 1824069172 & 18426 SE 43rd Pl Issaquah WA 98027/ 1824069084 | 3 | $24,732.00 | $7,051.14 | $31,783.14 | 2 | 1 | $12,905.00 | $2,629.82 | $15,534.82 | $11,827.00 | $2,350.38 | $14,177.38 |
| 4304 184th Ave SE Issaquah WA 98027/ 1824069107 | 2 | $16,488.00 | $4,700.76 | $21,188.76 | 0 | 2 | $0.00 | $0.00 | $0.00 | $16,488.00 | $4,700.76 | $21,188.76 |
| 4328 184th Ave SE Issaquah WA 98027/ 1824069085 | 7 | $57,708.00 | $16,452.66 | $74,160.66 | 1 | 6 | $8,436.36 | $1,628.27 | $10,064.63 | $49,271.64 | $14,102.28 | $63,373.92 |
| 4352 184th Ave SE Issaquah WA 98027/ 1824069094 | 3 | $24,732.00 | $7,051.14 | $31,783.14 | 1 | 2 | $8,244.00 | $638.45 | $8,882.45 | $16,488.00 | $4,700.76 | $21,188.76 |
| 4364 184th Ave SE Issaquah WA 98027/ 1824069090 | 2 | $16,488.00 | $4,700.76 | $21,188.76 | 1 | 1 | $8,244.00 | $2,040.39 | $10,284.39 | $8,244.00 | $2,350.38 | $10,594.38 |
| 4414 184th Ave SE Issaquah WA 98027/ 1824069083 | 3 | $24,732.00 | $7,051.14 | $31,783.14 | 1 | 2 | $8,244.00 | $219.84 | $8,463.84 | $16,488.00 | $4,700.76 | $21,188.76 |
| 4460 184th Av SE Issaquah WA 98027/ 1824069059 | 7 | $57,708.00 | $16,452.66 | $74,160.66 | 0 | 7 | $0.00 | $0.00 | $0.00 | $57,708.00 | $16,452.66 | $74,160.66 |
| 4500 W Lake Sammamish Pkwy SE Issaquah WA 98027 | 1 | $8,244.00 | $2,350.38 | $10,594.38 | 0 | 1 | $0.00 | $0.00 | $0.00 | $8,244.00 | $2,350.38 | $10,594.38 |
| Vacant Single Family Lot [No Property Address]/ 1824069093 | 2 | $16,488.00 | $4,700.76 | $21,188.76 | 0 | 2 | $0.00 | $0.00 | $0.00 | $16,488.00 | $4,700.76 | $21,188.76 |
| | 35 | $288,540.00 | $82,263.30 | $370,803.30 | 6 | 29 | $46,073.36 | $7,156.77 | $53,230.13 | $242,466.64 | $68,161.02 | $310,627.66 |

Note: Outstanding Water DFCC balances presented above represent remaining outstanding balances as of September 1, 2016.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project:** | **184th Ave SE Sewer Extension (Timberlake Park)** | | | | | | | | **Sewer Connection Charge Per Single Family Lot:** | | | **$15,193** |
| **JDE Revenue Account:** | **596690999.379100.0528** | | | | | | | | | | **Amanda Speedi Code:** | **49-68** |
| ***Total Project Cost:*** | **$518,405** | ***[34 potential single family lots, as of 12/10/03 Cost Allocation Memo]*** | | | | | | | | | | |
| **Cost Recovered:** | **$108,548** | **Dollar Wise Collected [Principal Amount Paid to Date]** | | | | | | | | | | |
| **Difference:** | **$409,857** | | | | | | | | | | | |
| **Date of Charge Origination:** | **11/27/2001** | | | | | | | | | | | |
| **Address/ King County Parcel** | **# of Potential SF Lots** | **Allocated Project Cost** | **Allocated Project Interest** | **Total Allocated Project Principal + Interest** | **Actual SF Lots Paid** | **# of Potential SF Lots Left to Pay** | **Principal Amount Paid to Date** | **Interest Amount Paid to Date** | **Total [Principal + Interest] Collected to Date** | **Outstanding Principal Balance to Date** | **Outstanding Interest Balance to Date** | **Outstanding Principal & Interest Balance to Date** |
| 18408 SE 44th St Issaquah WA 98027/ 1824069099 | 2 | $30,386.00 | $8,663.10 | $39,049.10 | 0 | 2 | $0.00 | $0.00 | $0.00 | $30,386.00 | $8,663.10 | $39,049.10 |
| 18415 SE 44th St Issaquah WA 98027/ 1824069092 | 3 | $45,579.00 | $12,994.65 | $58,573.65 | 0 | 3 | $0.00 | $0.00 | $0.00 | $45,579.00 | $12,994.65 | $58,573.65 |
| 4328 184th Ave SE Issaquah WA 98027/ 1824069085 | 7 | $106,351.00 | $30,320.85 | $136,671.85 | 1 | 6 | $15,547.50 | $3,000.77 | $18,548.27 | $90,803.50 | $25,989.30 | $116,792.80 |
| 4352 184th Ave SE Issaquah WA 98027/ 1824069094 | 3 | $45,579.00 | $12,994.65 | $58,573.65 | 1 | 2 | $15,193.00 | $1,657.45 | $16,850.45 | $30,386.00 | $8,663.10 | $39,049.10 |
| 4364 184th Ave SE Issaquah WA 98027/ 1824069090 | 2 | $30,386.00 | $8,663.10 | $39,049.10 | 1 | 1 | $15,193.00 | $3,760.28 | $18,953.28 | $15,193.00 | $4,331.55 | $19,524.55 |
| 4414 184th Ave SE Issaquah WA 98027/ 1824069083 | 3 | $45,579.00 | $12,994.65 | $58,573.65 | 1 | 2 | $15,193.00 | $405.15 | $15,598.15 | $30,386.00 | $8,663.10 | $39,049.10 |
| 4460 184th Av SE Issaquah WA 98027/ 1824069059 | *8* | *$121,544.00* | *$34,652.40* | *$156,196.40* | *0* | *8* | *$0.00* | *$0.00* | *$0.00* | *$121,544.00* | *$34,652.40* | *$156,196.40* |
| 4470 184th Ave SE Issaquah WA 98027/ 1824069156 | 1 | $15,193.00 | $4,331.55 | $19,524.55 | 1 | 0 | $15,193.00 | $1,390.14 | $16,583.14 | $0.00 | $0.00 | $0.00 |
| 4480 184th Ave SE Issaquah WA 98027/ 1824069162 | 1 | $15,340.96 | $4,331.55 | $19,672.51 | 1 | 0 | $15,340.96 | $3,796.88 | $19,137.84 | $0.00 | $0.00 | $0.00 |
| 4500 W Lake Sammamish Pkwy SE Issaquah WA 98027 | 1 | $15,193.00 | $4,331.55 | $19,524.55 | 0 | 1 | $0.00 | $0.00 | $0.00 | $15,193.00 | $4,331.55 | $19,524.55 |
| 4510 W Lk Samm Pkwy SE Issaquah WA 98027/ 1824069068 | 1 | $16,887.87 | $4,331.55 | $21,219.42 | 1 | 0 | $16,887.87 | $4,004.85 | $20,892.72 | $0.00 | $0.00 | $0.00 |
| Vacant Single Family Lot [No Property Address]/ 1824069093 | 2 | $30,386.00 | $8,663.10 | $39,049.10 | 0 | 2 | $0.00 | $0.00 | $0.00 | $30,386.00 | $8,663.10 | $39,049.10 |
| | 34 | $518,404.83 | $147,272.70 | $665,677.53 | 7 | 27 | $108,548.33 | $18,015.52 | $126,563.85 | $409,856.50 | $116,951.85 | $526,808.35 |

Note: Outstanding Sewer DFCC balances presented above represent remaining outstanding balances as of September 1, 2016.

**ATTACHMENT C**
**OUTSTANDING CAPITAL RECOVERY CHARGES**

7

Note: Outstanding Water and Sewer CRC balances presented above represent remaining outstanding balances as of January 1, 2017 as customer accounts will continue monthly payments to the City of Bellevue through December 31, 2016.

BELLEVUE RECORDS MANAGEMENT

## CONTRACT FACE SHEET

**Document Type:**

- ☐ Contract
- ☐ MOU
- ☒ Interlocal Agreement
- ☐ Notice of Acceptance
- ☐ Retainage
- ☐ Franchise Agreement
- ☐ Right of Way Use Agreement
- ☐ Lien
- ☐ Correspondence
- ☐ Collective Bargaining Agreement

**Status:**

- ☐ New
- ☒ Amendment
- ☐ Change Order
- ☐ Renewal
- ☐ Cancellation

***Vendor Name:** City of Issaquah

***JDE PO Number:** 1510581 . 001

***Effective Date:** 10/15/2015

***Termination Date:** 10/15/2050

**Amendment Effective Date:** 12/21/2016 ✓

***Clerk's Receiving Number:** 64328

**Related Receiving Number:** 56062

**Bid/RFP/RFQ/ITQ Number:**

**Ordinance Number:**

**Resolution Number:** 8981

**CIP Number:**

**Project Name:** Water and Sewer Utility Assumption Agreement between City of ...

**Site Name:**

**Vendor Number:** 34657

**File Location:**

*Denotes mandatory fields. If referring to Retainage, please indicate the Termination Date same as the Contract Termination Date.

Face Sheet Date:_____

Scan Date:_____

Index Date:_____

CR# 64328 Date: 2/8/17 PO # & Loc: 1310581.001

City of Bellevue
Finance Department - Procurement Services
450 110th Ave. NE. Bellevue, WA 98004

# Contract Routing Form

## Current Contract Information:

| | |
|---|---|
| **Contract Title:** | Water & Sewer Utility Assumption Agreement between City of Bellevue and City of Issaquah |
| **Contract Description:** | Water & Sewer Utility Assumption Agreement between City of Bellevue and City of Issaquah |
| **Total Contract Value:** | $0.00 |
| **This Amendment Value:** | -0- |
| **Department:** | Utilities City Hall- 567 |
| **Contract Manager:** | Andrew Lee |
| **Contract Type:** | Interlocal Agreement (ILA) |
| **Contract Form:** | Custom contract document |
| **Budget Expenditure:** | |
| **Maximo User:** | No |

ILA

## Vendor Information:

| | | | |
|---|---|---|---|
| **New Vendor?** | No | **COB License #:** | |
| **Vendor Name:** | No | **UBI #:** | 916001446 |
| **JDE Vendor Number:** | 34657 | **Contractor's Lic. #:** | |
| **Independent Contractor?** | Yes | | |

## Contract Term:

| | | | |
|---|---|---|---|
| **Original Effective Date:** | 10/15/2015 | **End Date:** | 10/15/2050 |
| **Subject To:** | No Renewal | | |

## Council Approval:

**Does this contract require council approval?** No

## Route:

| | | In | Out |
|---|---|---|---|
| Procurement Services: | ACarlson | 1/23/17 | 1/23/17 |
| Information Technology: | NA | | |
| Legal: Catherine | Catherine D. Davis | 1/23/17 | 1/24/17 |
| Insurance Reviewed By: (RISK) | | 1/24/17 | 1-26-17 |
| ~~Department Director:~~ (CMO) | | 1/31/17 | 2-3-17 |
| Procurement Services: | ACarlson | 2/7/17 | 2/7/17 |
| Return To: | Andrew Lee | | |
| City Clerk's Office: | Sue Gunderson | 2/8/17 | 2/8/17 |

## Related Contract Information:

**Amendment/change order/renewal?**

**Amendment #:**

**Amendment Effective Date:**

**Original PO #:**

**Original Contract Value:**

**Total Value of Previous Change Orders/Amendments:**

**This Change Order/Amendment Value:**

## Selection Method:

**Selection Method:**

**Roster Service:**

**Solicitation Issue Date:** **Solicitation Due Date:**

**Length Bid/Proposal is valid for:**

**Bid/RFP/RFQ #:**

**Bid/RFP/RFQ/ITQ Title:**

**Grant Money involved in contract?**

| Quote # | Vendor Name | MWDBE | Fee/Cost |
|---|---|---|---|
| | | ☐ | |

## Budget Information:

| Line # | Description | GL Date | Account # | Subtotal | Tax | Total |
|---|---|---|---|---|---|---|

## Additional Comments:

1510581.020

**WATER AND SEWER UTILITY ASSUMPTION AGREEMENT**
**BETWEEN**
**CITY OF BELLEVUE AND CITY OF ISSAQUAH**

**THIS AGREEMENT** is made by and between the City of Bellevue, a municipal corporation, in King County, Washington ("Bellevue"), and the City of Issaquah, a municipal corporation, in King County, Washington ("Issaquah") for the purposes set forth herein.

**RECITALS**

WHEREAS, the City of Bellevue assumed the King County Water District No. 97 which provided water service in the South Cove and Greenwood Point areas in 1973; and

WHEREAS, the City of Bellevue assumed the Eastgate Sewer District which provided sewer service in the South Cove and Greenwood Point areas on December 31, 1994; and

WHEREAS, the City of Issaquah annexed the South Cove/Greenwood Point areas on March 2, 2006; and

WHEREAS, the City of Bellevue continues to provide water and sewer service for the South Cove and Greenwood Point areas despite those areas being annexed into the City of Issaquah; and

WHEREAS, the Cities of Issaquah and Bellevue entered into an Interlocal Agreement in June 2014 in which both cities agreed to cooperatively work together and to negotiate in good faith terms regarding existing capital facilities, joint use facilities where appropriate and shared costs associated with the assumption of utilities by the City of Issaquah; and

WHEREAS, the Cities have completed their negotiations related to the assumption of the water and sanitary sewer utilities in the South Cove/Greenwood Point area within the City of Issaquah; and

WHEREAS, the Cities of Issaquah and Bellevue wish to enter into this agreement to set forth the terms for assumption of the water and sanitary sewer utilities in the South Cove/Greenwood Point area;

NOW, THEREFORE, the Cities of Issaquah and Bellevue agree as follows:

Section 1: The City of Bellevue agrees to:

A. Support the assumption of its water and sanitary sewer utilities within the South Cove/Greenwood Point area, as shown in Attachment A, by the City of Issaquah.

B. Transfer its responsibilities to the City of Issaquah associated with providing water and sanitary sewer service to the South Cove/Greenwood Point area, effective January 1, 2017 or at such time as the Issaquah's billing system has been upgraded and is fully operational, whichever date is later (the "Assumption Effective Date").

C. Transfer its water and sanitary sewer utility assets located within the South Cove/Greenwood Point area, including any necessary easements, to Issaquah at no cost by the Assumption Effective Date.

D. As of the Assumption Effective Date, wheel Cascade Water supply through Bellevue's water Utility to the South Cove/Greenwood Point Area under the terms of the Amendment to the existing Water Facilities Agreement between City of Bellevue and City of Issaquah, dated September 9, 2005.

E. Within 2 years of the Assumption Effective Date, coordinate with Issaquah on the installation of pressure reducing valve station along the 12-in water main at 4500 W Lake Sammamish Pkwy to improve fire flows and increase pressures in the South Cove/Greenwood Point area and the upstream water service area in Bellevue. Bellevue shall pay for fifty percent (50%) of the project cost of installing the PRV station, inclusive of the cost for designing and constructing the underground vault structure and lid, pressure reducing valve, and site preparation/restoration. Issaquah shall pay for one hundred percent (100%) of the cost for any telemetry systems to connect the PRV to Issaquah's supervisory control and data acquisition (SCADA) system.

F. As of the Assumption Effective Date, operate its systems such that the operating hydraulic grade line ("HGL") is maintained at a minimum of 248 feet (NAVD88) at the two interties at approximately the following locations:

4210 181ST AVE SE
4316 W LAKE SAMMAMISH PKWY SE

Within two years of the Assumption Effective Date, Bellevue shall increase the HGL in the water system west of the new Pressure Reducing Valve (PRV) station at 4500 W Lake Sammamish Parkway, such that the operating HGL is maintained at approximately 270 feet (NAVD88) at the two intertie locations.

If additional operational changes are being planned that could impact pressure or flows then Bellevue shall work with Issaquah to mitigate such changes to ensure proper service levels are maintained in the South Cove/Greenwood Point area, unless Issaquah's water system is hydraulically disconnected from Bellevue's system. If capital improvements are necessary to maintain the pressures and flows, the two agencies will work together in good faith to determine how the costs of such facilities will be paid.

G. Transfer to Issaquah within 15 days of the Assumption Effective Date, $93,370 from its Water Utility Capital Renewal and Replacement Fund and $157,574 from its Sanitary Sewer Utility Capital Renewal and Replacement Fund representing an equitable amount attributable to transferring the aging assets.

H. As of the Assumption Effective Date, provide drinking water supply at the interties that meet all local, state, and federal water quality standards for drinking water. If an issue of water quality arises that potentially affects the intertie locations, Bellevue will notify Issaquah's Operations Department at (425) 837 – 3470 and work with Issaquah for appropriate actions.

I. Transfer all utility billing information and maintenance records as of the Assumption Effective Date to Issaquah.

J. As of the Assumption Effective Date, water and sewer service to the Issaquah addresses below are Issaquah's responsibility but will remain connected to Bellevue's water system or downstream sanitary sewer system, unless Issaquah makes system modifications to route flows through Issaquah's system.

| Issaquah Addresses Which Flow into Bellevue's Sewer System | Issaquah Addresses Connected to Bellevue's Water System |
|---|---|
| 4233 182ND AVE SE, ISSAQUAH | 18153 SE 41ST LN, ISSAQUAH |
| 4261 182ND AVE SE, ISSAQUAH | |
| 18126 SE 42ND PL, ISSAQUAH | |
| 18131 SE 42ND PL, ISSAQUAH | |
| 18135 SE 42ND PL, ISSAQUAH | |
| 18136 SE 42ND PL, ISSAQUAH | |
| 18139 SE 42ND PL, ISSAQUAH | |
| 18144 SE 42ND PL, ISSAQUAH | |
| 18145 SE 42ND PL, ISSAQUAH | |
| 18151 SE 42ND PL, ISSAQUAH | |
| 18156 SE 42ND PL, ISSAQUAH | |
| 18160 SE 42ND PL, ISSAQUAH | |
| 18217 SE 43RD CT, ISSAQUAH | |
| 18220 SE 43RD CT, ISSAQUAH | |
| 18221 SE 43RD PL, ISSAQUAH | |
| 18223 SE 43RD CT, ISSAQUAH | |
| 18224 SE 43RD PL, ISSAQUAH | |
| 18226 SE 43RD CT, ISSAQUAH | |
| 18227 SE 43RD PL, ISSAQUAH | |
| 18229 SE 43RD CT, ISSAQUAH | |
| 18230 SE 43RD PL, ISSAQUAH | |
| 18232 SE 43RD CT, ISSAQUAH | |

18233 SE 43RD PL, ISSAQUAH
18235 SE 43RD CT, ISSAQUAH
18236 SE 43RD PL, ISSAQUAH
18239 SE 43RD PL, ISSAQUAH
4230 181ST PL SE, ISSAQUAH
4234 181ST PL SE, ISSAQUAH
4240 181ST PL SE, ISSAQUAH
4241 181ST PL SE, ISSAQUAH
4248 181ST PL SE, ISSAQUAH
4249 181ST PL SE, ISSAQUAH
4256 181ST PL SE, ISSAQUAH
4257 181ST PL SE, ISSAQUAH
4263 181ST PL SE, ISSAQUAH
4264 181ST PL SE, ISSAQUAH
4266 182ND AVE SE, ISSAQUAH
4269 181ST PL SE, ISSAQUAH
4304 182ND PL SE, ISSAQUAH
4310 182ND AVE SE, ISSAQUAH
4313 182ND PL SE, ISSAQUAH
4321 182ND PL SE, ISSAQUAH
4326 182ND PL SE, ISSAQUAH
4329 182ND PL SE, ISSAQUAH
4320 W LAKE SAMMAMISH PKWY SE, ISSAQUAH (Includes 4316-4356)
4337 182ND PL SE, ISSAQUAH
4343 182ND PL SE, ISSAQUAH
4402 W LAKE SAMMAMISH PKWY SE, ISSAQUAH
4404 W LAKE SAMMAMISH PKWY SE, ISSAQUAH
4406 W LAKE SAMMAMISH PKWY SE, ISSAQUAH
4410 W LAKE SAMMAMISH PKWY SE, ISSAQUAH
4412 W LAKE SAMMAMISH PKWY SE, ISSAQUAH
4416 W LAKE SAMMAMISH PKWY SE, ISSAQUAH
4418 W LAKE SAMMAMISH PKWY SE, ISSAQUAH

Issaquah will read the meters and bill its water and sewer rates for these addresses. Issaquah recognizes that as these meters receive services from Bellevue but are in Issaquah's jurisdiction, that Issaquah will be responsible for

the Cascade Water Alliance purchased water costs and/or for the King County Wastewater Treatment Division wastewater treatment costs, for these addresses.

Should Issaquah receive service-related complaints from these addresses it will notify Bellevue of the complaint and Bellevue will promptly investigate its system if warranted and coordinate with Issaquah for Bellevue's response, unless Issaquah makes system modifications to route the water and/or sewer flows through Issaquah's system.

Bellevue and Issaquah shall seek to connect new or redeveloped customers to their respective water and sewer systems, to the extent feasible. Where infeasible, Bellevue and Issaquah shall work cooperatively to provide water and sewer service through connections to the others' water and sewer systems.

K. By the Assumption Effective Date, install meters at the two intertie locations in accordance with Bellevue design and operation standards. The meters shall be capable of monitoring and recording flow in both directions. Issaquah shall pay for one hundred percent (100%) of the project cost for designing and installing the meter vaults and lids, the flow meters, communications equipment, and site preparation/restoration.

L. Continue billing and collection of Direct Facility Connection Charges and Capital Recovery Charges from properties located within the assumption area as applicable.

Section 2: The City of Issaquah agrees to:

A. Take over the responsibilities associated with providing water and sanitary sewer service to the South Cove/Greenwood area by the Assumption Effective Date.

B. Within 2 years of the Assumption Effective Date, install a pressure reducing valve (PRV) station along the 12-in water main at 4500 W Lake Sammamish Pkwy to improve fire flows and increase pressures in the South Cove/Greenwood Point area and the upstream water service area in Bellevue. Issaquah shall pay for fifty percent (50%) of the project cost of installing the PRV station, inclusive of the cost for designing and constructing the underground vault structure and lid, pressure reducing valve, and site preparation/restoration. Issaquah shall pay for one hundred percent (100%) of the cost for any telemetry systems to connect the PRV to Issaquah's supervisory control and data acquisition (SCADA) system.

C. As of the Assumption Effective Date, provide water and/or sewer services to the Bellevue addresses below that will be served by Issaquah's water system or Issaquah's downstream sanitary sewer system, unless Bellevue makes system modifications to route the flows through Bellevue's system.

| Addresses Connected to Issaquah's | Addresses Connected to Issaquah's |
|---|---|

| Sewer System | Water System |
|---|---|
| 18110 SE 41ST LN, BELLEVUE | 4300 W LAKE SAMMAMISH PKWY |
| 18130 SE 41ST LN, BELLEVUE | SE, BELLEVUE |
| 18131 SE 41ST LN, BELLEVUE | |
| 4300 W LAKE SAMMAMISH PKWY | |
| SE, BELLEVUE | |

Bellevue will read the meters and bill its water and sewer rates for these addresses. Bellevue recognizes that as these meters receive services from Issaquah but are in Bellevue's jurisdiction, that Bellevue will be responsible for the Cascade Water Alliance purchased water costs and for the King County Wastewater Treatment Division wastewater treatment costs for these addresses.

Should Bellevue receive complaints from these addresses, it will notify Issaquah of the complaint and Issaquah will promptly investigate its system if warranted and coordinate with Bellevue for Issaquah's response, unless Bellevue makes system modifications to route the water and/or sewer flows through Bellevue's system.

Bellevue and Issaquah shall seek to connect new or redeveloped customers to their respective water and sewer systems, to the extent feasible. Where infeasible, Bellevue and Issaquah shall work cooperatively to provide water and sewer service through connections to the others' water and sewer systems.

D. Assume responsibility for all project costs associated with future system modifications to separate Issaquah's water and sewer customers from Bellevue's water and sewer systems.

E. Coordinate with Bellevue on the installation of meters at the interties at the time which they are being installed. Issaquah shall pay for one hundred percent (100%) of the project cost for designing and installing the meter vaults and lids, flow meters, communications equipment, and site preparation/restoration. The meters shall be designed and installed by Bellevue.

F. Provide bi-monthly water consumption data to Bellevue until meters are installed at the interties, for purposes of determining the amount of Cascade Water supply wheeled through Bellevue's water Utility to the South Cove/Greenwood Point Area

G. If an issue of water quality arises that potentially affects the intertie locations, Issaquah will notify the Bellevue Operations Department at (425) 452 – 7840 and work with Bellevue for appropriate actions.

Section 3: Contracts

A. Any latecomers agreements or other outstanding contracts for properties or facilities within the assumption area shall be assigned to Issaquah on the Assumption Effective Date.

Section 4: Term and Termination

A. This Agreement shall remain in effect in perpetuity, unless otherwise terminated as provided herein.

B. Any party may terminate this Agreement prior to the Assumption Effective Date by providing thirty (30) days written notice to the other parties.

Section 5: Indemnification and Hold Harmless.

Each party to this Agreement agrees to protect, defend, indemnify and hold harmless the other party and their officers, employees and agents from any loss, claim, judgment, settlement or liability, including costs and attorney's fees, arising out of and to the extent caused by the negligent acts or omissions of the indemnifying party related to activities under this Agreement. For this purpose, each indemnifying party, by mutual negotiation, hereby waives, as respects all other non-indemnifying parties only, any immunity that would otherwise be available against such claims under the Industrial Insurance provisions of Title 51 RCW. In the event the any non-indemnifying party incurs any judgment, award, and/or cost arising therefrom including attorneys' fees to enforce the provisions of this Section, all such fees, expenses and costs shall be recoverable from the indemnifying party. This section shall survive the termination of this Agreement.

Section 6: General Provisions

A. Governing Law; Forum. The Agreement will be governed by the laws of Washington and its choice of law rules. Venue for any dispute arising out of this Agreement shall be in King County, Washington.

B. Severability. If any provision of the Agreement is held to be invalid or unenforceable for any reason, the remaining provisions will continue in full force without being impaired or invalidated in any way. The parties agree to replace any invalid provision with a valid provision that most closely approximates the intent and economic effect of the invalid provision.

C. Nonwaiver. Any failure to enforce strict performance of any provision of this Agreement will not constitute a waiver of the right to subsequently enforce such provision or any other provision of this Agreement.

D. No Assignment. Neither the Agreement nor any of the rights or obligations of any party arising under the Agreement may be assigned, without the other

party's prior written consent. Subject to the foregoing, the Agreement will be binding upon, enforceable by, and inure to the benefit of, the parties and their successors and assigns.

E. Force Majeure. None of the parties shall be deemed in default hereunder and none shall be liable to the others if any party is substantially unable to perform its obligations hereunder by reason of any fire, earthquake, flood, tsunami, hurricane, epidemic, accident, explosion, strike, riot, civil disturbance, act of public enemy, embargo, war, military necessity or operations, act of God, any municipal county, state or national ordinance or law, any executive or judicial order, or similar event beyond such party's control.

F. Notices. All notices and other communications under the Agreement must be in writing, and must be given by registered or certified mail, postage prepaid, or delivered by hand to the party to whom the communication is to be given, at its address set forth below:

City of Bellevue:
Deputy Director
Utilities Department
450 110th Ave NE
Bellevue, WA 98004

City of Issaquah:
Director
Public Works Engineering Department
City Hall Northwest
1775 12th Ave NW
P.O. Box 1307
Issaquah, WA 98027

Any party may change its address specified in this paragraph by giving the other written notice in accordance with this paragraph.

G. Legal Fees. In any lawsuit between the parties with respect to the matters covered by the Agreement, the prevailing party will be entitled to receive its reasonable attorney's fees and costs incurred in the lawsuit, in addition to any other relief it may be awarded.

H. Counterparts. The Agreement may be signed in counterparts, each of which shall be deemed an original, and all of which, taken together, shall be deemed one and the same document.

Approved as to Form
Bellevue Legal Counsel

By _____
Its Dep. City Attorney
Dated 10/22/15

CITY OF BELLEVUE ("Bellevue")

By _____
Its Dep City Mgr
Dated 11/4/15

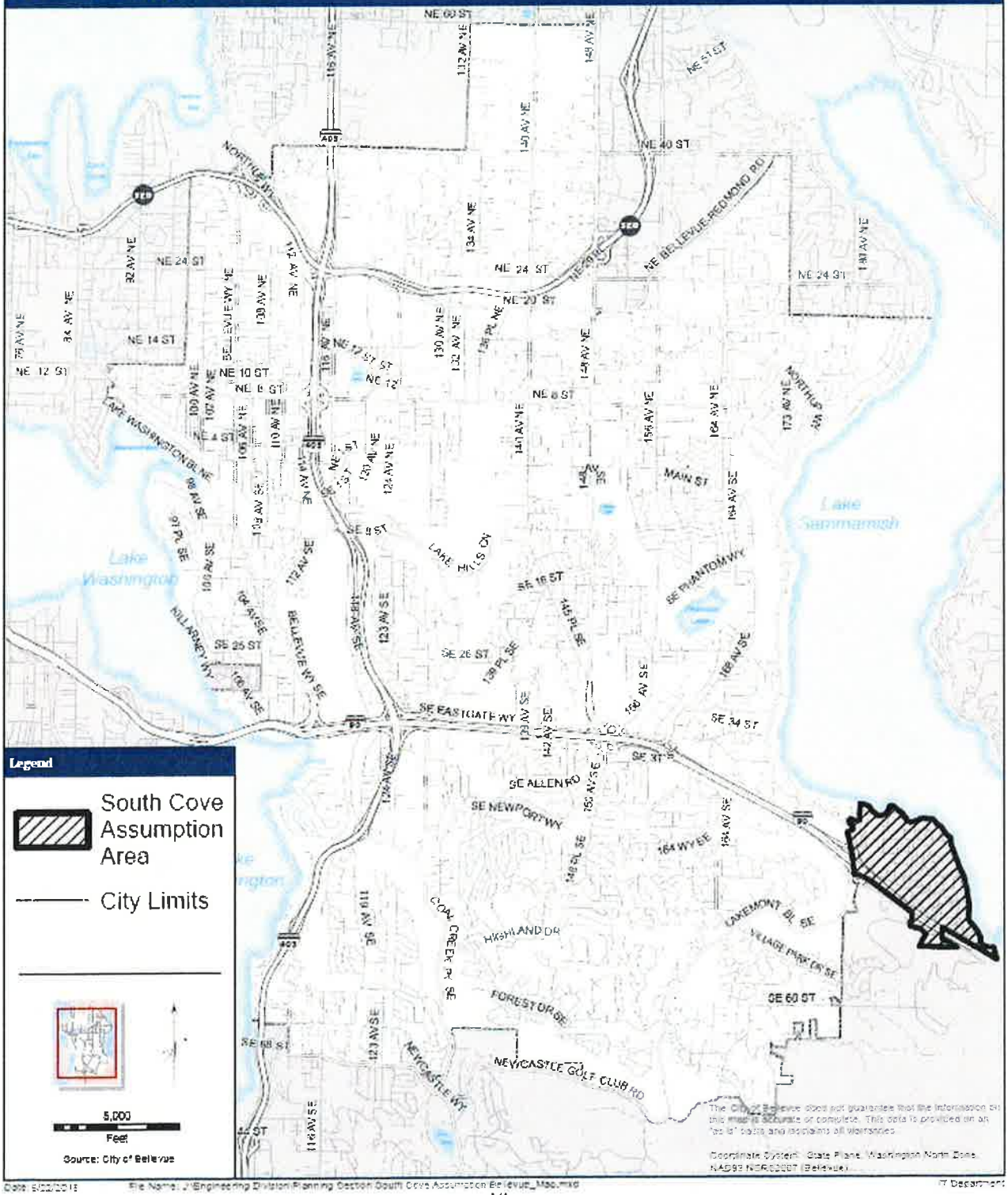
Issaquah Legal Counsel
By Bio Park/mlm
Its City Attorney
Dated 8-7-15

CITY OF ISSAQUAH ("Issaquah")

By _____
Its Mayor Fred Butler
Dated 8/10/15

# City of Bellevue Vicinity

## South Cove Assumption




**Legend**

- South Cove Assumption Area
- City Limits

5,000 Feet

Source: City of Bellevue

The City of Bellevue does not guarantee that the information on this map is accurate or complete. This data is provided on an "as is" basis and disclaims all warranties.

Coordinate System: State Plane, Washington North Zone, NAD83 NSRS2007 (Bellevue)

Date: 6/22/2015 File Name: J:\Engineering Division\Planning Section\South Cove Assumption\Bellevue_Map.mxd IT Department

# CITY OF ISSAQUAH

## WATER AND SEWER ASSUMPTION

## VICINITY MAP

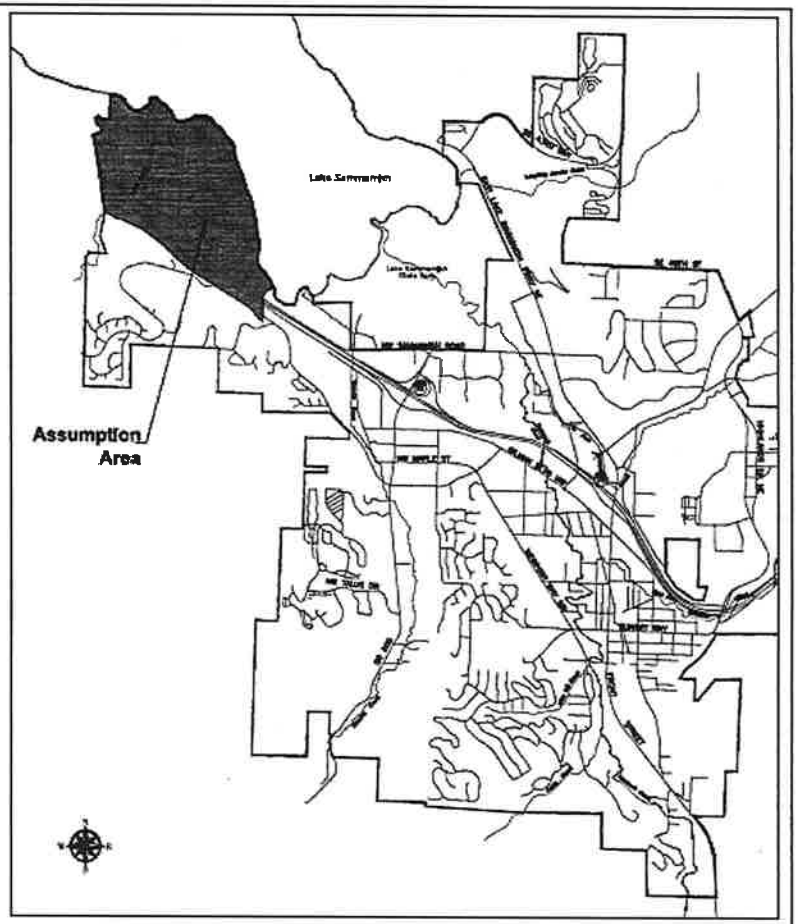
**CITY OFFICIALS**

**MAYOR**
FRED BUTLER

**DIRECTOR OF PUBLIC WORKS**
SHELDON LYNNE

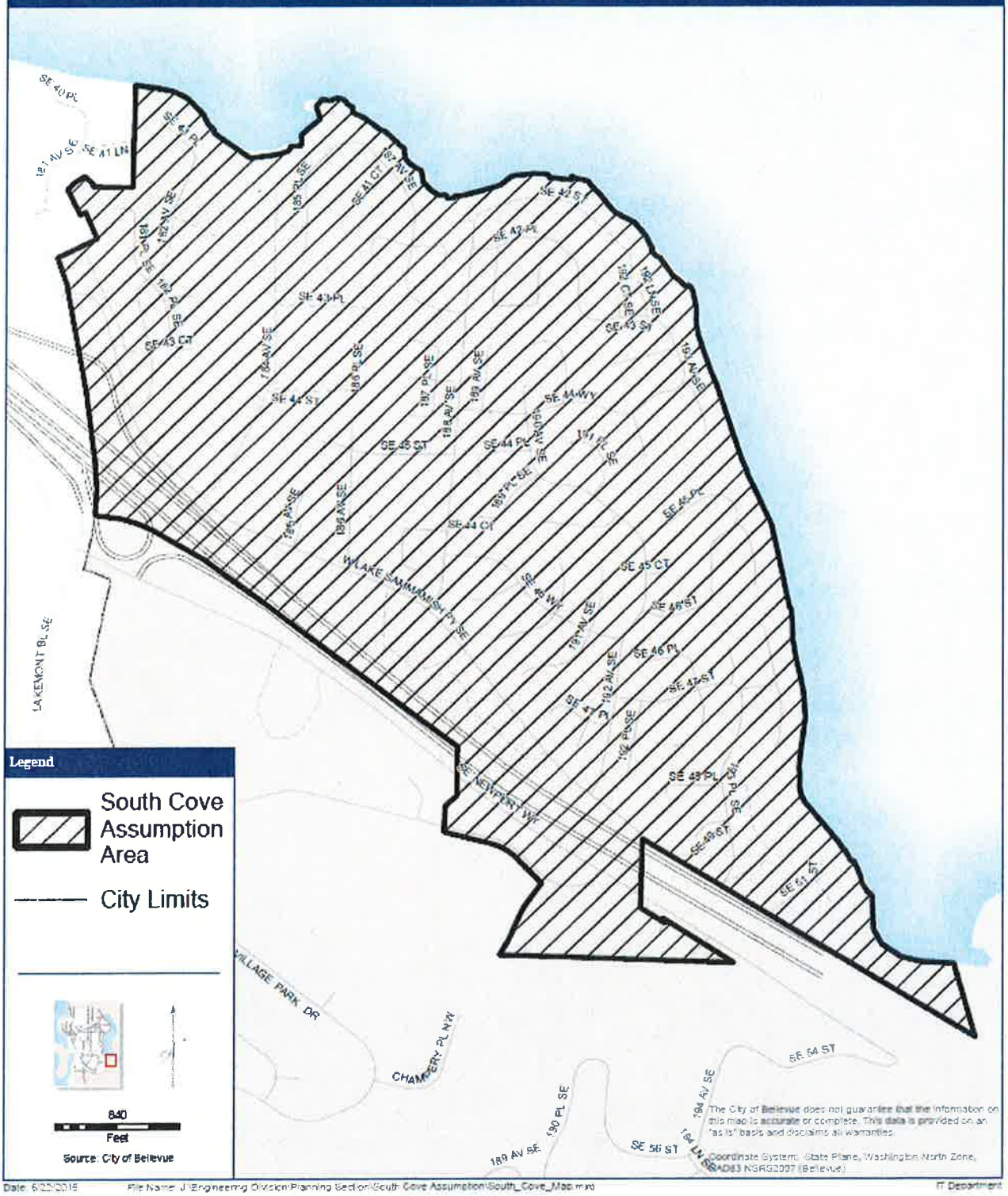
**CITY ATTORNEY**
WAYNE TANAKA

**CITY COUNCIL MEMBERS**
EILEEN BARBER
STACY GOODMAN
TOLA MARTS
NINA MILLIGAN
MARY LOU PAULY
JOSHUA SCHAER
PAUL WINTERSTEIN



# South Cove Vicinity

## South Cove Assumption




**Legend**

South Cove Assumption Area

City Limits

840

Feet

Source: City of Bellevue

The City of Bellevue does not guarantee that the information on this map is accurate or complete. This data is provided on an "as is" basis and disclaims all warranties.

Coordinate System: State Plane, Washington North Zone, NAD83 NSRS2007 (Bellevue)

Date: 6/25/2015 File Name: J:\Engineering Division\Planning Section\South Cove Assumption\South_Cove_Map.mxd IT Department

Exhibit B: Legal Description

Legal Description: Water and Sewer Utility Assumption
Greenwood Point/South Cove

Triad Job # 12-138
March 25, 2015

That portion of Sections 18, 19 and 20, Township 24 North, Range 6 East, W.M., King County, Washington, described as follows:

Beginning at a point on the Southwesterly shoreline of Lake Sammamish, said point bears North 01°19'41" East from a point on the North line of Timber Lake Lane, as recorded in Volume 103 of Plats, Pages 16-18, a distance of 154.56 feet Westerly from the Northeast corner of Lot 30 of said plat, said point being on the Bellevue city limits as annexed under Ordinance No. 5277;
Thence along said Bellevue city limits the following courses:
Thence South 01°19'41" West to said point on the North line;
Thence North 88°59'22" West along the North line of Lots 31, 32 and 33 of said plat to the East line of Lot 34 of said plat;
Thence Northerly along said East line to the Southerly most corner of Lot 51 of said plat;
Thence Northwesterly along the Southwest line thereof to the Easterly most corner of Lot 50 of said plat;
Thence Southwesterly along the Southeast line thereof and the Southeast line of Lot 49 of said plat to the Northeast corner of Lot 48 of said plat;
Thence Southeasterly along the Northeast line thereof and the Northeast line of Lot 46 of said plat to the Northwest line of Tract E of said plat;
Thence Northeasterly along said Northwest line to the Northerly most comer of said Tract E;
Thence Southeasterly along the Northeast line thereof to the Easterly most comer of said Tract E;
Thence Southwesterly along the Southeast line thereof to the East margin of SR 901, as shown on SR 90 MP 7.71 to MP 11.73, Richards Road to Lake Sammamish, Right of Way and Limited Access Plan, sheets 10 and 11, dated June 12, 1969;
Thence Southerly along said East margin to an angle point 90.00 feet opposite SR 901 Station 102+00;
Thence Southerly along a line 90 feet Easterly of and parallel with the SR 901 Line to the Southerly limited access line of SR 90, as shown on said Right of Way and Limited Access Plan;
Thence, leaving said Ordinance No. 5277 and following Bellevue Ordinance No. 4789, Southeasterly along said limited access line to the Easterly Bellevue city limits in said Section 18 as described in said Ordinance No. 4789;
Thence South 11 15' 01" West 547.48 feet to a point on said city limits;
Thence South 09°57'07" West 159.87 feet;
Thence South 19 40' 53" East 519.68 feet to a point on the South line of said
Section 18, said point being 595.00 feet Easterly of the Southwest corner of said
Section 18, said point also being on the Issaquah city limits as annexed under Ordinance No. 1881;
Thence leaving said Bellevue city limits and following said Issaquah city limits the following courses:
Thence Easterly along said South line to its intersection with the Southwesterly margin of SE Newport Way;
Thence Southeasterly along said Southwesterly margin to its intersection with the East line of the West 99.00 feet of Government Lot 1 of said Section 19;
Thence, leaving said Ordinance No. 1881 and following Issaquah Ordinance No. 1880 Northerly along said East line to the Northeasterly margin of said SE Newport Way ;
Thence, leaving said Ordinance No. 1880 and following Issaquah Ordinance No. 1018 to the East line of said section;
Thence Northerly along said East line to its intersection with the Northerly margin of SR 90;
Thence North 58 32' 30" West along said Northerly margin 59.78 feet;
Thence North 59°27"00" East 75.58 feet;



triad

20300 Woodinville Snohomish Rd NE
Suite A | Woodinville, WA 98072
p: 425.415.2000
f: 425.486.5059
triadassociates.net

Thence North 20°57'00" East 117.14 feet;
Thence North 54°21'00" East 146.11 feet;
Thence North 73°01'30" East 157.79 feet to the shore of Lake Sammamish in Government Lot 6 of said Section 20;
Thence, leaving said Issaquah city limits, Northwesterly and Westerly along said Southwesterly shoreline of Lake Sammamish to the Point of Beginning;

TOGETHER with all adjacent shorelands;

EXCEPT that portion of the Southwest Quarter of Section 18, Township 24 North, Range 6 East, W.M. in King County, Washington described as follows:

Beginning at the intersection of the easterly limits of the City of Bellevue as described in City of Bellevue Ordinance 4789 with the southerly margin of SR 90 as shown on the SR 90 MP 7.71 to MP 11.73, Richard Roads to Lake Sammamish, Right of Way and Limited Access Plans, Sheets 9 and 10 of 25, dated June 12, 1969;
Thence along said easterly limits of the City of Bellevue the following courses and distances:
Thence South 11° 15' 01" West 547.48 feet to an angle point in said easterly limits;
Thence South 09°57'07" West 159.87 feet to an angle point in said easterly limits;
Thence South 19° 40' 53" East 519.68 feet to a point on the South line of said Section 18, said point being 595.00 feet Easterly of the Southwest corner of said Section 18, said point also being on the Issaquah city limits as annexed under Ordinance No. 1881;
Thence easterly along the south line of said of Section 18 to said southerly margin of SR 90;
Thence northwesterly along said margin to the Point of Beginning.

Note: The bearings shown herein were taken from the referenced documents and may not necessarily be on the same basis of bearing.

Note: This legal description was originally prepared for the City of Issaquah by Perteet Inc. and revised by the City of Issaquah to included changes requested on March 22, 2005 by the King County DOT Engineering Services Division. The legal description was revised again on March 25, 2015 to exclude a portion of the assumption area. The exception legal description was prepared by Triad. The legal description prepared by Perteet, Inc. was not verified by Triad.

3/25/15



triad

20300 Woodinville Snohomish Rd NE
Suite A | Woodinville, WA 98072
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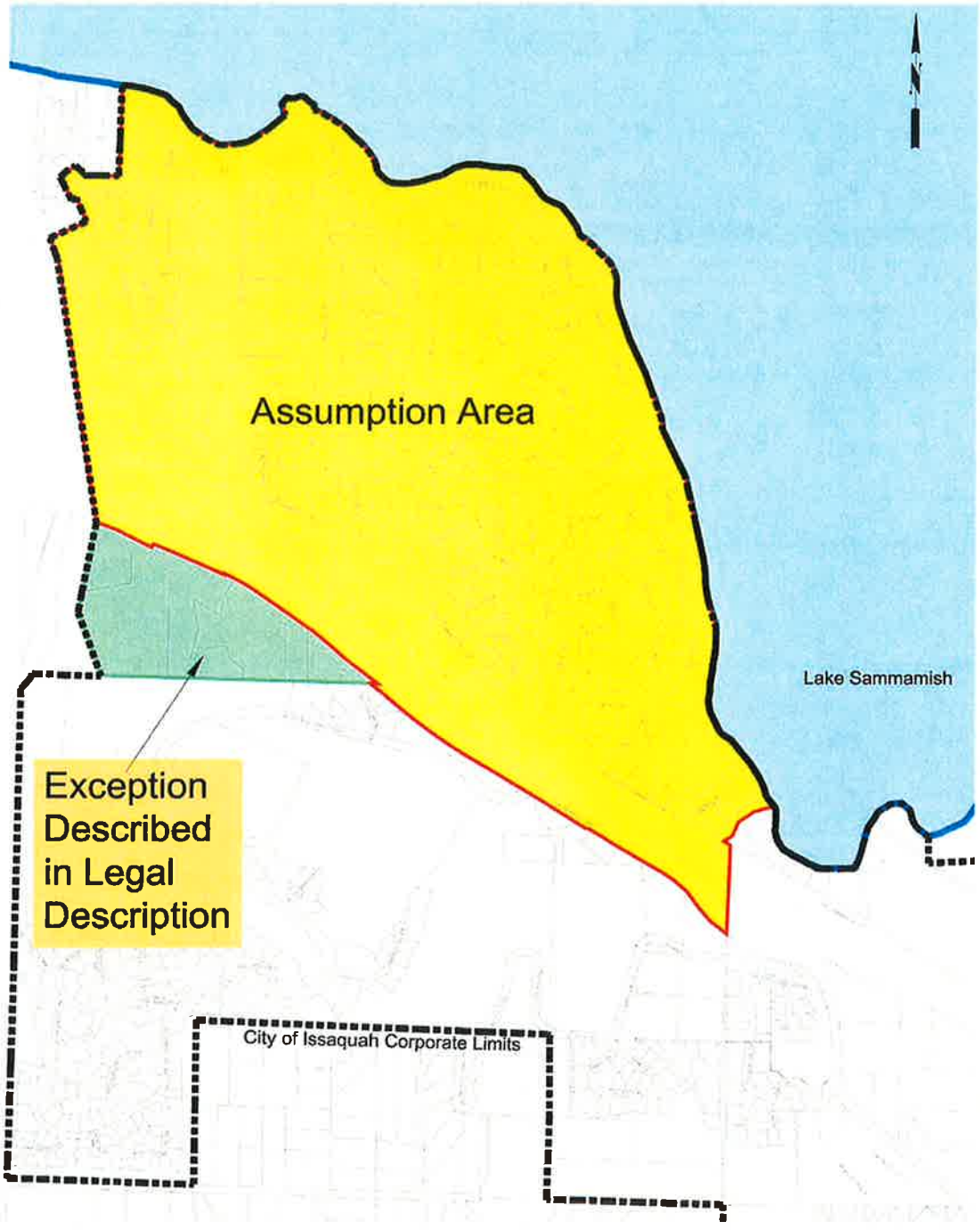

Assumption Area
Lake Sammamish
Exception Described in Legal Description
City of Issaquah Corporate Limits

ORIGINAL

FILED NO. 15180
CITY OF BELLEVUE
DATE 2/6/90
CITY CLERK

O-Ordinance No. 5232

# AGREEMENT FOR WHOLESALE SANITARY SEWER AND WATER SERVICE

FROM
CITY OF BELLEVUE

TO
CITY OF ISSAQUAH SERVICE AREA

LAKEMONT TRIANGLE

WHEREAS: A sphere of influence agreement has been reached between the City of Bellevue (Bellevue) and the City of Issaquah (Issaquah) that outlines the limits of a future boundary between the Cities, and

WHEREAS: It is desirable that the Cities' future sanitary sewer and water service boundaries correspond with the Cities' future corporate limits, and

WHEREAS: Bellevue sewer and water facilities now exist and may be logically extended to provide adequate service to certain areas within Issaquah's service area (shown on Exhibit C and labeled as Lakemont Triangle), and

WHEREAS: Issaquah sanitary sewer and water facilities are currently a greater distance from the Lakemont Triangle service area, and

WHEREAS: An analysis of sanitary sewer and water service options for Issaquah to serve the Lakemont Triangle service area, concluded that the least cost alternative for sanitary sewer and water service would be through an agreement for joint use of sanitary sewer facilities and a wholesale water service agreement between Bellevue and Issaquah, and

WHEREAS: It is desirable to provide sanitary sewer and water service to the public in the least costly manner, consistent with jurisdictional boundaries, and

WHEREAS: It is recognized that water service to the Lakemont Triangle service area will not solve Issaquah's long term water needs and that other solutions will be needed to serve future growth demands.

NOW, THEREFORE be it agreed by the Cities of Bellevue and Issaquah that:

1. This Agreement addresses the provision of wholesale sanitary sewer and water service to a limited area of Issaquah's service area. It is not the intent of this Agreement to address facilities that would be capable of serving any additional portion of Issaquah's service area. Such facilities would require a separate agreement.

2. Bellevue agrees to provide wholesale sanitary sewer and water service to Issaquah for the Lakemont Triangle service area only for sanitary sewer conveyance and for retail water distribution and sale in accordance with the terms of this Agreement.

3. The number of Multi-Family Units to be served within the area shall not exceed 600 unless it is mutually agreed that additional units may be served.

4. Bellevue shall supply water from a 12" diameter main on Newport Way at 17300 block. This 12" main will be new constuction by the City of Issaquah, and shall be extended from an existing 12" main located at approximately SE 42nd Place and SE Newport Way, west of the Lakemont Triangle. The estimated total length of new main will be 6350 feet. Issaquah shall be responsible for obtaining all necessary permits associated with the new 12" main. By executing this interlocal agreement, Bellevue agrees to endorse Issaquah's efforts to obtain the permits.

Ownership of the new water line from the point of connection to the existing Bellevue 12" main, shall be Issaquah's including that portion of the new main which will be within Bellevue jurisdictional boundaries. Bellevue shall not tap into Issaquah's 12" main without Issaquah's written approval. Such approval shall not be unreasonably withheld.

5. Bellevue shall provide a maximum fire flow of 2000 GPM measured at the intersection of Newport Way and 180th Ave. It is understood that the actual rate of flow at the point of use is dependent upon the hydraulic behavior of the distribution system between the connection point and the point of use and Bellevue therefore makes no representation with regard thereto.

6. Bellevue agrees that the wholesale water service it provides to Issaquah will meet the same standards of reliability, rate of flow and quality, that it provides to its retail service customers.

7. The Water Purveyor Contract between the City of Seattle and the City of Bellevue, Section II.B. Resale to Other Parties, requires written consent from Seattle prior to the execution of this Agreement.

Issaquah agrees, for the Lakemont Triangle service area, to abide by the standard terms and conditions that are imposed by the Seattle Water Department as well as those imposed by Bellevue, including but not limited to cross-connection controls, water quality testing, water conservation and other applicable standards and those terms and conditions are hereby incorporated by reference herein as if set forth in full. This Agreement does not convey purveyor status or water supply rights from the City of Seattle to Issaquah.

8. The basis for determining Issaquah's fair share of the water capital cost of facilities shall be mutually accepted engineering standards and cost estimates related to sizing of storage, pumping, distribution and transmission facilities as listed on Exhibit B.

9. All water supplied to the Lakemont Triangle service area by Bellevue shall be metered by individual service meters to all water users. The metering device(s) shall be owned by Issaquah and be periodically calibrated in accordance with manufacturer's specifications to quarantee accuracy. If, due to water quality, Issaquah needs to periodically flush its main, Issaquah shall install a metered flushing station to record consumptions.

10. Issaquah shall read the individual meters on a bi-monthly schedule. Issaquah shall submit a payment to Bellevue for water consumption. The water shall be charged at Bellevue's standard residential water rate.

11. Bellevue agrees to allow Issaquah to connect the Issaquah sewer main serving the Lakemont Triangle area, into an existing Bellevue sewer facility in the vicinity of SE Newport Way and Lakemont Blvd. (future). (See Exhibit C.)

12. Issaquah agrees to pay Bellevue for their fair share of the sewer facilities on West Lake Sammamish which must be upgraded to serve both the Lakemont Triangle area and proposed Bellevue needs. The basis for determining the fair share computations shall be mutually accepted engineering standards related to sizing of the sewage facilities. (See Exhibit A) Upgrading of existing sewer facilities will include approximately 6000 L.F. of sewer trunk at an estimated cost of $1,500,000.00 (1989 dollars).

Upgrading by Bellevue of the sewer facilities to meet additional capacity demands resulting from proposed Lakemont Triangle Development, and payment by Issaquah for its associated costs are conditional upon a signed commitment from the Developers to Issaquah. A signed commitment from the Developer will be required by Issaquah prior to building permit approval, which will include the portion for which the Developer must contribute toward the sanitary sewer upgrade. Failure by Developers to provide a signed

commitment in a timely manner prior to finalization of plans to upgrade the Bellevue sewer, will result in the reduction of the sewer upgrade by Bellevue, shall release Issaquah from all monetary responsibility for that portion of the upgrade costs and Issaquah would not be able to connect to Bellevue's sewer facilities.

13. Bellevue shall construct, own and maintain all sanitary sewer facilities within its service area that are jointly used by Bellevue and Issaquah.

14. Bellevue agrees to bill and Issaquah agrees to pay a monthly user fee of $.87 per Multi-Family Unit per month for sewage conveyance capacity, after construction. This rate includes charges for maintenance and operation of the jointly used facilities in perpetuity and will not be subject to additional charges for maintenance and operation.

15. Bellevue and Issaquah agree that the sanitary sewer and water system improvements needed to serve the area are to be provided in response to development activity, hence the construction of the facilities is dependent upon Developer contributions and construction. Isssaquah's fair share of the capital cost of facilities to serve the area shall be provided from Developer cash contributions and/or Developer facility construction.

16. Issaquah shall construct, own and maintain all sanitary sewer and water facilities that are solely used for service to Issaquah, regardless of the location of the facilities.

17. Issaquah agrees to pay Bellevue's applicable general facilities fees for each Multi-Family Unit that is served. These fees will be collected by Issaquah on a unit by unit basis at the time that service is granted under Building Permit approval. An annual payment will be made to Bellevue representing the connection fees that were collected during the preceding twelve month period. The annual payment shall be made on or near December 31st of each year that new connections are added. A letter report shall accompany the payment, which include an accounting of the connections added during the year.

18. Bellevue agrees to obtain all necessary approvals and permits for serving and constructing the jointly used facilities.

19. Issaquah agrees to obtain all necessary approvals and permits for construction of the facilities that will solely serve Issaquah.

20. Dispute Resolution. Each City shall designate representatives for the purposes of administering this Agreement and resolving disputes arising from this Agreement. Each city shall notify the other in writing of its designated representatives. Each City may change its designated representatives on notice to the other.

Disputes that cannot be resolved by the representatives designated herein shall be referred to the Chief Executive Officer of each City for mediation and/or settlement. If not resolved by them within sixty (60) days, either City, or both of them, may file a demand for arbitration, in which event the issue shall be submitted to an arbitrator acceptable to both parties and the matter shall be arbitrated pursuant to the rules and procedures of the American Arbitration Association. The decision of the arbitrator shall be final and binding on both Cities.

21. Liability/Hold Harmless. Bellevue shall indemnify, defend, and hold harmless the City of Issaquah, its officers, agents and employees, from and against any and all claims, losses, or liability, including attorneys fees, arising from injury or death to persons or damage to property occasioned by any act, omission or failure of Bellevue, its officers, agents and employees, in the performance of this Agreement. With respect to the performance of this Agreement and as to claims against Issaquah, its officers, agents and employees, Bellevue expressly waives its immunity under Title 51 of the Revised Code of Washington, the Industrial Insurance Act, for injuries to its employees and agrees that the obligation to indemnify, defend and hold harmless provided for in this paragraph extends to any claim brought by or on behalf of any employee of Bellevue. This paragraph shall not apply to any damage resulting from the negligence of Issaquah, its agents and employees. To the extent any of the damages referenced by this paragraph were caused by or resulted from the concurrent negligence of Issaquah, its agents or employees, this obligation to indemnify, defend and hold harmless is valid and enforceable only to the extent of the negligence of Bellevue, its officers, agents and employees.

Issaquah shall indemnify, defend and hold harmless the City of Bellevue, its officers, agents and employees, from and against any and all claims, losses, or liability, including attorneys fees, arising from injury or death to persons or damage to property occasioned by any act, omission or failure of Issaquah, its officers, agents and employees, in the performance of this Agreement. With respect to the performance of this Agreement and as to claims against Bellevue, its officers, agents and employees, Issaquah expressly waives its immunity under Title 51 of the

Revised Code of Washington, the Industrial Insurance Act, for injuries to its employees and agrees that the obligation to indemnify, defend and hold harmless provided for in this paragraph extends to any claim brought by or on behalf of any employee of Issaquah. This paragraph shall not apply to any damage resulting from the negligence of Bellevue, its agents and employees. To the extent any of the damages referenced by this paragraph were caused by or resulted from the concurrent negligence of Bellevue, its agents or employees, this obligation to indemnify, defend and hold harmless is valid and enforceable only to the extent of the negligence of Issaquah, its officers, agents and employees.

HEREBY AGREED TO AND ACCEPTED BY this the 17th day of April, 1990.

CITY OF BELLEVUE

Pam Bissonnette

CITY OF ISSAQUAH

Mayor

Approved as to form:

Assistant City Attorney

Wayne Carlson 3/14/90
City Attorney

52:50

EXHIBIT A

COST ALLOCATION FOR
SOUTH VASA PARK SEWER TRUNK

Issaquah will serve 600 Multi-Family Units (360 Equiv. Single Family Units) via a sewer pump station. Normally peak flow from 600 MF Units would be approximately 200 gpm, it is anticipated that the pump station will be sized for around 275 gpm, which is equivalent to 825 MF or 495 SF Units. For flow demand and determining Issaquah's share of the trunk costs, 495 Equiv. SF Units is being used for Issaquah. The total number of projected equivalent single family units in the South Vasa Trunk is 2009, including Issaquah.

1) Cost for constructing new trunk.

The estimated project cost is $1,567,000. Therefore, the cost per Equiv. SF Unit is $1,567,000/2009 = $780. **

2) Replacement and M&O costs.

Replacement cost = $1,560,000
Anticipated life of trunk = 75 years
Replacement cost per year = $1,560,000/75 = $20,800
Assume annual M&O cost = $1000

Total annual cost = $21,800

Issaquah's share = 495/2009 = 25%

Issaquah's cost per year = .25($21,800) = $5,450

Cost per MF unit per month = $5,450/600 SF units/12 months
= $0.75 per month

3) Additional cost for admin., insurance, liability, etc. +15% = $0.12

TOTAL MONTHLY CHARGE PER MF UNIT PER MONTH = $0.87

** This is in 1989 dollars, interest will be added to the cost for connection made in future years.

EXHIBIT B

COST OF
SOUTH 520 ZONE REGIONAL FACITITIES

1) Estimated ultimate equivalent single family units

Ultimate Max. day demand (MDD) = 4.9 MGD
(1985 Water Comp. Plan, pg. 3-12)

Avg. Day Demand per capita = 80 gpcd
3.1 persons per SF unit
ADD per equiv. SF unit = 80 gpcd X 3.1 = 248 gpd
MDD = ADD X 2.4
MDD for equiv. SF = 248 gpd X 2.4 = 769 gpd
(All from 1986 Water Comp. Plan Amend., pg. 11 & 12)

Estimated ultimate SF units in South 520 Zone =
4,900,000 MGD / 769 gpd = 6372

2) Estimated replacement cost of existing regional facilities:

| | | |
|---|---|---|
| 2MG Steel Reservoir | = $ 800,000 | |
| 3MG Concrete Reservoir | = $1,300,000 | |
| *2 Supply Inlet Stations | = $1,350,000 | (60% = $810,000) |
| *8500 lf - 24" Pipe | = $1,490,000 | (60% = $894,000) |
| *9400 lf - 16" Pipe | = $1,175,000 | (60% = $705,000) |
| *17200 lf - 12" Pipe | = $1,720,000 | (60% = $1032,000) |

TOTAL = $5,541,000

* These facilities provide service to other areas, therefore, only 60% will be allocated to the South 520 Zone.

Estimated depreciation of the facilities:

Reservoirs
age 13 years - expected useful life 100yrs
depreciation = 13/100 = 13%

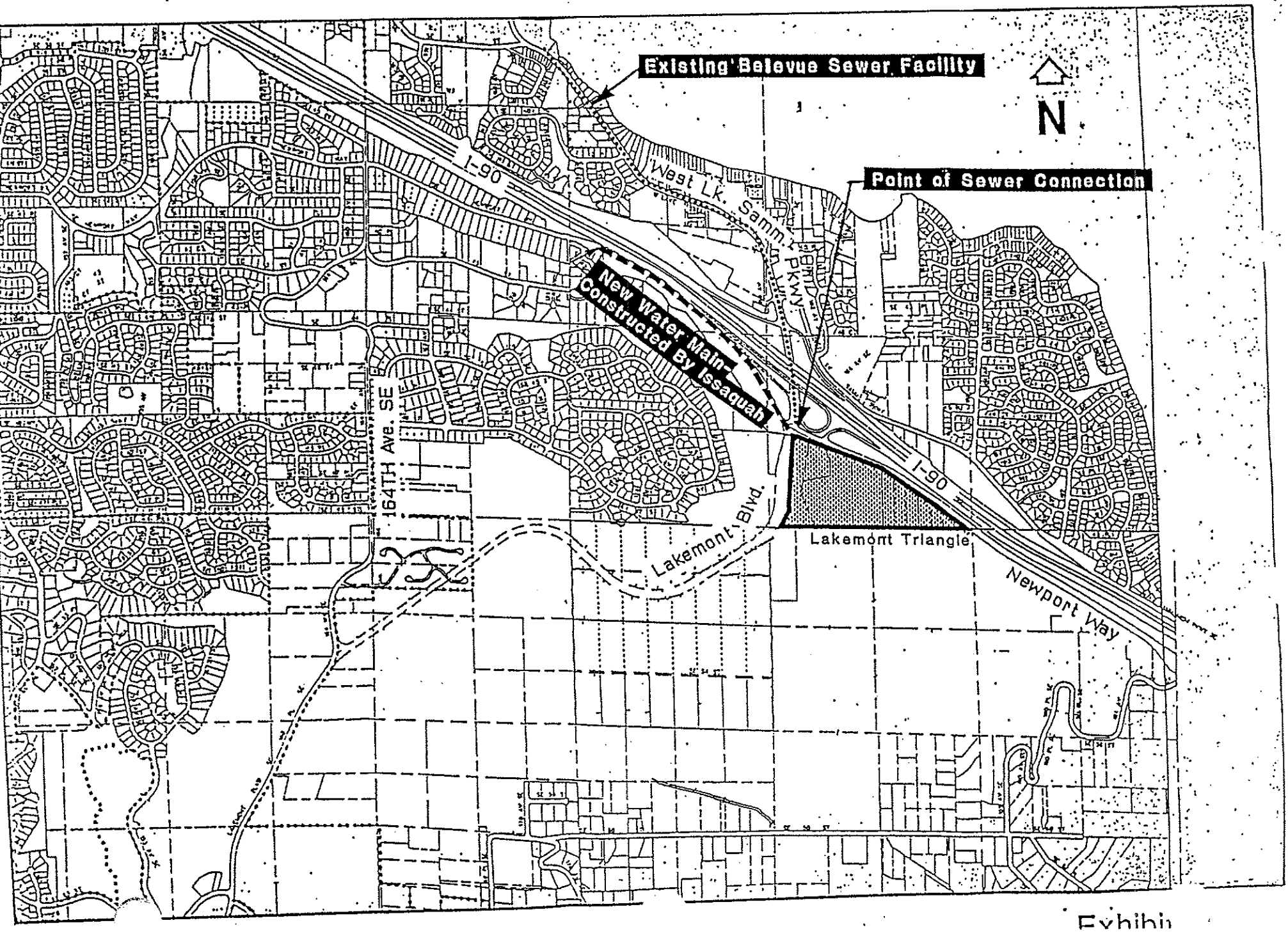
Inlets - new no depreciation

Pipe
avg age 16 years - expected life 75yrs
depreciation = 16/75 = 21%

Depreciation value
Reservoirs = $2,100,000 X .13 = $273,000
Pipes = $3,441,000 X .21 = $722,000

TOTAL FACILITIES REPLACEMENT COSTS MINUS DEPRECIATION
$5,541,000 - $995,000 = $4,546,000

ESTIMATED COST PER EQUIVALENT SF UNIT = $4,546,000 / 6372
= $715


Existing Bellevue Sewer Facility
N
Point of Sewer Connection
I-90
West Lk. Samm. Pkwy.
New Water Main Constructed By Issaquah
164TH Ave. SE
I-90
Lakemont Blvd.
Lakemont Triangle
Newport Way

Exhibi

2012-285

*After recording, return to:*

Van Ness Feldman GordonDerr
2025 First Avenue, Suite 500
Seattle, Washington 98121
(206) 382-9540

**WASHINGTON STATE RECORDER'S Cover Sheet** (RCW 65.04)

**DOCUMENT TITLE(S)** (or transactions contained therein):

**CASCADE WATER ALLIANCE JOINT MUNICIPAL UTILITY SERVICES AGREEMENT**

**REFERENCE NUMBER(S) OF DOCUMENTS ASSIGNED OR RELEASED:**

**N/A**

☐ Additional reference #s on page ___ of document(s)

**GRANTOR(S)** (Last name first, then first name and initials)

**CASCADE WATER ALLIANCE/MEMBERS OF CASCADE WATER ALLIANCE**

☐ Additional names on page ___ of document

**GRANTEE(S)** (Last name first, then first name and initials)

**CASCADE WATER ALLIANCE/MEMBERS OF CASCADE WATER ALLIANCE**

☐ Additional names on page ___ of document

**LEGAL DESCRIPTION** (abbreviated: i.e., lot, block, plat or section, township, range)

N/A

☐ Additional legal is on page ___ of document

**ASSESSOR'S PROPERTY TAX PARCEL/ACCOUNT NUMBER**

N/A

☐ Assessor Tax # not yet assigned

# Cascade Water Alliance
# Joint Municipal Utility Services Agreement
# March 28, 2012

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# CASCADE WATER ALLIANCE

## JOINT MUNICIPAL UTILITY SERVICES AGREEMENT

### RECITALS

A. WHEREAS, the Members of Cascade Water Alliance ("Cascade") entered into an Interlocal Contract (**"Interlocal Contract"**), effective April 1, 1999, and amended and restated on December 15, 2004, and on October 26, 2011. Under the Interlocal Contract, Cascade was created as a public body and an instrumentality of its Members, which exercised essential governmental functions on its Members' behalf as authorized by the Interlocal Cooperation Act (Chapter 39.34 RCW), and has been functioning as a watershed management partnership, as authorized by RCW 39.34.200. Cascade was incorporated as a public nonprofit corporation in the manner set forth in the Nonprofit Miscellaneous and Mutual Corporations Act (Chapter 24.06 RCW).

B. WHEREAS, Section 3.3 of the Interlocal Contract provides that Cascade may be converted into a separate municipal corporation if and as permitted by law, and that upon the creation of such a separate municipal corporation, all Cascade rights and obligations and all Member rights and obligations shall transfer to that new municipal corporation. Section 10.4 of the Interlocal Contact provides that "upon a 65 percent Dual Majority Vote (ratified within 120 days by 65 percent), as measured by Dual Majority Vote of the Members' legislative authorities, all assets, liabilities, and obligations of Cascade may be transferred to any successor entity (including, without limitation, a joint operating agency or other municipal corporation, as permitted under state law), and all obligations of Members and parties contracting with Cascade become obligations to the successor entity." Cascade's Board resolutions also reserved Cascade's right to convert into a municipal corporation.

C. WHEREAS, the Washington Legislature enacted the Joint Municipal Utilities Services Act, (Chapter 258, Laws of 2011), codified as Chapter 39.106 RCW ("the Act"), which provides in RCW 39.106.080 for the conversion of existing an intergovernmental entity formed under the Interlocal Cooperation Act (Chapter 39.34 RCW) into a joint municipal utility services authority under the Act, if:

- The public agencies that are parties to an existing interlocal agreement would otherwise be eligible to form an authority to provide the relevant utility services;
- Those public agencies amend, restate, or replace that interlocal agreement so that it materially complies with the requirements of RCW 39.106.050;
- The amended, restated, or replacement agreement is filed with the Washington state secretary of state consistent with RCW 39.106.030; and
- The amended, restated, or replacement agreement expressly provides that all rights and obligations of the entity formerly existing under Chapter 39.34 RCW or other applicable law will thereafter be the obligations of the new authority created under Chapter 39.106 RCW.

D. WHEREAS, under the Act, upon compliance with the requirements set forth in Recital C above, the new joint municipal utility services authority shall be a successor of the former intergovernmental entity for all purposes, and all rights and obligations of the former entity shall transfer to the new joint municipal utility services authority. Those obligations shall be treated as having been incurred, entered into, or issued by the new joint municipal utility services authority, and those obligations shall remain in full force and effect and shall continue to be enforceable in accordance with their terms.

E. WHEREAS, in accordance with Sections 3.3 and 10.4 of the Interlocal Contract, Cascade's Members (who are all public agencies that are parties to an existing interlocal agreement ) are otherwise eligible to form a joint municipal utility services authority under the Act to provide the relevant utility services.

F. WHEREAS, Cascade's Members intend to amend and restate the Interlocal Contract in compliance with the Act in order to convert Cascade into a joint municipal utility services authority.

G. WHEREAS, Cascade's Members intend to transfer all Cascade rights, assets, liabilities, and obligations to the joint municipal utility services authority, to be created as provided herein.

H. WHEREAS, Cascade's Members intend that, as a joint municipal utility services authority, it will constitute a municipal corporation and will no longer function as a watershed management partnership.

**NOW, THEREFORE, it is agreed by Cascade Members as follows:**

**ARTICLE 1. Agreement.**

Effective upon approval by 65 % Dual Majority Vote of the Board (as ratified within one hundred and twenty (120) days of such Dual Majority Vote by 65% Dual Majority of the Members' legislative authorities) the Interlocal Contract is hereby amended and restated as provided herein under the authority of the Act and shall be known as the Cascade Water Alliance Joint Municipal Utility Services Agreement.

**ARTICLE 2. Definitions.**

**"Act"** means the Joint Municipal Utilities Services Act, codified as Chapter 39.106 RCW, or as hereafter amended.

**"Agreement"** means this Joint Municipal Utilities Services Agreement.

**"Asset Transfer Agreement"** means an agreement between Cascade and a Member by which the Member transfers title to Water Supply Assets to Cascade, with or without monetary consideration, to be operated and maintained as part of the Cascade Water Supply System.

**"Authority"** means a joint municipal utility services authority formed under the Act and the successor in interest to Cascade as an interlocal agency.

**"Authorized Issuer"** means either: (a) Cascade (or a successor entity); or (b) a Member or other entity authorized to issue Bonds for the benefit of Cascade approved by Resolution of the Board.

**"Board"** means the Board of Directors of Cascade.

**"Bonds"** means short-term or long-term bonds, notes, warrants, certificates of indebtedness, or other obligations issued by, or on behalf of Cascade.

**"ByLaws"** means the ByLaws of Cascade, as adopted and amended by the Board.

**"Cascade"** means Cascade Water Alliance, a joint municipal utilities services authority.

**"Cascade ERUs" ("CERUs")** means equivalent residential units, calculated according to the Regional Capital Facilities Charge Methodology.

**"Cascade Supply Date"** means the date, established by a Resolution of the Board for each Member upon which Cascade undertakes a Supply Commitment.

**"Demand Share"** means either a Member's current share of water provided through the Supply System, or estimated share of water to be provided through the Supply System, whether Full Supply or Interruptible Supply, expressed in millions of gallons per day. Demand Share is calculated according to the Rate Calculation Methodology.

**"Dual Majority Vote"** means Board approval of a proposal on the basis of a simple majority of all Members, allowing one vote per Member, together with a simple majority of all Members on the basis of each Member's Weighted Vote. A "simple majority" means a majority of all Members of Cascade, not just the Members present and voting.

**"65% Dual Majority Vote"** means Board approval of a proposal on the basis of a 65% supermajority of all Members, allowing one vote per Member, together with 65% supermajority of all Members on the basis of each Member's Weighted Vote. A "supermajority" means 65% of all Members of Cascade, not just the Members present and voting.

**"Gross Cascade Revenue"** means all of the earnings and revenues received by Cascade from any source whatsoever including but not limited to: (a) Member Charges; (b) revenues from the sale, lease or furnishing of commodities, services, properties or facilities; (c) the receipt of earnings from the investment of money in any maintenance fund or similar fund; and (d) withdrawals from any rate reserve or rate stabilization fund or account.

However, Gross Cascade Revenue shall not include: (a) principal proceeds of Bonds or any other borrowings, or earnings or proceeds from any investments in a trust, defeasance or escrow fund created to defease or refund obligations relating to the Water Supply System (until commingled with other earnings and revenues included in Gross Cascade Revenue) or held in a special account for the purpose of paying a rebate to the United States Government under the Code; (b) taxes and other income and revenue which may not legally be pledged for revenue bond debt service; (c) improvement district assessments; (d) federal or state grants allocated to capital projects; (e) payments under Bond Insurance or other credit enhancement policy or device; (f) insurance or condemnation proceeds used for the replacement of capital

projects or equipment; (g) earnings in any construction fund or bond redemption fund; (h) deposits to any rate reserve or rate stabilization fund or account; or (i) any revenues generated by any Independent Supply except those amounts that are payable to Cascade pursuant to this Agreement or another agreement.

**"Independent Supply"** or **"Independent Supplies"** means a Member's Water Supply Assets that are not part of the Supply System.

**"Joint Municipal Utilities Services Act"** or **"Act"** means Chapter 39.106 RCW, or as hereafter amended.

**"Member"** or **"Members"** means one or more member agencies of Cascade.

**"Member Charges"** means all payments that Cascade Members are required by this Agreement to make to Cascade, including but not limited to all Rates and Charges, RCFCs, dues, assessments and other payments from Members.

**"Net Cascade Revenue"** means Gross Cascade Revenue less Operations and Maintenance Costs.

**"Non-Member"** means any person or agency that is not a party to this Agreement.

**"Operations and Maintenance Costs"** or **"O&M Costs"** means all expenses incurred by Cascade to operate and maintain the Supply System in good repair, working order and condition, including without limitation, payments made to any other public or private entity for water or other utility service. Except as approved by the Board, Operations and Maintenance Costs shall not include any depreciation, capital additions or capital replacements to the Supply System.

**"Rates and Charges"** means the rates and charges (not including RCFCs) chargeable to each Member using the Rate Calculation Methodology plus any late payment or other charge that may be due.

**"Rate Calculation Methodology"** means the method of setting Rates and Charges adopted by the Board in accordance with Section 7.5

**"Regional Capital Facilities Charges" ("RCFCs")** means the charges to each Member for new CERUs connected to that Member's water distribution system.

**"Regional Capital Facilities Charge Methodology" ("RCFC Methodology")** means the method of determining the RCFCs adopted by the Board in accordance with Section 5.5.

**"Satellite Systems"** means water supply facilities identified as such by the Board, including but not limited to facilities that serve a portion of a Member's customers but that are not part of the Member's main water system.

**"Shortage Management Plan"** means the plan adopted by the Board in accordance with Section 7.3.1.

**"Supply Commitment"** means the obligation undertaken by Cascade, established by Resolution of the Board to supply water to a Member. With respect to Members, that obligation shall be characterized as **"Full Supply Commitment,"** or an **"Interruptible Supply Commitment"** defined as follows:

**"Full Supply Commitment"** or **"Full Supply"** for any or all of a Member's water needs means that those needs, as projected in the Cascade Water Supply Plan and as agreed to by that Member, shall be met from the Supply System, net of Independent Supply and subject to the other limitations established in this Agreement, on an equal parity with all other Full Supply Commitments, and with a guaranteed priority no lower than for any other Supply Commitment made by Cascade; provided that no Member is guaranteed any given amount of supply or capacity.

**"Interruptible Supply Commitment"** or **"Interruptible Supply"** means a supply of all or part of a Member's water needs from the Supply System on an as-available basis on a lower priority than any Full Supply Commitment.

The Supply Commitment for a Member shall be defined by this Agreement, the terms and conditions of membership, and the Supply Commitment resolution.

**"Supply System" or "Water Supply System"** means the Water Supply Assets owned or controlled by Cascade.

**"Water Supply Assets"** means tangible and intangible assets usable in connection with the provision of water supply, including without limitation, real property, physical facilities (e.g., dams, wells, treatment plants, pump stations, reservoirs, and transmission lines), water rights, capacity and/or contractual rights in facilities or resources owned by other entities, and investments in conservation programs and facilities.

**"Watershed Management Plan"** means any Watershed Management Plan that existed on the effective date of the Authority which shall be considered a plan of the Authority.

**"Water Supply Plan" or "Cascade's Water Supply Plan"** means the Cascade's Regional Water Supply Plan adopted by the Board as provided in Section 8.1.

**"Weighted Vote"** means a vote in which each Member's vote is counted according to the Member's Demand Share, but no Member shall have a Weighted Vote of less than one.

## ARTICLE 3. Formation of Entity; Purpose and Powers.

**Section 3.1 Formation.** Effective on the date of filing of this Agreement with the Washington state secretary of state, Cascade shall be a joint municipal utility services authority formed under the Act; and is the successor for all purposes to the former Cascade created under the Interlocal Contract as an intergovernmental entity existing under the laws of Chapter 39.34 RCW; and is no longer functioning as a watershed management partnership. All rights and obligations of the former intergovernmental entity are transferred to Cascade, the new Authority, which obligations shall be treated as having been incurred, entered into, or issued by Cascade, the successor, and those obligations (including without limitation, outstanding Bonds issued by the former Cascade) shall remain in full force and effect and shall continue to be enforceable in accordance with their terms.

Cascade Water Alliance, as a joint municipal utility services authority, is a municipal corporation.

**Section 3.2 Membership.** Subject to restrictions on future Cascade water rights, or to limitations upon place of use of water supply imposed by contract or permit, any city, town, county, water-sewer district, public utility district, other special purpose district, municipal corporation, or other unit of local government of this or another state that provides utility services, and any Indian tribe recognized as such by the United States government (or as may be allowed by amendments to the Act) may be admitted as a member of Cascade. The decision to admit new Members rests with the sole discretion of the Board, which shall determine whether to extend a membership offer taking into consideration the audit findings (as described in this Section 3.2), Cascade water resources, and any other factors the Board deems advisable.

When an entity that is eligible for membership under the Act, applies for membership, Cascade shall conduct a water supply audit according to the methodology and within the period determined by the Board. Audit results shall be provided to the Board and to the applicant.

If a membership offer is extended, it shall address the nature of the Water Supply Assets being transferred or retained and the "value" of those assets in terms of the calculation of an applicant's Demand Share, RCFCs and other matters relating to the rights and obligations of the applicant and Cascade, which must be recorded in the form that the Board determines and which will constitute, along with this Agreement, the conditions under which an applicant becomes a Member of Cascade. An applicant for membership shall be admitted by adoption of a Resolution of the Board accepting the application for membership and incorporating the terms and conditions of membership.

Each membership application must be accompanied by a nonrefundable application fee based on the estimated cost of the audit and other costs related to the admission of a new Member or a request for new supply. The Board shall set the application fee for each applicant based on the estimated cost of processing the application, including the cost of the audit.

As a condition of membership, each new Member admitted to Cascade shall, in addition to any other applicable fees, rates, charges or assessments, pay to Cascade the membership fee, as established by the Board.

If an applicant's planning process or plans are materially out of compliance with the requirements of applicable state law, the Board may condition an offer of membership upon the applicant's compliance with that state law.

**Section 3.3 Purposes.** Cascade's purposes include those related to water resources, or any other utility service as allowed under the Act, as authorized by a unanimous vote of the Board, and do not include the provision of other general services to the public, and are to:

a. provide a safe, reliable and high quality drinking water supply to meet the current and projected demands of Cascade Members, and for non-Members as determined by Cascade, and to carry out this task in a coordinated, cost-effective, and environmentally sensitive manner;

b. develop, contract for, manage, acquire, own, maintain and operate Water Supply Assets, including without limitation, surface water supplies, groundwater supplies, reclaimed water supplies, and other water supply resources as determined by the Board;

c. purchase and provide water supply, transmission services, treatment facilities and other related services;

d. provide conservation programs to promote the wise and efficient use of resources;

e. carry out emergency water supply and shortage management programs for its Members when demands exceed available supply;

f. coordinate and plan cooperatively with other regional or local water utilities and other entities to maximize supply availability and to minimize system costs;

g. develop a Water Supply Plan addressing the needs of Cascade and its Members and Cascade itself and develop a regional water supply plan with other water providers as Cascade may find convenient or necessary to meet regional, state and federal planning requirements, and to take a leadership role in developing and coordinating those supply plans;

h. share costs and risks among Members commensurate with benefits received; and

i. carry out, or to further other water supply purposes that the Members determine, consistent with the provisions of this Agreement.

**Section 3.4 Powers.** To further its purposes, Cascade has the full power and authority to exercise all powers authorized or permitted under the Act and any other laws that are now, or in the future may be, applicable or available to Cascade and to engage in all activities incidental or conducive to fulfill the purposes set forth in Section 3.3 of this Agreement, including but not limited to the authority to:

a. acquire, construct, receive, own, manage, lease and sell real property, personal property, intangible property and other Water Supply Assets;

b. operate and maintain facilities;

c. enter into contracts;

d. administer personnel matters in a manner generally consistent with the laws applicable to a code city (population over 20,000), to the extent applicable and with discretion left to the Authority, to the fullest extent otherwise permitted by law, related to the appointment, removal and/or compensation of officers, the establishment and/or administration of employee health and welfare benefit programs, and/or the establishment and/or administration of civil service/merit systems, retirement benefits/systems, and/or pension benefits/systems;

e. sue and be sued;

f. exercise all powers of eminent domain granted under Chapter 8.12 RCW and other applicable statutes (e.g. Chapter 8.25) , now or as hereafter amended;

g. impose, alter, regulate, control and collect rates, charges, and assessments;

h. purchase and sell water and services within and outside the geographical boundaries of its Members;

i. borrow money (through its Members or other entities at their individual discretion or as authorized by the Act and this Agreement now or as hereafter amended), or enter into other financing arrangements;

j. lend money or provide services or facilities to any Member, other governmental water utilities, or governmental service providers;

k. invest its funds;

l. establish policies, guidelines, rules or regulations by either ByLaws or resolution to carry out its powers and responsibilities;

m. purchase insurance, including participation in pooled insurance and self-insurance programs, and indemnify its Members, its Board of Directors and Alternate Board Members, officers and employees in accordance with law;

n. exercise all other powers within the authority of, and that may be exercised individually by all of its Members with respect to water supply, conservation, reuse, treatment and transmission, or any of the other purposes set forth in Section 3.3;

o. exercise, without limitation, all other corporate powers that Cascade may exercise under the law relating to its formation and that are not inconsistent with this Agreement or the Act or other applicable law;

p. for the purposes of contracting and public works, exercise all powers of a code city (population over 20,000) under RCW 35A.40.200 - 35A.40.210, now or as hereafter amended;

q. for disposal of surplus property, exercise all powers granted under RCW 35A.11.010, now or as hereafter amended, to code cities;

r. in the event Cascade charges connection charges or Rates and Charges for services supplied or available to its customers' property on a retail basis, exercise all powers granted under RCW 57.08.081, now or as hereafter amended, for the establishment of liens; and

s. for purposes of a Cascade code of ethics, exercise all powers of a municipal corporation and observe the requirements under Chapter 42.23 RCW, now or as hereafter amended.

## ARTICLE 4. Organization Structure; Board.

**Section 4.1 Composition, ByLaws and Meetings.** Cascade is governed by a Board of Directors consisting of one individual representative appointed by Resolution by each of the Member's legislative authority. Members may similarly appoint Alternate Board Members. Each Board Member and each Alternate Board Member must be an elected official of the Member.

The Board shall adopt ByLaws consistent with this Agreement that specify, among other matters, the month of Cascade's Annual Meeting, Board powers and duties and those of the Executive Committee, Standing Committees, Officers and employees.

The Board shall meet as required by the ByLaws, but not less than quarterly.

**Section 4.2 Powers of the Board.** The Board has the power to take all actions on Cascade's behalf in accordance with voting provisions set forth in Section 4.3. The Board may delegate or assign to the Executive Committee or to specific Cascade Officers or employees any action that is not expressly reserved to the Board under this Agreement.

**Section 4.3 Voting.** All Board actions must be approved by Dual Majority Vote of all Members, except where this Agreement requires either a 65% Dual Majority Vote, as provided in Sections 4.7, 5.5, 7.3, and 7.5; or ratification by the Members' legislative authority, as provided in Sections 9.3 and 9.4 and Article 10. The Board may act by voice votes, as set forth in the ByLaws. Any Member may require a recorded tabulation of votes either before or immediately after a voice vote is taken. Although voting is, in part, based on Weighted Vote, the Members expressly agree that there is only one class of voting membership, and voting occurs within that single class.

Any Member that has been declared to be in default of its obligations under this Agreement by the Board shall lose its right to vote until the Board has declared the default to be cured.

**Section 4.4 Officers and Committees.** Cascade Officers shall include a Chair, a Vice Chair, a Secretary, and a Treasurer. The Chair serves as the chair of the Board (and may be known as the "President", if the ByLaws so designate) and performs those duties set forth in the ByLaws.

The Vice Chair shall perform the duties of the Chair in the Chair's absence and shall perform other duties as set forth in the ByLaws. The Secretary shall be responsible for Cascade records and perform other duties as set forth in the ByLaws. The Treasurer shall be responsible for Cascade accounts and financial records and perform other duties as set forth in the ByLaws.

Consistent with the provisions of this Agreement, the Board may, in the ByLaws, establish additional Officers and set forth their duties.

The Board may create and appoint Members to Standing Committees and special committees as it deems appropriate. Committee Members need not be elected officials or employees of Members, but Standing Committee Chairs must be Board Members or Alternate Board Members.

**Section 4.5 Executive Committee.** The Chair, Vice Chair, Secretary, and Treasurer shall constitute Cascade's Executive Committee. The Chair (or acting Chair) shall vote on matters before the Executive Committee only if necessary to break a tie. The Executive Committee's duties and responsibilities are set forth in the ByLaws. The Executive Committee shall not have the power to:

a. approve any contract for a term longer than three (3) years;

b. approve any contract involving expenditure by, or revenue to Cascade in excess of such amounts and under such circumstances as set forth in the ByLaws;

c. retain or dismiss the chief executive officer or determine the chief executive officer's compensation; or

d. take any actions expressly reserved to the Board by this Agreement or the ByLaws.

The Executive Committee shall have the authority, if necessary, to avoid default on any Bond, to withdraw from any capital reserve fund or rate stabilization fund, an amount equal to the amount necessary to avoid a default and to authorize payment of that amount to avoid default.

**Section 4.6 Staff, Consultants and Contractors.** Cascade staff shall consist of a chief executive officer and other positions established by resolution of the Board. The Board shall appoint, designate the title of, and establish the compensation range of the chief executive officer. The Board shall hire auditors for Cascade. The chief executive officer may hire all other staff and consultants, and those appointments may be subject to ratification by the Board or the Executive Committee if the ByLaws so provide. The Board may also provide that administrative, professional or technical services be performed by contract.

**Section 4.7 Budget; Dues; Financial Management.** The Board shall approve a budget for each fiscal year, determining Cascade's revenues and expenditures no later than sixty (60) days before the beginning of the fiscal year in which that budget will be in effect. The budget shall be developed and approved according to a schedule established by the ByLaws. The budget must identify the levels of Member Charges on which revenue projections are based. The Board may amend the budget.

Each Member shall pay dues to defray part or all of Cascade's administrative costs based on the number of CERUs served by its water system, regardless of water usage or capacity, and regardless of whether those units are served by the Supply System or by Independent Supply. Total administrative dues collected from all Members may not exceed nine percent (9%) of Cascade's revenue requirement. This limit may be amended in the budget by a 65% Dual Majority Vote of the Board. The Board may establish minimum dues per Member and may provide that less than all of a Member's CERUs be taken into account in establishing dues.

All Cascade books and records shall be open to inspection by the Washington State Auditor.

The Board shall approve, by Resolution, the treasurer of Cascade, which may be the treasurer or chief finance officer of any Member, or the treasurer of any Washington county in which any Member is located; or, if the total number of utility customers of all of the Members of Cascade is greater than two thousand five hundred (2,500), the treasurer may be an officer or employee of Cascade (or as may be allowed by amendments to the Act).

## ARTICLE 5. Asset Development and Supply Commitment.

**Section 5.1 Property Acquisition, Ownership and Disposition.** Cascade may construct, purchase, rent, lease, manage, contract for, or otherwise acquire and dispose of Water Supply Assets and

other assets. Cascade may control and manage both the assets it owns and the assets that are owned by Members that have transferred control and management of those assets to Cascade. This Agreement does not vest in Cascade any authority with respect to Members' other facilities or assets, such as Water Supply Assets retained by Members as Independent Supply.

Subject to Cascade's agreement, a Member may transfer to Cascade its title to, or operational control and management of Water Supply Assets. Water Supply Assets may also be fully retained by Members as Independent Supply, subject to the provisions of Article 6. At the discretion of the Board, Cascade may accept title to, or operational control and management of Water Supply Assets offered by Members or accept supply assets that constitute all or part of a Member's Satellite System(s). The Board may accept supply assets subject to the terms and conditions arranged between Cascade and the Member, based on the result of the audit process and mutual needs.

Cascade may enter into Asset Transfer Agreements which shall provide for the terms and conditions of: (a) Cascade's operation of the transferred Water Supply Asset with respect to the Member transferring the asset; (b) Cascade's operation, maintenance and replacement of the Water Supply Asset as part of the Supply System; (c) return or disposition of the Water Supply Asset if Cascade terminates its existence or the Member withdraws; (d) continuation of service (if appropriate) to Members or former Members by the Member receiving the Water Supply Asset at reasonable rates and charges or payment to Cascade of the cost of replacing the Water Supply Asset; and (e) such other conditions as the Board and the Member agree upon.

Subject to Cascade's agreement, a Member that transfers title or operation, control and/or management to Cascade of any Water Supply Asset shall be deemed to also transfer, assign and/or convey the franchises, if any, associated with that Water Supply Asset.

Members shall not be deemed to hold legal ownership rights in any Water Supply Assets owned by Cascade whether those Water Supply Assets have been developed by, purchased by, or transferred to Cascade, and regardless of the accounting treatment of RCFC payments and other payments made to Cascade.

**Section 5.2 Supply Commitment**

**Section 5.2.1 Commitment to Members..** Beginning on the Cascade Supply Date, Cascade shall provide a Supply Commitment to each Member. Cascade shall provide a Full Supply Commitment to a Member that joins with Water Supply Assets sufficient to provide for its needs during the following fifteen (15) years (whether or not those Water Supply Assets are transferred to Cascade or retained as Independent Supply.)

Any Full Supply Commitment shall be subject to water shortages, to Cascade's ability to implement the Water Supply Plan, and to the portion of the Member's needs that can be served by the audited capacity of its Independent Supply. If the needed supply is not available, the shortage shall be shared by all the Members in accordance with Cascade's Shortage Management Plan, except as otherwise provided in Section 5.5. Cascade shall be obligated to provide water supply to the entire service area of each Member (as that service area is defined in terms under which the Member is admitted or as in the

Member's adopted and approved Water System Plan as of the Effective Date of this Agreement), whether or not some of that service area is within the Member's current jurisdictional boundaries and/or within the current urban growth boundary. Cascade is not obligated to provide water supply to service area expansions in or outside the urban growth boundary, unless Cascade agrees to such expanded service area. Cascade is not obligated to provide increased water supply to any Member if it is determined that the Member's planning process or plans are materially out of compliance with the requirements of applicable state law.

A Member that joins with Water Supply Assets insufficient to provide for its needs for fifteen (15) years receives the Full Supply it desires only if, when, and to the extent it is available within reliability standards determined by Cascade's system reliability methodology. If sufficient Full Supply is not available within reliability standards determined by Cascade's system reliability methodology, the Member receives partial Full or Interruptible Supply, and Full Supply must be provided within fifteen (15) years. Cascade shall then undertake to include in Cascade's Water Supply Plan, and to acquire the facilities or other assets necessary in the Board's determination to provide for the identified deficit. If Cascade fails to develop sufficient assets to timely provide the increased Full Supply, the commitment becomes a Full Supply Commitment at the end of that fifteen-(15) year period, and any shortage shall be shared by all Members in accordance with Cascade's Shortage Management Plan.

If multiple Members request new Full Supply, requests must be honored in the order received (i.e., in the order in which application is made accompanied by the application fee). With respect to new Members, requests for Full Supply "vest" no earlier than the date that membership is effective. In cases of conflict or ambiguity, the Board may determine the order of requests.

**Section 5.2.2 Additional Rules for Members Retaining Independent Supply.** Members are not required to share shortages resulting from the loss of all or part of Independent Supply, although Cascade may make Interruptible Supply available to a Member that loses Independent Supply at prices that are consistent with the price of Interruptible Supply being made available to others at that time. Cascade may at any time and at its cost and expense carry out audits of a Member's Independent Supply.

A Member requesting an additional Full Supply Commitment due to loss of Independent Supply shall make that request by Resolution of the requesting Member's legislative authority. When and as determined by the Board, the Member shall pay an amount equal to the RCFCs allocable to the number of CERUs that can be served by the replacement supply provided or to be provided by Cascade. Cascade shall then include the supply in its Water Supply Plan, and provide the supply when it becomes available, but in any event within fifteen (15) years. If, within fifteen (15) years the supply is not available, Cascade's commitment becomes a Full Supply Commitment and any shortage with respect to that supply must be shared by all the Members in accordance with the Shortage Management Plan, except as otherwise provided in Section 7.3.

**Section 5.3 Financing of Assets.** The acquisition of new capital facilities and other Water Supply Assets may be financed using RCFCs, transfers or Water Supply Assets, Rates and Charges, the issuance of revenue Bonds and such other sources as the Board may deem appropriate.

**Section 5.3.1 Issuance of Bonds.** An Authorized Issuer may issue Bonds payable from and secured solely by all or a portion of Net Cascade Revenue, evidencing indebtedness up to an amount approved by Resolution for the Board in order to provide financing or refinancing to acquire, construct, receive, own, manage, lease or sell real property, personal property, intangible property and other Water Supply Assets, to establish debt service reserves, to provide for capitalized interest and to pay the costs of issuance of, and other costs related to the issuance of the Bonds. Such Bonds shall be payable solely from all or a portion of the Net Cascade Revenue or (if the Authorized Issuer is other than Cascade) from payments to be made by Cascade out of all or a portion of Net Cascade Revenue, and such Bonds shall not pledge the full faith and credit or taxing power or, except as expressly provided by contract, the revenue, assets or funds of any Member.

Members serving as Authorized Issuers may conduct the financing through "separate systems" permitted by their applicable bond resolutions, or in some other appropriate manner, and Cascade may compensate those Members for all costs associated with the financing. Bond-related documents of Authorized Issuers other than Cascade must expressly permit the Bonds to be refunded or prepaid without penalty prior to their stated maturity, on and after such dates as are approved by the Authorized Issuer and the Board, to allow for a transfer of the obligation to Cascade or to Cascade's successor entity, including without limitation, a joint operating agency or similar entity, as may be permitted by law.

**Section 5.3.2 Pledge of Revenues.** For as long as any Bonds payable from Net Cascade Revenue (or any portion thereof) are outstanding, Cascade irrevocably pledges to establish, maintain and collect all Member Charges in amounts sufficient to pay when due the principal of and interest on the Bonds (and, if the Authorized Issuer is other than Cascade, in addition to the foregoing pledge, to pledge to make timely payments to that Authorized Issuer for the payment of principal of and interest on the Bonds), together with amounts sufficient to satisfy all debt service reserve requirements, debt service coverage requirements, and other covenants with respect to the Bonds.

Each Member hereby irrevocably covenants that it shall establish, maintain and collect rates, fees or other charges for water and other services, facilities and commodities related to the water supply it receives from Cascade and/or its water utility at levels adequate to provide revenues sufficient to enable the Member to: (a) make the payment required to be made under this Agreement; and (b) pay or provide for payment of all other charges and obligations payable from or constituting a charge or lien upon such revenues. Each Member hereby acknowledges that this covenant and its covenant in Section 7.9 of this Agreement may be relied upon by Bond owners, consistent with this Agreement.

Each Member shall pay the Member Charges imposed on it whether or not the Water Supply Assets to be financed through the issuance of Bonds are completed, operable or operating, and notwithstanding the suspension, interruption, interference, reduction or curtailment in the operation of any Water Supply Assets for any reason whatsoever, in whole or in part. Member Charges shall not be subject to any reduction, whether by offset or otherwise, and shall not be conditioned upon the performance or nonperformance of any Member, or of any entity under this or any other agreement or instrument. However, credits against future RCFCs and Rates and Charges described in Sections 5.5 and 7.5, respectively, for development or addition of excess capacity that is either transferred to Cascade or

retained as Independent Supply, shall not be considered "offsets" or "reductions" for the purposes of this Section.

If, in connection with the issuance of obligations, any Member establishes a new lien position on revenues relating to its water utility, that Member shall covenant in the relevant documents that the amounts to be paid to Cascade as Member Charges shall be treated either: (a) as part of that Member's internal operation and maintenance costs payable prior to debt service on those obligations; and/or (b) for any portion of those Member Charges that is allocable to capital costs, as a contract resource obligation payable prior to debt service on those obligations. If any Member has existing outstanding revenue obligations relating to its water utility, it shall include substantially similar "springing covenants" in the documents relating to any new parity obligations.

**Section 5.3.3 Continuing Disclosure.** To meet the requirements of United States Securities and Exchange Commission ("SEC") Rule 15c2-12(b)(5) (the "Rule") as applicable to a participating underwriter for any Bonds and any obligation of each Member as an "Obligated Person" under the Rule, Cascade and each Member agree to make an appropriate written undertaking, respectively, for the benefit of holders of the Bonds consistent with the requirements of the Rule.

**Section 5.3.4 Preservation of Tax Exemption for Interest on the Bonds.** Each Member covenants that it will take all actions necessary to prevent interest on tax-exempt Bonds from being included in gross income for federal income tax purposes, and it will neither take any action nor make or permit any use of proceeds of tax-exempt Bonds or other funds treated as proceeds of those Bonds at any time during the term of those Bonds that will cause interest on those Bonds to be included in gross income for federal income tax purposes.

**Section 5.3.5 Additional Certificates.** Each Member further agrees to provide such certificates or verifications as are reasonably requested by an Authorized Issuer in connection with the issuance of Bonds under this Section.

**Section 5.4 Supply System-Development.** Cascade must provide for Supply System development to meet the needs of additional water customers of Members, subject to consistency with applicable state law, Cascade's Water Supply Plan, orderly asset development, reasonable cost and financing capacity. The Board shall establish a water supply development process, including criteria governing the evaluation of new projects, and that process must promote equality of costs and services (other than direct local services), regardless of geographic location. The results of the water supply planning process must be reflected in Cascade's Water Supply Plan. The Board shall have the authority to undertake new projects identified in Cascade's Water Supply Plan for the expansion of Water Supply Assets and regional transmission system extensions to meet Members' projected needs. To reduce costs, Cascade may, to the extent that the Board deems advisable, enter into agreements with Members to wheel water through their existing systems. When facilities are constructed that are used partially by Cascade for wheeling water and partially by Members or other entities for their purposes, the Board may determine an appropriate Cascade contribution to the cost of those facilities. Existing arrangements

among Members (and between Members and Non-Members), in place when a Member joins Cascade, remain unaffected except as otherwise agreed between Cascade and the other entities concerned.

**Section 5.5 Regional Capital Facilities Charges.** To allocate growth costs to those Members that require capacity increases, each Member shall pay to Cascade an RCFC for each new CERU connected to its water distribution system. Growth in water usage by existing CERUs is not subject to RCFCs unless that growth constitutes a CERU increase as provided in the RCFC Methodology. Members with a supply deficit must pay an RCFC commensurate with that deficit. To the extent that a Member transfers to Cascade or retains an Independent Supply water supply in excess of its needs, it receives a corresponding credit against future RCFCs.

A new Member with adequate supply shall commence paying RCFCs fifteen (15) years prior to the date that its Water Supply Assets are projected to be insufficient to provide for its needs as determined by the Board (taking into consideration the results of the Water Supply Audit).

A Member that joins with Water Supply Assets that are projected to be insufficient to provide for its needs for fifteen (15) years shall immediately pay RCFCs for the number of CERUs representing the deficit as determined by the Board.

RCFCs shall be calculated according to the RCFC Methodology, which shall define the analytical steps required to calculate the RCFCs according to the average unit cost of past construction of the existing system plus the Supply System improvements planned at the time of the calculation. The methodology shall provide for an annual escalator, recalculation and update not less frequently than every fifth year, and a methodology for determining CERUs. The RCFCs shall be imposed on the Member for each new CERU of that Member in accordance with the terms of this Agreement. Amendments to the RCFC Methodology shall require a 65% Dual Majority Vote.

If a Member owns Water Supply Assets or transfers Water Supply Assets to Cascade under Section 5.1, to the extent the audited capacity of those assets exceeds the Member's needs, that Member shall receive a credit against future RCFCs. If a Member seeks to transfer assets substantially in excess of its foreseeable needs, Cascade may negotiate appropriate compensation arrangements for the transfer.

Members that develop new Independent Supply that is approved by the Board in accordance with Article 6, similarly receive a credit effective when the Independent Supply is placed in service as determined by the Board.

A Member that accepts ownership of a Satellite System that Cascade agrees to serve shall pay an RCFC for the amount of supply needed to serve that system in excess of its rated capacity.

Members that experience a net reduction in the number of CERUs served shall receive a CERU-for-CERU credit against future RCFCs.

RCFC credits may not be transferred among Members without Board approval.

Members shall not be required to pass RCFCs to their customers as capital facilities charges, but may provide for the payment of RCFCs in whatever manner they deem appropriate.

For Members joining with an unmet net supply need, Cascade may, under circumstances determined by the Board, require the prepayment of RCFCs allocable to the full amount of the requested supply, e.g., when funds are needed to begin the construction of facilities immediately.

**Section 5.6 Transfer Upon Mergers, Consolidations and Assumptions.** If: (a) two or more Members merge or consolidate; (b) a Member or a Non-Member assumes jurisdiction of part or all of a Member; or (c) a Member assumes jurisdiction of part or all of a Non-Member, the jurisdictions' water supply rights from and obligations to Cascade shall be transferred or assumed under applicable law and consistent with the requirements of this Agreement and the obligations of Cascade.

## ARTICLE 6. New Independent Supply.

Members may not bring new Water Supply Assets on-line as Independent Supply without Board approval. That approval may be granted or denied following an evaluation process, based on whether the Board determines that development of the proposed Independent Supply will benefit or be adverse to the interests of the Members as a whole. Recognizing that in certain circumstances the acquisition of additional Independent Supply might benefit (or cause no material harm to) the Members, new supplies under one (1) MGD may be approved by the Board regardless of the provisions of the Water Supply Plan and without a formal evaluation process. New supplies in amounts greater than one (1) MGD must be described in and be consistent with the Water Supply Plan.

Members that have invested in the development of new Independent Supply assets may offer to sell their interest in such assets to Cascade. Cascade may, in its sole discretion and subject to mutually agreeable terms and conditions, purchase the Member's interest in such Independent Supply asset by reimbursing or otherwise compensating the Member for its investment in the project to the extent that investment has been capitalized. Once Cascade has purchased a Member's interest in a project, the project will be considered a Water Supply Asset of Cascade and will be incorporated into the Water Supply Plan.

## ARTICLE 7. Asset Management.

**Section 7.1 Supply System Management.** Cascade is responsible for managing, on behalf of all Members, the Supply System. Cascade is not responsible for managing Independent Supply unless it has expressly agreed to do so. Supply System management responsibilities shall be governed by Cascade's system management plan adopted by the Board. Cascade's system management plan concerns, without limitation, matters such as daily system operations and maintenance, interface with other supply providers, contractual obligations, water quality, billing, management and administration. Cascade may delegate and/or contract out its Supply System responsibilities.

Cascade must manage the Supply System in compliance with applicable laws, regulation, and Cascade's minimum service standards.

**Section 7.2 Conservation.** Cascade shall develop and carry out, and Members must participate in, water conservation programs that are uniform among Members. The Board shall develop

and implement a Cascade conservation management plan that provides a mandatory base conservation program that functions to reduce both average and peak demands and may establish a charge or assessment to fund development and implementation of the program. Members may implement additional conservation programs. The Board may adopt wholesale charges in addition to normal Demand Share charges to encourage resource conservation. The Board may also provide or contribute to additional local conservation programs that are not offered to all Members, and these local programs may be locally funded or funded by Cascade. Members that fail to comply with base programs as set forth in Cascade's conservation management plan may be required to assume a disproportionate reduction in water supply or to pay penalty charges, or both.

**Section 7.3 Shortages and Emergency.**

**Section 7.3.1 Shortages.** Members must respond to water shortages in a collective, shared fashion under a Cascade Shortage Management Plan adopted by the Board. Resources must be shared in a manner that reduces the risk of severe shortages to each Member. Cascade's Shortage Management Plan may include without limitation, a definition and classification of shortages, a shortage contingency plan including mandatory programmatic actions among all Members in the event of shortages, allocation of authority for determining and responding to shortages, and a communications and outreach program for the public. Members shall not be required to implement Cascade's Shortage Management Plan in areas not served by the Supply System.

In the event of shortages, Cascade shall reduce or halt Interruptible Supply before invoking the Shortage Management Plan with respect to all Members with a Full Supply Commitment. However, the Board may, by 65% Dual Majority Vote, continue service in the amounts it deems appropriate to one or more Members receiving Interruptible Supply.

The Board may require that Members failing to comply with mandatory shortage management programs implemented under Cascade's Shortage Management Plan assume a disproportionate reduction in supply or pay penalty charges, or both.

In the event of a Cascade-wide water shortage, Members with Independent Supply may, without penalty, decline to participate in the shortage management program for that shortage by foregoing all supply from Cascade for the duration of the emergency or shortage.

To avoid shortages resulting from emergencies or the inability to develop sufficient supplies, the Board may, by 65% Dual Majority Vote, establish moratoria on connections or additional commitments for future water services by the Members. A moratorium may be discontinued by a Dual Majority Vote of the Board.

**Section 7.3.2. Emergency.** The Board shall include in Cascade's Shortage Management Plan policies and procedures for addressing short-term disruptions of water supply, transmission or water quality, and it may delegate to the chief executive officer authority to address such disruptions according to such policies and procedures.

**Section 7.4 Water Quality.**

In addition to agreements under 5.1 of this Agreement, Cascade shall be responsible for water quality that meets or exceeds all federal or state requirements at the point of delivery from Cascade to the Member, consistent with applicable laws and regulations. Cascade assumes source water quality responsibility and liability with respect to Water Supply Assets under its ownership or control (including water wheeled to a Member through another Member's facilities). Cascade is also responsible for preparing and carrying out water quality activities compatible with the water quality requirements of regional water suppliers integrated with Cascade's system (e.g., Tacoma, Everett, and Seattle).

Cascade may, in its sole discretion, determine and adjust the appropriate method and level of treatment of water that it supplies, so long as that water meets applicable state and federal requirements. If water that it supplies meets those requirements, Cascade shall not be obligated to adjust the method or level of treatment so that the water can be more readily blended with a Member's Independent Supply or more readily transmitted through a Member's internal system. Each Member shall remain responsible for water quality within its respective distribution system, assuming that adequate water supply quality is provided by Cascade at the point of delivery from Cascade.

Each Member shall be responsible for all costs related to making water supplied by Cascade compatible with that Member's internal system, including but not limited to, costs of additional treatment.

**Section 7.5 Water Supply Rates and Charges.** The Board shall set Rates and Charges according to a Rate Calculation Methodology adopted from time to time by the Board. The Rate Calculation Methodology for Members' Supply Commitment shall provide for the definition and calculation of Demand Shares and for a uniform pricing structure with a commodity charge and fixed charges allocated by Demand Share.

Cascade may sell water to a Non-Member under terms and conditions established by a 65% Dual Majority Vote of the Board. Revenue received from the sale of water to Non-Members shall be used to offset or reduce Rates and Charges to Members to the extent practicable, except that such revenue need not be treated as reducing or offsetting those amounts that are necessary for the payment of debt service on Bonds and for the provision of reserve and coverage requirements for the Bonds.

A Member shall be assigned a Demand Share based on the Board's best estimate of capacity to be used by that Member. The Demand Share shall be established based on an audit of that Member's past three (3) years of water use. After three (3) years as a Member, the baseline demand and capacity obligation for that Member shall be fixed based on actual experience as a Member. A specific Demand Share may be set by the Board to account for circumstances, such as (by way of example and not by limitation) costs of extending the Supply System to a Member, or when Independent Supplies affect regional demand patterns. When water supply from Cascade is wheeled through a Member to another Member, Cascade may presume that the first Member receiving the water is the "User" for calculation of Demand Shares unless the Members concerned instruct Cascade to use a different allocation. Rate credits for Water Supply Asset transfers are not deducted in the calculation of Demand Shares but are applied to reduce what a Member would otherwise pay.

The Board must set Member Charges at levels it determines to be sufficient, together with other available revenue sources, to provide adequately for Operation and Maintenance Costs, Bond debt service, coverage and other covenants, replacement and renewal of facilities, reserve, and other costs that the Board deems appropriate. The Board may provide that a Member's failure to participate in the planning process may result in penalty charges.

A Member that has transferred Water Supply Assets shall receive a credit, determined when those assets are audited and transferred, based on the useful life of those facilities and on the Member's use of the water produced by those assets or an amount of water equivalent to the amount of supply from them.

The Board may implement wholesale charges (additional to Demand Share-based charges and variable commodity charges) to reduce extreme peak use (e.g., "peaking-off of the pipe").

Water Rates and Charges must be the same for all Members receiving the same class of service (subject to credits, surcharges and penalty charges).

**Section 7.6 Franchises and Easements.** Except to the extent otherwise required by state law, each Member shall provide franchises and rights of way on, under or across that Member's streets or other property, to Cascade and to other Members for Water Supply Assets, without charging any fees, rent or charges other than the customary and usual right-of-way permit and inspection fees.

**Section 7.7 Sales of Water to Non-Members.** Unless approved by the Board, a Member shall not sell water supplied by Cascade, nor shall a Member sell Independent Supply offset by water supplied by Cascade to a Non-Member. Notwithstanding the foregoing, any Member may sell water supplied by Cascade to a Non-Member to the extent required by a contract in effect as of the date the Member joins Cascade.

**Section 7.8 Payment Procedures; Default; Step-Up Provisions.**

**Section 7.8.1 Invoice and Payment.**

(a) Cascade shall provide each Member with periodic invoices showing the Member Charges payable by that Member for the billing period and the due date. Invoices shall be provided monthly or on other such periodic schedule as determined by the Board, but no more frequently than monthly nor less frequently than once every six months. The Board will determine a due date for all invoices.

(b) Payment of any and all invoices shall be due and payable on or before the due date, and shall be made by wire transfer or such other means as are agreed to by Cascade and the Member. If a treasurer, trustee, fiscal agent or escrow agent is appointed in connection with the issuance of Bonds, Cascade may require, and specify on the invoice, that certain amounts be provided directly to that person or entity, and the Member shall pay those amounts in the manner and to the person so specified.

(c) If full payment of any invoice is not received on or before the due date, such payment shall be considered past due and a late payment charge shall accrue for each day that the invoice remains unpaid. The late payment charge shall equal the product of the unpaid amount and an interest rate

established by the Board. Late payment charges shall continue to accumulate until the unpaid amount of the invoice and all late payment charges are paid in full. Further, if an invoice or any portion thereof remains unpaid for more than sixty (60) days after the due date, Cascade may pursue any legally available remedy at law or equity for the unpaid amount, including without limitation, specific performance and collection of the late payment charge. Cascade's right to enforce payments in this regard may be assigned to a treasurer, trustee, credit enhancement provider or other entity. Furthermore, upon written notice, Cascade may reduce or suspend delivery of water until the invoice and late payment charges are paid.

(d) If any Member disputes all or any portion of an invoice, it shall notify Cascade immediately upon receipt. If Cascade does not concur, the Member shall remit payment of the invoice in full, accompanied by written notice to Cascade indicating the portions of the invoice that the Member disputes and the reasons for the dispute. The Member and Cascade shall make a good faith effort to resolve such dispute. If the Member fails to remit payment of the invoice in full pending resolution of the dispute, the prevailing party in an action relating to the collection of that invoice shall be entitled to reasonable attorney fees and costs.

**Section 7.8.2 Default and Step-Up.**

(a) If any Member fails to make any payment in full for more than fifty (50) days past the due date, Cascade shall make written demand upon that Member to make payment in full within ten (10) days of the date that the written demand is sent by Cascade. If the failure to pay is not cured within the ten (10) day period, the Member shall be deemed to be in default.

(b) Upon an event of default as described in subsection 7.8.2(a), the other Members shall pay Cascade (in addition to Member Charges otherwise due) the defaulting Member's Member Charges in proportion to each remaining Members' Demand Share in accordance with a schedule established by Resolution of the Board.

(c) The payment of a proportionate share of the existing defaulted Member's Member Charges by Members shall not relieve the defaulting Member of its liability for those payments. Cascade shall have a right of recovery from the defaulting Member on behalf of each Member. Cascade may commence such suits, actions or proceedings at law or in equity, including but not limited to, suits for specific performance, as may be necessary or appropriate to enforce the obligations of this Agreement against any defaulting Member. Cascade's right to enforce payments in this regard may be assigned to a treasurer, trustee, credit enhancement provider or other entity. Amounts recovered by Cascade as payment of amounts due shall be passed through to each Member in proportion to the share that each assumed, in cash or in credit, against future Member Charges as the Board shall determine.

(d) The prevailing party in any such suit, action or proceeding, shall be entitled to recover its reasonable attorney fees and costs.

## ARTICLE 8. Planning.

**Section 8.1 Water Supply Plan.** Cascade must plan for its Members' water supply needs. That planning shall be compatible with the equivalent planning responsibilities of other wholesale water

providers and with state, county and city planning responsibilities under state law. The Board must adopt, and may from time to time amend, a Water Supply Plan that must be based on no less than a twenty- (20) year planning horizon. Cascade shall coordinate its planning effort with local and regional utilities and other appropriate agencies and work to encourage cooperative region-wide planning and coordination.

Each Member shall actively participate in Cascade's water supply planning and shall provide to Cascade accurate data regarding its facilities and operations together with good faith estimates of future needs and a description of any involvement in the development of new Independent Supplies. Each Member's water comprehensive or system plan shall be consistent with any plans adopted by Cascade, and shall be consistent with applicable requirements of state law and comprehensive plans.

**Section 8.2 Watershed Management Plan.** Upon the effective date of formation of the Authority under Article 3 of this Agreement, Cascade will no longer be a Watershed Partnership under RCW 39.34; and any Watershed Management Plans existing on the effective date shall become the plans of the Authority. Nothing herein shall limit Cascade's powers to adopt Watershed Management Plans or to enter into interlocal agreements thereafter.

**Section 8.3 System Reliability Methodology.** Cascade shall develop and adopt a system reliability methodology for planning, operation, and management purposes.

## ARTICLE 9. Duration and Dissolution; Withdrawal.

**Section 9.1 Duration.** Except as provided in Section 9.3, Cascade shall remain in existence for the longer of the following: (a) the period it holds any assets; (b) the period during which Bonds are outstanding; or (c) the period it continues to include Members.

**Section 9.2 Withdrawals.** A Member may notify Cascade of its intent to withdraw by delivery to Cascade of a Resolution of its legislative authority expressing such intent. Upon receipt of such Resolution, the Member shall lose its right to vote and the Board shall determine (a) the withdrawing Member's allocable share of the cost of the then-existing obligations of Cascade; and (b) the withdrawing Member's obligations to Cascade. "Then-existing obligations of Cascade" means obligations or costs incurred by Cascade as of the date the Member's withdrawal notice is received, including but not limited to, Bond obligations, contract obligations, and cash financed capital projects; provided that a withdrawing Member's allocable share shall in no event include an obligation for future expenses for which Cascade has not incurred a legal obligation; and provided further, that to the extent the Member's obligation (with respect to such costs) is re-paid over time, the Member shall be entitled to a credit for supply abandoned by the Member and is otherwise used by Cascade. A "withdrawing Member's obligation to Cascade" includes but is not limited to, the Member's share of fixed operating costs, any other expenses contained in Cascade's adopted budget for that year, and any assessments or other similar charges lawfully imposed by Cascade. For purposes of the preceding sentence, "fixed operating costs" shall be determined in the year of withdrawal, and the Member's obligation with respect to such costs shall be limited only to that amount required to pay for supply abandoned by the Member and not otherwise used by Cascade.

The allocable share of cost or obligations shall be determined by the Board, taking into consideration as deemed applicable by the Board: (a) the ratio of the Member's Demand Share to total Member demand; (b) the ratio of the Member's contribution to Cascade revenue to total Cascade revenue including RCFCs; (c) the cost or a portion of the cost of capital projects or facilities specially benefiting the Member; and (d) and any other factor the Board deems appropriate to consider. The Member's withdrawal shall be effective on payment of such allocable share or provision for arrangements to pay such allocable share that are satisfactory to the Board. Until the effective date of withdrawal, the Member shall continue to comply with all applicable provisions of this Agreement.

Upon withdrawal, except as provided in an Asset Transfer Agreement, the withdrawing Member shall have no right to, or interest in any Water Supply Assets owned by Cascade. The withdrawing Member shall be deemed to have abandoned any and all rights to service, to the use of Cascade Water Supply Assets or other rights with respect to Cascade (except as otherwise expressly provided in this Agreement).

Notwithstanding the provisions of this Section 9.2, Cascade will, upon the withdrawal of a Member that has transferred operational control and management of (but not title to) an Independent Supply Asset to Cascade under Section 5.1, return operational control of such asset to the withdrawing Member. Return of operational control and management will be subject to: (a) continued use by Cascade, to the extent and for such time as the Board deems such use necessary for Cascade to continue providing service to its Members; and (b) payment or provision for payment of any Cascade costs, including but not limited to, those associated with the withdrawing Member's Independent Supply Asset.

The Board may establish additional generally applicable conditions and requirements for withdrawal.

**Section 9.3 Disincorporation.** Cascade may vote by a 65% Dual Majority Vote (as ratified within one hundred and twenty (120) days of such Dual Majority Vote by 65% Dual Majority of the Members' legislative authorities), to disincorporate. Upon disincorporation except as provided in an Asset Transfer Agreement, Cascade's assets initially shall be held by its then current Members as tenants in common. Each Member's ownership interest must be based on that Member's Demand Share as of the time of the dissolution. Cascade's liabilities (including Bonds and other contractual obligations) initially shall be distributed based on Members Demand Shares as of the time of the disincorporation. Assets and liabilities must be distributed in accordance with agreement or contract, under a voluntary mediation process, or by a court of law. A court may appoint an arbitrator or special master. Distribution shall be based on the best interests of efficient and economic water supply in the entire area served by the Members, subject to a rebuttable presumption that Water Supply Assets will be returned to the Member that originally transferred them to Cascade. That presumption may be overcome by a showing that another asset distribution is in the best interests of efficient and economic water supply. The proceeds of any sale of assets must be distributed among the then current Members based on the Demand Shares at the time of disincorporation.

**Section 9.4 Successor Entity.** Notwithstanding the provisions of Section 9.3, upon a 65% Dual Majority Vote of the Board (as ratified within one hundred and twenty (120) days of such Dual Majority Vote by 65% Dual Majority of the Members' legislative authorities), all assets, liabilities, and obligations of Cascade may be transferred to any successor entity (including without limitation, a joint operating agency or other municipal corporation, as permitted under state law), and all obligations of Members and parties contracting with Cascade become obligations to the successor entity.

## ARTICLE 10. Amendments.

Amendments to this Agreement shall be effective upon approval by 65% Dual Majority Vote of the Board (as ratified within one hundred and twenty (120) days by 65% Dual Majority of the Members' legislative authorities).

## ARTICLE 11. Applicable Law and Venue.

This Agreement is governed by the laws of the state of Washington. The venue for any legal action arising from a dispute under this Agreement is the Superior Court for King County.

## ARTICLE 12. No Third Party Beneficiaries.

There are no third party beneficiaries to this Agreement except for the rights of Bond owners as provided in Section 5.3.2, no person or entity other than an agency signatory to this Agreement shall have any rights hereunder or any authority to enforce its provisions, and any such rights or enforcement must be consistent with and subject to the terms of this Agreement.

## ARTICLE 13. Severability.

If any provision of this Agreement or its application is held by a court of competent jurisdiction to be illegal, invalid, or void, the validity of the remaining provisions of this Agreement or its application to other entities or circumstances shall not be affected. The remaining provisions continue in full force and effect, and the parties' rights and obligations must be construed and enforced as if the Agreement did not contain the particular invalid provision. But if the invalid provision or its application is found by a court of competent jurisdiction to be substantive and to render performance of the remaining provisions unworkable and infeasible, is found to seriously affect the consideration, and is inseparably connected to the remainder of the Agreement, the entire Agreement is deemed void.

## ARTICLE 14. Entire Agreement.

This Agreement constitutes the entire and exclusive agreement between the parties relating to the specific matters covered in this Agreement. All prior or contemporaneous verbal or written agreements, understandings, representations or practices relative to the foregoing are superseded, revoked and rendered ineffective for any purpose. This Agreement may be altered, amended or revoked only as set forth in Article 10. No verbal agreement or implied covenant may be held to vary the terms of this Agreement, any statute, law, or custom to the contrary notwithstanding.

**CASCADE WATER ALLIANCE**

By: John Marchione
John Marchione

Title. Title Chair Date: April 10, 2012.

Attest: Chuck Clarke
Chuck Clarke

Title: Chief Executive Officer Date: April 18, 2012

Authorized by: Resolution No. 2012-06

Date: 3-28-2012

**ARTICLE 15. Execution**

This Agreement may be executed in one or more counterparts.

**SIGNATORY AGENCY**

**CITY OF BELLEVUE**

By: Brad Miyake

Title Deputy City Mgr Date: 6-6, 2012

Attest: Jeri McCue

Title: Contract Admin Date: 6-6, 2012

Authorized by (Resolution or Ordinance): 8408

Date: 6/04/12, 2012

**SIGNATORY AGENCY**

**CITY OF ISSAQUAH**

By: Ava Frisinger

Title Mayor Date: 7.3, 2012

Attest: Christine Mar

Title: City Clerk Date: 7.10.~~12~~2012

Authorized by (Resolution or Ordinance): AB 6396

Date: June 4, 2012

R-4924
Exhibit A

**SIGNATORY AGENCY**

**CITY OF KIRKLAND**

By: Marilynne Beard

Title Assistant City Manager Date: June 18, 2012

Attest: Kellie Anderson

Title: City Clerk Date: 6-18, 2012

Authorized by (Resolution or Ordinance): R 4924

Date: June 5, , 2012

**SIGNATORY AGENCY**

**CITY OF REDMOND**

By: Mike Ba for John Marchione

Title Mayor Date: July 5, 2012

Attest: Cmadin

Title: Deputy City Clerk Date: July 5, 2012

Authorized by (Resolution or Ordinance): AM No. 12-091

Date: June 5, 2012

**SIGNATORY AGENCY**

**CITY OF TUKWILA**

By: EXPST BY Jim Haggerton

Title Mayor Date: July 3, 2012

Attest: Melissa Hart

Title: Deputy City Clerk Date: July 3, 2012

Authorized by (Resolution or Ordinance): Resolution NO. 1771

Date: July 2, 2012

**SIGNATORY AGENCY**

**SAMMAMISH PLATEAU WATER & SEWER DISTRICT**

By: _____

Title President Date: 6/18, 2012

Attest: _____

Title: Secretary Date: 6/18/12, 2012

Authorized by (Resolution or Ordinance): 4/61

Date: June 18, 2012

**SIGNATORY AGENCY**

**SKYWAY W&S DISTRICT**

By: Jon L. Curt

Title President Date: 6-26, 2012

Attest: Cheryl Scheuerman

Title: General Manager Date: 6/26, 2012

Authorized by (Resolution or Ordinance): 12-07-488

Date: June 12, 2012

# Appendix B

# Sewage Disposal Agreement

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AGREEMENT FOR SEWAGE DISPOSAL

MUNICIPALITY OF METROPOLITAN SEATTLE - CITY OF ISSAQUAH

6136465

THIS AGREEMENT made as of this 1ST day of APRIL 1965, between the CITY OF ISSAQUAH, a municipal corporation of the State of Washington, hereinafter referred to as the "City" and the MUNICIPALITY OF METROPOLITAN SEATTLE, a municipal corporation of the State of Washington, hereinafter referred to as "Metro",

W I T N E S S E T H:

WHEREAS, the public health, welfare and safety of the residents of the City and the residents of the Metropolitan Are require the elimination of existing sources of water pollution and the preservation of the fresh and salt water resources; and

WHEREAS, growth of population, topographic conditions and preservation of water resources require that certain major sewa disposal works be constructed and operated and that the cities and special districts within the Lake Washington drainage basin dispose of their sewage in accordance with a comprehensive sewa disposal plan; and

WHEREAS, Metro is engaged in developing and operating a Metropolitan sewage disposal system and the City is engaged in developing and operating a local sewage collection system; and

WHEREAS, the City desires to deliver to Metro sewage colle by the City from areas which are presently located outside of t boundaries of Metro and Metro is willing to accept such sewage for disposal under certain terms and conditions; and

6136465

WHEREAS, it is necessary that a contract be now entered into establishing the rights and duties of the parties;

NOW THEREFORE, in consideration of the mutual covenants contained herein, it is hereby agreed as follows:

Section 1. Definition of Terms. The following words and phrases used in this contract shall have the meanings hereinafter set forth in this section:

(a) The words "Comprehensive Plan" shall mean the Comprehensive Sewage Disposal Plan adopted in Resolution No. 23 of the Municipality of Metropolitan Seattle and all amendments thereof heretofore or hereafter adopted.

(b) The words "Metropolitan Sewerage System" shall mean all of the facilities to be constructed, acquired or used by Metro as a part of the Comprehensive Plan. The Metropolitan Sewerage System shall generally include sewage disposal facilities with capacity to receive sewage from natural drainage areas of approximately one thousand acres or more. The Metropolitan Sewerage System shall thus include trunk or interceptor sewer facilities extending to a point within each tributary. and natural drainage area, where not more than one thousand acres remain to be served beyond the upper terminus of such trunk or interceptor sewer.

(c) The words "Local Sewerage Facilities" shall mean all facilities owned or operated by a Participant for the local collection of sewage to be delivered to the Metropolitan Sewerage System.

(d) The words " Metropolitan Area" shall mean the area contained within the boundaries of the Municipality of Metropolitan Seattle as now or hereafter constituted.

(e) The word "Participant" shall mean each city, t county, sewer district, municipal corporation, firm or private corporation which shall dispos portion of its sanitary sewage into the Metrop Sewerage System and shall have entered into a with Metro providing for such disposal.

(f) The words "Residential Customer" shall mean a family residence billed by a Participant for s charges.

Section 2. Delivery and Acceptance of Sewage. after May 1, 1965 the City shall deliver to the Metropol Sewerage System all of the sewage and industrial wastes by it and Metro shall accept the sewage and wastes deliv the Metropolitan Sewerage System for treatment subject t reasonable rules and regulations as may be adopted from time by the Metropolitan Council. Metro shall not direc sewage or wastes from any person, firm, corporation or g agency which is located within the boundaries of or is d its sewage into the Local Sewerage Facilities of the Cit the written consent of the City.

Section 3. Construction of Facilities. Metro construct, acquire or otherwise secure the right to use facilities and shall perform all services required for t tenance, operation, repair, replacement or improvement o Metropolitan Sewerage System, including any additions an ments thereto. Metro shall in its sole discretion deter nature, location and time of construction of facilities Metropolitan Sewerage System.

Section 4. Connection of Local Sewerage Facil the Metropolitan Sewerage System. Local Sewerage Facili the City shall be connected to the Metropolitan Sewerage at such time as any portion of the Metropolitan Sewerage shall be available to receive sewage collected by such f. Metro shall, at its sole expense, connect Local Sewerage of the City which are in existence on the date of this c Local Sewerage Facilities constructed after the date of tract shall be connected to the Metropolitan Sewerage Sy the expense of the City in accordance with the rules and of Metro.

Section 5. Payment for Sewage Disposal. For of sewage collected by the City and delivered to Metro th shall pay to Metro on or before the last day of each mont the term of this agreement, beginning with the month of M a sewage disposal charge determined as provided in this s

1. For the quarterly periods ending March 31, June September 30 and December 31 of each year every Participa submit a written report to Metro setting forth (a) the nu Residential Customers billed by such Participant for loca charges as of the last day of the quarter, (b) the total all customers billed by such Participant as of such day a total water consumption during such quarter for all custo by such Participant other than Residential Customers. Th water consumption report shall be taken from water meter and may be adjusted to exclude water which does not enter sanitary facilities of a customer. Where actual sewage f an individual customer is metered, the metered sewage flo be reported in lieu of adjusted water consumption. The t quarterly water consumption report in cubic feet shall be

by 2,700 to determine the number of Residential Customer equivalents represented by each Participant's customers other than single family residences. Metro shall maintain a permanent record of the quarterly customer reports from each Participant. The City shall bill every customer receiving sewer service from the City.

2. To form a basis for determining the monthly sewage disposal charge to be paid by each Participant during any particular quarterly period Metro shall ascertain the number of Residential Customers and Residential Customer equivalents of each Participant. This determination shall be made by taking the sum of the actual number of Residential Customers reported as of the last day of the next to the last preceding quarter and the average number of Residential Customer equivalents per quarter reported for the four quarters ending with said next to the last preceding quarter, adjusted to eliminate any Residential Customers or Residential Customer equivalents whose sewage is delivered to a governmental agency other than Metro or other than a Participant for disposal outside of the Metropolitan Area. The number thus determined is hereafter called the "basic reported number."

The basic reported number of Residential Customers and Residential Customer equivalents of the City shall be further adjusted by adding thereto twenty-five per cent (25%) of the number of Residential Customers or Residential Customer equivalents of the City located outside the boundaries of Metro. The sum thus determined is hereinafter called the "adjusted reported number." If any portion of the area served by the City shall be annexed to Metro after the date of this agreement the twenty-five per cent additive adjustment shall be eliminated as to the number of Residential Customers or Residential Customer equivalents located within such annexed area as of the first day of the month following the month

in which such annexation shall have become effective. The adjusted reported number of Residential Customers and Residential Customer equivalents of the City shall be the number of Residential Customers and Residential Customer equivalents reported by the City for the purpose of determining sewage disposal charges pursuant to Paragraph 3 of this section.

3. For each calendar year the monthly sewage disposal charge payable to Metro shall be determined as follows:

a) Prior to July 1st of each year Metro shall determine its total monetary requirements for the disposal of sewage during the next succeeding calendar year. Such requirements shall include the cost of administration, operation, maintenance, repair and replacement of the Metropolitan Sewerage System, establishment and maintenance of necessary working capital and reserves, the requirements of any resolution providing for the issuance of revenue bonds of Metro to finance the acquisition, construction or use of sewerage facilities, plus not to exceed 1% of the foregoing requirements for general administrative overhead costs.

b) To determine the monthly rate per Residential Customer or Residential Customer equivalent to be used during said next succeeding calendar year, the total monetary requirements for disposal of sewage as determined in subparagraph 3(a) of this section shall be divided by twelve and the resulting quotient shall be divided by the total number of Residential Customers and Residential Customer equivalents of all Participants ascertained in accordance with subparagraph 2 of this section for the October-December quarter preceding said July 1st; provided, however, that the monthly rate shall not

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be less than Two Dollars ($2.00) per month per Residential Customer or Residential Customer equivalent at any time during the period ending July 31, 1972.

c) The monthly sewage disposal charge paid by each Participant to Metro shall be obtained by multiplying the monthly rate by the number of Residential Customers and Residential Customer equivalents of the Participant determined as provided in Paragraph 2 of this section. An additional charge may be made for sewage or wastes of unusual quality or composition requiring special treatment, or Metro may require pre-treatment of such sewage or wastes. An additional charge may be made for quantities of storm or ground waters entering those Local Sewerage Facilities which were constructed after January 1, 1961 in excess of the minimum standard established by the general rules and regulations of Metro.

4. A statement of the amount of the monthly sewage disposal charge shall be submitted by Metro to each Participant on or before the first day of each month and payment of such charge shall be due on the last day of such month. If any charge or portion thereof due to Metro shall remain unpaid for fifteen days following its due date, the Participant shall be charged with and pay to Metro interest on the amount unpaid from its due date until paid at the rate of 6% per annum, and Metro may, upon failure to pay such amount, enforce payment by any remedy available at law or equity.

5. The City irrevocably obligates and binds itself to pay its sewage disposal charge out of the gross revenues of the sewer system of the City. The City further binds itself to establish, maintain and collect charges for sewer service from every customer receiving such service which will in the aggregate at all times be sufficient to pay all costs of maintenance and operation of the

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sewer system of the City, including the sewage disposal charge payable to Metro hereunder and sufficient to pay the principal of and interest on any revenue bonds of the City which shall constitute a charge upon such gross revenues. It is recognized by Metro and the City that the sewage disposal charge paid by the City to Metro shall constitute an expense of maintenance and operation of the sewer system of the City. The City shall provide in the issuance of future sewer revenue bonds of the City that expenses of maintenance and operation of the sewer system of the City shall be paid before payment of principal and interest of such bonds. The City shall have the right to fix its own schedule of rates and charges for sewer service provided that same shall produce revenue sufficient to meet the covenants contained in this Agreement and provided that the customers of the City located within the Metropolitan Area shall be separately classified from those located outside the Metropolitan Area for rate making purposes and the rates for sewer service to customers located within the Metropolitan Area shall fully reflect any lower Metro sewage disposal charge for sewage from customers within the Metropolitan Area.

Section 6. Responsibility of Participant. Each Participant shall be responsible for the delivery to the Metropolitan Sewerage System of sewage collected by such Participant, for the construction, maintenance and operation of Local Sewerage Facilities, and for the payment of all costs incident to the collection of such sewage and its delivery to the Metropolitan Sewerage System.

Section 7. Records. Permanent books and records shall be kept by Metro and the City of the rates established, the volumes of sewage delivered and discharged into the Metropolitan Sewerage System wherever such volumes are measured and the number of Residential Customers and Residential Customer equivalents reported.

In addition, Metro shall keep complete books of account showing all costs incurred in connection with the Metropolitan Sewerage System. The records required by this paragraph shall be available for examination by either party at any reasonable time.

Section 8. Development of Metropolitan Sewerage System. It is contemplated that the Metropolitan Sewerage System will be developed in stages and the nature of facilities to be constructed, acquired or used and the time of such construction, acquisition or use shall be determined by Metro, it being contemplated that Metro shall ultimately provide sewage disposal service for the entire Metropolitan Area and such adjacent areas as may feasibly be served into the Metropolitan Sewerage System.

Section 9. Use of City Facilities. Metro shall have the exclusive right to use and the duty to maintain, operate, repair and replace those facilities, the nature and location of which are described in Exhibit "A" attached hereto and by this reference made a part hereof, subject to the continued availability of such facilities or other facilities of Metro to receive, transport or treat sewage delivered at such location by the City.

The right of Metro to use facilities designated as "Temporary" shall expire six months following the date of completion as determined by Metro of other metropolitan facilities adequate to replace such temporary facilities. The City shall continue to retain its existing rights of ownership in the facilities described in this Section 9 and shall continue to pay the principal of and interest on any bonds issued to pay in whole or in part the cost of acquisition and construction of such facilities.

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Section 10. Insurance and Liability for Damages. The City shall secure and maintain with responsible insurers all such insurance as is customarily maintained with respect to sewage systems of like character against loss of or damage to the sewerage facilities of the City and against public and other liability to the extent that such insurance can be secured and maintained at reasonable cost. Any liability incurred by Metro as a result of the operation of the Metropolitan Sewerage System shall be the sole liability of Metro and any liability incurred by the City as a result of the operation, use and occupancy of the Local Sewerage Facilities of the City shall be the sole liability of the City. Any liability stemming from operation by the City of the facilities described in Exhibit "A" shall be the sole responsibility and liability of the City and the City shall defend same and hold Metro harmless therefrom, and any liability stemming from the operation, use and occupancy by Metro of the facilities described in Exhibit "A" shall be the sole responsibility and liability of Metro and Metro shall defend same and hold the City harmless therefrom.

Section 11. Assignment. Neither of the parties hereto shall have the right to assign this Agreement or any of its rights and obligations hereunder nor to terminate its obligations hereunder by dissolution or otherwise without first securing the written consent of the other party and this Agreement shall be binding upon and inure to the benefit of the respective successors and assigns of the parties hereto. In the event that the City should be dissolved, the local sewer facilities owned and operated by the City within the Metropolitan Area shall by such act of dissolution be assigned and transferred to Metro subject to any

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outstanding debts of the City incurred for the construction or acquisition of such facilities and subject to the obligation of Metro to continue to provide sewer service to the residents served by such local facilities upon payment of the reasonable costs thereof by the users thereof.

Section 12. Effective Date and Term of Contract. This Agreement shall be in full force and effect and binding upon the parties hereto upon the execution of the Agreement and shall continue in full force and effect for a period of fifty years from date of execution, provided that delivery of sewage and payment of sewage disposal charges shall commence May 1, 1965.

Section 13. Notice. Whenever in this Agreement notice is required to be given, the same shall be given by Registered Mail addressed to the respective parties at the following addresses:

Municipality of Metropolitan Seattle
410 West Harrison Street
Seattle, Washington 98119

City of Issaquah
Issaquah, Washington

unless a different address shall be hereafter designated in writing by either of the parties.

The date of giving such notice shall be deemed to be the date of mailing thereof. Billings for and payments of sewage disposal costs may be made by regular mail.

Section 14. Execution of Documents. This Agreement shall be executed in six counterparts, any of which shall be regarded for all purposes as one original. Each party agrees that it will execute any and all deeds, instruments, documents and resolutions or ordinances necessary to give effect to the terms of this Agreement.

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Section 15. Waiver. No waiver by either party of any term or condition of this Agreement shall be deemed or construed as a waiver of any other term or condition, nor shall a waiver of any breach be deemed to constitute a waiver of any subsequent breach whether of the same or a different provision of this Agreement.

Section 16. Remedies. In addition to the remedies provided by law, this Agreement shall be specifically enforceable by either party.

Section 17. Entirety. This Agreement merges and supersedes all prior negotiations, representations and agreements between the parties hereto relating to the subject matter hereof and constitutes the entire contract between the parties concerning the disposal of sewage by the City and acceptance of such sewage by Metro for disposal.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

CITY OF ISSAQUAH

By James H. Schaffer
Mayor

CITY OF ISSAQUAH INCORPORATED APR 25 1892 STATE OF WASHINGTON

ATTEST:

City Clerk

MUNICIPALITY OF METROPOLITAN SEATTLE

By C. Carey Donworth
C. Carey Donworth
Chairman of the Council

1958

ATTEST:

Marilyn Sullivan
Clerk of the Council

sewage disposal and/or payment therefore as may be proposed by Metro and agreed to by those Participants that shall represent, in total, not less than 90% of the Residential Customers and Residential Customer Equivalents then served by the Metropolitan Sewerage System."

Section 4. Effective Date of Amendment. This amendment shall take effect at the beginning of the first quarter following the date first written above with quarters beginning January 1, April 1, July 1, and October 1.

Section 5. Basic Agreement Unchanged. Except as otherwise provided in this amendment, all provisions of the basic agreement shall remain in full force and effect as written therein.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first written above.

CITY OF ISSAQUAH

A. J. Culver
Mayor

ATTEST:

Linda Ruehle, City Clerk

MUNICIPALITY OF METROPOLITAN SEATTLE

~~Gary Zimmerman~~
Chair of the Council

MAY 2 3 1992

ATTEST:

Bonnie Mattson

CITY OF ISSAQUAH

MUNICIPALITY OF METROPOLITAN SEATTLE

EXTENSION OF AGREEMENT FOR SEWAGE DISPOSAL

WHEREAS, the City of Issaquah (the "City") and the Municipality of Metropolitan Seattle (the "Municipality") are parties to a certain Agreement for Sewage Disposal (the "Agreement") dated April 1, 1965, pursuant to which the City delivers to the Municipality for treatment and disposal all the sewage and industrial wastes it collects from its service area; and

WHEREAS, the Agreement expires by its terms on April 1, 2015; and

WHEREAS, it is in the best interests of the City and the Municipality that the expiration date of the Agreement be extended in order to allow the Municipality to sell and issue its sewer revenue bonds with maturities extending beyond 2015;

NOW, THEREFORE, in consideration of the mutual covenants contained herein and in the Agreement, it is hereby agreed as follows:

The Agreement for Sewage Disposal between the City of Issaquah and the Municipality of Metropolitan Seattle dated April 1, 1965, is hereby extended for a period of twenty-one years and shall continue in full force and effect until July 1, 2036.

It is further agreed that all other provisions of said Agreement shall remain unchanged, and the Agreement dated April 1, 1965, as extended herein shall constitute the entire Agreement for Sewage Disposal between the parties.

DATED: This ~~7th~~ 19th day of ~~January~~ March, ~~1986~~ 1987

CITY OF ISSAQUAH

By _____

ATTEST:

_____
City Clerk

MUNICIPALITY OF METROPOLITAN SEATTLE

By _____
Gary Zimmerman
Chairman of the Council

ATTEST:

_____
Bonnie Mattson
Clerk of the Council

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PUBLIC WORKS ENG.

CITY OF ISSAQUAH

MUNICIPALITY OF METROPOLITAN SEATTLE

AMENDMENT TO AGREEMENT
FOR SEWAGE DISPOSAL

THIS AMENDMENT made as of the ~~4th~~ 2nd day of ~~December~~ October, ~~1989~~ 1992, between the City of Issaquah, a municipal corporation of the State of Washington (hereinafter referred to as the "City") and the Municipality of Metropolitan Seattle, a metropolitan municipal corporation of the State of Washington (hereinafter referred to as "Metro");

WITNESSETH:

WHEREAS, the parties have entered into a long term Agreement for Sewage Disposal dated April 1, 1965 (hereinafter referred to as the "Basic Agreement"); and

WHEREAS, an advisory committee composed of elected and appointed officials in the metropolitan area was appointed by the Metropolitan Council to examine the structure of Metro's charges to its participants; and

WHEREAS, said advisory committee, following extensive research, study and deliberations, has recommended certain changes in the structure of Metro's charges to its participants and implementation of said changes requires amendment of the Basic Agreement; and

WHEREAS, the parties have determined that the recommendations are in the best public interest and therefore desire to amend said Basic Agreement to implement said recommendations;

NOW, THEREFORE, it is hereby agreed as follows:

Section 1. Amendment of Section 5 of the Basic Agreement. Section 5 of the Basic Agreement is hereby amended to read as follows:

"Section 5. Payment for Sewage Disposal. For the disposal of sewage hereafter collected by the City and delivered to Metro the City shall pay to Metro on or before the last day of each month during the term of this Agreement, a sewage disposal charge determined as provided in this Section 5.

1. For the quarterly periods ending March 31, June 30, September 30 and December 31 of each year every Participant shall submit a written report to Metro setting forth:

(a) the number of Residential Customers billed by such Participant for local sewerage charges as of the last day of the quarter,

(b) the total number of all customers billed for local sewerage charges by such Participant as of such day, and

(c) the total water consumption during such quarter for all customers billed for local sewerage charges by such Participant other than Residential Customers.

The quarterly water consumption report shall be taken from water meter records and may be adjusted to exclude water which does not enter the sanitary facilities of the customer. Where actual sewage flow from an individual customer is metered, the metered sewage flows shall be reported in lieu of adjusted water consumption. The total quarterly water consumption report in cubic feet shall be divided by 2,250 to determine the number of Residential Customer equivalents represented by each Participant's customers other than single family residences.

Metro shall maintain a permanent record of the quarterly customer reports from each Participant.

The City's first quarterly report shall cover the first quarterly period following the date when sewage is first delivered to Metro and shall be submitted within thirty days following the end of the quarter. Succeeding reports shall be made for each quarterly period thereafter and shall be submitted within thirty (30) days following the end of the quarter.

2. (a) To form a basis for determining the monthly sewage disposal charge to be paid by each Participant during any particular quarterly period, Metro shall ascertain the number of Residential Customers and Residential Customer equivalents of each Participant. This determination shall be made by taking the sum of the actual number of Residential customers reported as of the last day of the next to the last preceding quarter and the average number of Residential Customer Equivalents per quarter reported for the four quarters ending with said next to the last preceding quarter, adjusted for each Participant to eliminate any Residential Customers or Residential Customer equivalents whose sewage is delivered to a governmental agency other than Metro or other than a Participant for disposal outside of the Metropolitan Area.

(b) For the initial period until the City shall have submitted six consecutive quarterly reports, the reported number of Residential Customers and Residential Customer equivalents of the City shall be determined as provided in this subparagraph (b). On or before the tenth day of each month beginning with the month prior to the month in which sewage from the City is first delivered to Metro, the City shall submit a written statement of the number of Residential Customers and Residential Customer equivalents estimated to be billed by the City during the

next succeeding month. For the purpose of determining the basic reported number of Residential Customers and Residential Customer equivalents of the City for such next succeeding month, Metro may at its discretion adopt either such estimate or the actual number of Residential Customers and Residential Customer equivalents reported by the City as of the last day of the next to the last preceding reported quarter. After the City shall have furnished six consecutive quarterly reports the reported number of Residential Customers and Residential Customer equivalents of the City shall be determined as provided in the immediately preceding subparagraph (a).

(c) If the City shall fail to submit the required monthly and/or quarterly reports when due, Metro may make its own estimate of the number of Residential Customers and Residential Customer equivalents of the City and such estimate shall constitute the reported number for the purpose of determining sewage disposal charges.

3. The monthly sewage disposal charge payable to Metro shall be determined as follows:

(a) Prior to July 1st of each year Metro shall determine its total monetary requirements for the disposal of sewage during the next succeeding calendar year. Such requirements shall include the cost of administration, operation, maintenance, repair and replacement of the Metropolitan Sewerage System, establishment and maintenance of necessary working capital and reserves, the requirements of any resolution providing for the issuance of revenue bonds of Metro to finance the acquisition, construction or use of sewerage facilities, plus not to exceed 1% of the foregoing requirements for general administrative overhead costs.

(b) To determine the monthly rate per Residential Customer or Residential Customer equivalent to be used

during said next succeeding calendar year, the total monetary requirements for disposal of sewage as determined in subparagraph 3(a) of this section shall be divided by twelve and the resulting quotient shall be divided by the total number of Residential Customers and Residential Customer equivalents of all Participants for the October-December quarter preceding said July 1st; provided, however, that the monthly rate shall not be less than Two Dollars ($2.00) per month per Residential Customer or Residential Customer equivalent at any time during the period ending July 31, 1972.

(c) The monthly sewage disposal charge paid by each Participant to Metro shall be obtained by multiplying the monthly rate by the number of Residential Customers and Residential Customer equivalents of the Participant. An additional charge may be made for sewage or wastes of unusual quality or composition requiring special treatment, or Metro may require pretreatment of such sewage or wastes.

4. The parties acknowledge that, by resolution of the Metropolitan Council, Metro may impose a charge or charges directly on the future customers of a Participant for purposes of paying for capacity in Metropolitan Sewage Facilities and that such charges shall not constitute a breach of this agreement or any part thereof. The proceeds of said charge or charges, if imposed, shall be used only for capital expenditures or defeasance of outstanding revenue bonds prior to maturity.

In the event such a charge or charges are imposed, the City shall, at Metro's request, provide such information regarding new residential customers and residential customer equivalents as may be reasonable and appropriate for purposes of implementing such a charge or charges.

5. A statement of the amount of the monthly sewage disposal charge shall be submitted by Metro to each

Participant on or before the first day of each month and payment of such charge shall be due on the last day of such month. If any charge or portion thereof due to Metro shall remain unpaid for fifteen days following its due date, the Participant shall be charged with and pay to Metro interest on the amount unpaid from its due date until paid at the rate of 6% per annum, and Metro may, upon failure to pay such amount, enforce payment by any remedy available at law or equity.

6. The City irrevocably obligates and binds itself to pay its sewage disposal charge out of the gross revenues of the sewer system of the City. The City further binds itself to establish, maintain and collect charges for sewer service which will at all times be sufficient to pay all costs of maintenance and operation of the sewer system of the City, including the sewage disposal charge payable to Metro hereunder and sufficient to pay the principal of and interest on any revenue bonds of the City which shall constitute a charge upon such gross revenues. It is recognized by Metro and the City that the sewage disposal charge paid by the City to Metro shall constitute an expense of the maintenance and operation of the sewer system of the City. The City shall provide in the issuance of future sewer revenue bonds of the City that expenses of maintenance and operations of the sewer system of the City shall be paid before payment of principal and interest of such bonds. The City shall have the right to fix its own schedule of rates and charges for sewer service provided that same shall produce revenue sufficient to meet the covenants contained in this Agreement.

Section 2. Amendment of Section 6 of the Basic Agreement. Section 6 of the Basic Agreement is hereby amended to read as follows:

"Section 6. Responsibility of the City. The City shall be responsible for the delivery to the Metropolitan Sewerage System of sewage collected by the City, for construction, maintenance and operation of Local Sewerage Facilities, and for the payment of all costs incident to the collection of such sewage and its delivery to the Metropolitan Sewerage System.

In addition, the City will undertake continual rehabilitation and replacement of its local sewage facilities for purposes of preventing, reducing and eliminating the entry of extraneous water into such facilities and will expend annually, averaged over five (5) years, an amount equal to two (2) cents per inch of diameter per foot of its local sewage facilities, excluding combined sewers and force mains, for said rehabilitation and replacement. The amount of this expenditure requirement may be increased from time to time by the Metropolitan Council to reflect general inflation. Rehabilitation and replacement projects undertaken pursuant to this section shall be constructed in accordance with criteria adopted by the Metropolitan Council and included in Metro's Rules and Regulations. In the event the City fails to comply with the rehabilitation and replacement expenditure requirements described in this section, the City shall pay such charge as may be determined by Metro for quantities of storm or ground water entering its Local Sewage Facilities in excess of the minimum standard established by the general Rules and Regulations of Metro.

Section 3. Amendment of Basic Agreement to Add a New Section. A new Section 18 shall be added to the Basic Agreement to read as follows:

"Section 18. Future Amendments. The City agrees to amend and hereby concurs in any amendment to this agreement which incorporates any changes in the terms for

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CITY OF ISSAQUAH

MUNICIPALITY OF METROPOLITAN SEATTLE

AMENDMENT TO AGREEMENT
FOR SEWAGE DISPOSAL

THIS AMENDMENT made as of the ~~4th~~ 2nd day of ~~December~~ October, ~~1989~~ 1992, between the City of Issaquah, a municipal corporation of the State of Washington (hereinafter referred to as the "City") and the Municipality of Metropolitan Seattle, a metropolitan municipal corporation of the State of Washington (hereinafter referred to as "Metro");

WITNESSETH:

WHEREAS, the parties have entered into a long term Agreement for Sewage Disposal dated April 1, 1965 (hereinafter referred to as the "Basic Agreement"); and

WHEREAS, an advisory committee composed of elected and appointed officials in the metropolitan area was appointed by the Metropolitan Council to examine the structure of Metro's charges to its participants; and

WHEREAS, said advisory committee, following extensive research, study and deliberations, has recommended certain changes in the structure of Metro's charges to its participants and implementation of said changes requires amendment of the Basic Agreement; and

WHEREAS, the parties have determined that the recommendations are in the best public interest and therefore desire to amend said Basic Agreement to implement said recommendations;

NOW, THEREFORE, it is hereby agreed as follows:

Section 1. Amendment of Section 5 of the Basic Agreement. Section 5 of the Basic Agreement is hereby amended to read as follows:

"Section 5. Payment for Sewage Disposal. For the disposal of sewage hereafter collected by the City and delivered to Metro the City shall pay to Metro on or before the last day of each month during the term of this Agreement, a sewage disposal charge determined as provided in this Section 5.

1. For the quarterly periods ending March 31, June 30, September 30 and December 31 of each year every Participant shall submit a written report to Metro setting forth:

(a) the number of Residential Customers billed by such Participant for local sewerage charges as of the last day of the quarter,

(b) the total number of all customers billed for local sewerage charges by such Participant as of such day, and

(c) the total water consumption during such quarter for all customers billed for local sewerage charges by such Participant other than Residential Customers.

The quarterly water consumption report shall be taken from water meter records and may be adjusted to exclude water which does not enter the sanitary facilities of the customer. Where actual sewage flow from an individual customer is metered, the metered sewage flows shall be reported in lieu of adjusted water consumption. The total quarterly water consumption report in cubic feet shall be divided by 2,250 to determine the number of Residential Customer equivalents represented by each Participant's customers other than single family residences.

Metro shall maintain a permanent record of the quarterly customer reports from each Participant.

The City's first quarterly report shall cover the first quarterly period following the date when sewage is first delivered to Metro and shall be submitted within thirty days following the end of the quarter. Succeeding reports shall be made for each quarterly period thereafter and shall be submitted within thirty (30) days following the end of the quarter.

2. (a) To form a basis for determining the monthly sewage disposal charge to be paid by each Participant during any particular quarterly period, Metro shall ascertain the number of Residential Customers and Residential Customer equivalents of each Participant. This determination shall be made by taking the sum of the actual number of Residential customers reported as of the last day of the next to the last preceding quarter and the average number of Residential Customer Equivalents per quarter reported for the four quarters ending with said next to the last preceding quarter, adjusted for each Participant to eliminate any Residential Customers or Residential Customer equivalents whose sewage is delivered to a governmental agency other than Metro or other than a Participant for disposal outside of the Metropolitan Area.

(b) For the initial period until the City shall have submitted six consecutive quarterly reports, the reported number of Residential Customers and Residential Customer equivalents of the City shall be determined as provided in this subparagraph (b). On or before the tenth day of each month beginning with the month prior to the month in which sewage from the City is first delivered to Metro, the City shall submit a written statement of the number of Residential Customers and Residential Customer equivalents estimated to be billed by the City during the

next succeeding month. For the purpose of determining the basic reported number of Residential Customers and Residential Customer equivalents of the City for such next succeeding month, Metro may at its discretion adopt either such estimate or the actual number of Residential Customers and Residential Customer equivalents reported by the City as of the last day of the next to the last preceding reported quarter. After the City shall have furnished six consecutive quarterly reports the reported number of Residential Customers and Residential Customer equivalents of the City shall be determined as provided in the immediately preceding subparagraph (a).

(c) If the City shall fail to submit the required monthly and/or quarterly reports when due, Metro may make its own estimate of the number of Residential Customers and Residential Customer equivalents of the City and such estimate shall constitute the reported number for the purpose of determining sewage disposal charges.

3. The monthly sewage disposal charge payable to Metro shall be determined as follows:

(a) Prior to July 1st of each year Metro shall determine its total monetary requirements for the disposal of sewage during the next succeeding calendar year. Such requirements shall include the cost of administration, operation, maintenance, repair and replacement of the Metropolitan Sewerage System, establishment and maintenance of necessary working capital and reserves, the requirements of any resolution providing for the issuance of revenue bonds of Metro to finance the acquisition, construction or use of sewerage facilities, plus not to exceed 1% of the foregoing requirements for general administrative overhead costs.

(b) To determine the monthly rate per Residential Customer or Residential Customer equivalent to be used

during said next succeeding calendar year, the total monetary requirements for disposal of sewage as determined in subparagraph 3(a) of this section shall be divided by twelve and the resulting quotient shall be divided by the total number of Residential Customers and Residential Customer equivalents of all Participants for the October-December quarter preceding said July 1st; provided, however, that the monthly rate shall not be less than Two Dollars ($2.00) per month per Residential Customer or Residential Customer equivalent at any time during the period ending July 31, 1972.

(c) The monthly sewage disposal charge paid by each Participant to Metro shall be obtained by multiplying the monthly rate by the number of Residential Customers and Residential Customer equivalents of the Participant. An additional charge may be made for sewage or wastes of unusual quality or composition requiring special treatment, or Metro may require pretreatment of such sewage or wastes.

4. The parties acknowledge that, by resolution of the Metropolitan Council, Metro may impose a charge or charges directly on the future customers of a Participant for purposes of paying for capacity in Metropolitan Sewage Facilities and that such charges shall not constitute a breach of this agreement or any part thereof. The proceeds of said charge or charges, if imposed, shall be used only for capital expenditures or defeasance of outstanding revenue bonds prior to maturity.

In the event such a charge or charges are imposed, the City shall, at Metro's request, provide such information regarding new residential customers and residential customer equivalents as may be reasonable and appropriate for purposes of implementing such a charge or charges.

5. A statement of the amount of the monthly sewage disposal charge shall be submitted by Metro to each

Participant on or before the first day of each month and payment of such charge shall be due on the last day of such month. If any charge or portion thereof due to Metro shall remain unpaid for fifteen days following its due date, the Participant shall be charged with and pay to Metro interest on the amount unpaid from its due date until paid at the rate of 6% per annum, and Metro may, upon failure to pay such amount, enforce payment by any remedy available at law or equity.

6. The City irrevocably obligates and binds itself to pay its sewage disposal charge out of the gross revenues of the sewer system of the City. The City further binds itself to establish, maintain and collect charges for sewer service which will at all times be sufficient to pay all costs of maintenance and operation of the sewer system of the City, including the sewage disposal charge payable to Metro hereunder and sufficient to pay the principal of and interest on any revenue bonds of the City which shall constitute a charge upon such gross revenues. It is recognized by Metro and the City that the sewage disposal charge paid by the City to Metro shall constitute an expense of the maintenance and operation of the sewer system of the City. The City shall provide in the issuance of future sewer revenue bonds of the City that expenses of maintenance and operations of the sewer system of the City shall be paid before payment of principal and interest of such bonds. The City shall have the right to fix its own schedule of rates and charges for sewer service provided that same shall produce revenue sufficient to meet the covenants contained in this Agreement.

Section 2. Amendment of Section 6 of the Basic Agreement. Section 6 of the Basic Agreement is hereby amended to read as follows:

"Section 6. Responsibility of the City. The City shall be responsible for the delivery to the Metropolitan Sewerage System of sewage collected by the City, for construction, maintenance and operation of Local Sewerage Facilities, and for the payment of all costs incident to the collection of such sewage and its delivery to the Metropolitan Sewerage System.

In addition, the City will undertake continual rehabilitation and replacement of its local sewage facilities for purposes of preventing, reducing and eliminating the entry of extraneous water into such facilities and will expend annually, averaged over five (5) years, an amount equal to two (2) cents per inch of diameter per foot of its local sewage facilities, excluding combined sewers and force mains, for said rehabilitation and replacement. The amount of this expenditure requirement may be increased from time to time by the Metropolitan Council to reflect general inflation. Rehabilitation and replacement projects undertaken pursuant to this section shall be constructed in accordance with criteria adopted by the Metropolitan Council and included in Metro's Rules and Regulations. In the event the City fails to comply with the rehabilitation and replacement expenditure requirements described in this section, the City shall pay such charge as may be determined by Metro for quantities of storm or ground water entering its Local Sewage Facilities in excess of the minimum standard established by the general Rules and Regulations of Metro.

Section 3. Amendment of Basic Agreement to Add a New Section. A new Section 18 shall be added to the Basic Agreement to read as follows:

"Section 18. Future Amendments. The City agrees to amend and hereby concurs in any amendment to this agreement which incorporates any changes in the terms for

CITY OF ISSAQUAH

KING COUNTY

AMENDMENT TO AGREEMENT FOR SEWAGE DISPOSAL

THIS AGREEMENT made as of the 7th day of May, 2007 between the City of Issaquah, a municipal corporation of the State of Washington (hereinafter referred to as "the City") and King County, a political subdivision of the State of Washington (hereinafter referred to as "the County");

WITNESSETH:

WHEREAS, the City and the County have entered into a long term agreement for sewage disposal dated April 1, 1965 as amended and previously extended (hereinafter referred to as the "Basic Agreement") and the County has proposed certain changes to, and a second extension of, the Basic Agreement; and

WHEREAS, the extension of the Basic Agreement will ensure that the County is able to obtain the most favorable bond financing terms for necessary improvements to the region's wastewater treatment system and will therefore ensure the lowest possible sewer rates and sewage treatment capacity charges for the system's ratepayers, and

WHEREAS, the City concurs that said proposed changes and extension are in the best interest of the parties and the citizens of the Metropolitan Area;

NOW, THEREFORE, IT IS HEREBY AGREED AS FOLLOWS:

Section 1. Amendment of Basic Agreement—Section 5.3. Section 5.3 of the Basic Agreement is hereby amended by adding the following new subparagraph d).

"d) An additional charge may be made to recover unforeseen costs to operate and maintain the metropolitan sewerage system or meet debt requirements if the county executive declares and the county council by a supermajority vote (two thirds of members) finds that an emergency exists and the system cannot be adequately maintained, and debt requirements or debt

policies met, without such additional charge. The additional charge shall then be effective no earlier than the first day of the fourth month following the emergency declaration described in this subparagraph 3.d) and shall be billed and collected in the same manner as the monthly rate referenced in subparagraph 3.c). The additional charge described in this paragraph 3.d) may be incorporated into the next rate setting cycle but will otherwise terminate within twelve months of the date approved. The additional charge described in this subparagraph 3.d) shall not be made until and unless it also conforms to the sewage disposal agreements with all remaining Participants."

Section 2. Amendment of Basic Agreement—Section 5.4. Section 5.4 of the Basic Agreement is hereby amended to read as follows:

"4. The County (-may-) *shall* impose a charge or charges *(hereinafter the capacity charge)* directly on the future customers of a Participant for purposes of paying for capacity in Metropolitan Sewerage Facilities. The proceeds of (-said-) *the capacity* charge shall be used only for capital expenditures or defeasance of outstanding revenue bonds prior to maturity. *The capacity charge shall be set at a level to ensure that, in combination with the monthly sewer rate described in subsection 3 above, 95% of the costs incurred to provide the wastewater conveyance, treatment and biosolids capacity to serve new customers are recovered from new customers.*

The City shall, at the County's request, provide such information regarding new Residential Customers and Residential Customer Equivalents as may be reasonable and appropriate for purposes of implementing the capacity charge."

Section 3. Amendment of the Basic Agreement—Section 18. Section 18 of the Basic Agreement is hereby amended to read as follows:

"Section 18. Future Amendments. The City agrees to amend and hereby concurs in any amendment to this agreement which incorporates any changes in the terms for sewage disposal and payment therefore as may be proposed by the County and agreed to by those Participants that

shall represent, in total, not less than 90% of the residential customers and residential customer equivalents then served by the Metropolitan Sewerage System *and 90% of the Participants*."

Section 4. Amendment of Basic Agreements with other Participants. If the Basic Agreements with any other Participants are amended or otherwise modified to include terms, conditions, or provisions not included in this amendment, the City shall be notified and shall have the option of incorporating said terms, conditions or provisions into its Basic Agreement. The County shall then expedite and approve any amendments to the Basic Agreement as may be necessary and appropriate for such purpose.

Section 5. Extension of Basic Agreement. The Agreement for Sewage Disposal between the City of Issaquah and King County dated April 1, 1965, as amended, is hereby extended for a period of twenty years and shall continue in full force and effect until July 1, 2056. The agreement dated April 1, 1965, as subsequently amended and extended shall constitute the entire Agreement for Sewage Disposal between the parties.

IN WITNESS WHEREOF, the parties have executed this agreement as of the day and year first written above; said agreement to be effective upon execution.

City of Issaquah

By Ava Frisinger

Title MAYOR

Attest:

Christine Frisz

King County

By Pam Bissonnette 5/25/07

Title Director
Dept. Natural Resources and Parks

Attest:

# Appendix C

# Comprehensive Plan Policies

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# utilities and public services element

## INTRODUCTION

The Utilities and Public Services Element addresses the City's desire to have safe, reliable and cost effective utilities and public services, and to ensure utility projects are as aesthetically compatible with adjacent land uses as possible. This Element also provides guidance for focusing future utility facilities where they are or will be most needed and for targeting future development in areas where utilities and services are available. As required by the Growth Management Act, this element includes (by reference) the general location and capacity of existing and proposed utilities and public services. Funding requirements for public services are addressed in the Capital Facilities Element.

## UTILITIES and PUBLIC SERVICES VISION

The City's vision is fourfold:

1. Ensure City utilities are maintained and improved while minimizing disruptions to affected areas when utility improvements and new construction are required.
2. Coordinate utilities and public facilities to ensure needed utility services will be available when development occurs.
3. Encourage utility conservation efforts that minimize demand for natural resources.
4. Provide efficient and cost-effective public services.

## STATE REQUIREMENTS

### growth management act requirements

The Growth Management Act (GMA) lists planning goals that shall "guide the development and adoption of comprehensive plan and development regulations" (RCW[1] 36.70A.020). Not all the GMA planning goals directly relate to the Utilities and Public Services Element; however, the planning goals specific to this element are:

**GMA-1.** Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.

**GMA-2.** Ensure that those public facilities necessary to support development shall be adequete to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.

In addition to the planning goals, the Growth Management Act requires the Utilities Element to:

**GMAL-1.** Show the general location, proposed location, and capacity of all existing and proposed utilities, including, but not limited to electrical lines, telecommunication lines, and natural

[1] Revised Code of Washington

gas lines.

# GOALS AND POLICIES

## level of service and future needs

**Goal A. Facilitate the development of all utilities and public services at the appropriate levels of service to accommodate Issaquah's planned growth and ensure reliability of utilities and public services.**

### discussion

The City of Issaquah provides a variety of utility services, including water, sewer and stormwater. Investor owned private utilities, such as solid waste removal, cable, gas, electric and telecommunications, serve the City under franchise or other agreements. Availability of utilities is an important factor considered by developers when deciding where, when and whether to build. Having adequate utilities is also important to people who live or work in Issaquah. Therefore, land use and utility policies and a partnership of community conservation efforts and sustainable practices of City operations can work together to help achieve Issaquah's vision for the sustainable future of the community.

**U Policy A1** Fund and develop utility and public services capital projects consistent with the growth projections within the Land Use Element and funding strategies within the Capital Facilities Element.

**U Policy A2** Ensure utility provision maximizes public safety, minimizes adverse environmental impacts, and is compatible with surrounding land uses. Balance public concerns over the potential safety and health impacts of utility and public service infrastructure, consumers' interest in paying a fair and reasonable price for the utility and public service provider's product or service, the natural environment and the potential impacts of utility or public service infrastructures, and the community's desire that utility and public service projects be aesthetically compatible with surrounding land uses.

**U Policy A3** Conduct City operations in a manner that leads by example through activities, such as recycling, water conservation, energy conservation and low-impact development processes whenever possible.

**U Policy A4** Manage public facilities systems in order to provide reliable, quality service and require that the location, type and size of all public facilities be determined and/or approved by the City.

## utility planning for future needs

**Goal B. Integrate utility plans and the Land Use Element to ensure that utility services are available to support development that is consistent with anticipated growth targets.**

### discussion

To balance capital expenditures with revenues and still maintain established service standards, new development will have to pay for the portion of facility improvements related to its level of demand on the system. In this way, both development money and City funds have a role in building the City's capital infrastructure.

**U Policy B1** Require annexations before extending City public services, with the exception that extensions outside the City may be made in response to State Department of Health or other applicable health emergency or threat to the City aquifer.

**U Policy B2** Require development to pay for or construct the growth-related portion of infrastructure needs.

**U Policy B3** Determine utility infrastructure necessary for a given development concurrently with site plan entitlement.

**U Policy B4** Promote the efficiency of utility placement both in cost and timing through methods such as:

a. collocate public and private utilities in shared trenches or utility corridors where possible;
b. coordinate facility planning so utilities may locate in transportation corridors and other dedicated rights-of-way**;**
c. provide timely notice to utilities or coordinate with them when construction/repair of existing and new roadway, bridges or sidewalks is anticipated;
d. provide expeditious permitting, recognizing that avoiding utility project delay can minimize service disruptions and associated costs for residents and business;
e. design new public infrastructure to allow for projected future utilities that may be placed within those facilities at a later time; and
f. encourage joint use of utility corridors for utilities, recreation and appropriate nonmotorized connections.

## water

**Goal C. Provide for the City's immediate and long term water needs by: protecting the aquifer and recharge areas; providing reliable levels of water service for domestic use and fire protection; and ensuring future water supplies by implementing conservation and reuse measures and pursuing additional sources.**

### discussion

**Existing Conditions**

The City manages its water utility in accordance with established water system policies and criteria that govern various facets of utility operations through the City's adopted Water System

Plan. These policies guide the development and financing of water system infrastructure and provide guidance on how the utility designs the desired level of service while working within a geographically and environmentally challenged area. While the City has discretion in setting performance, design and standards criteria for its water system, the criteria must meet or exceed the minimum standards for public water systems set by the State Department of Health through WAC Chapter 246-290. Used together, the criteria provide the desired level of service to water utility customers.

The policies described in the City's Water System Plan are established by the City to provide the water utility a framework for design, operation and ongoing maintenance. The policies seek to provide uniform treatment to all utility customers and to provide information to current water system customers, as well as those considering service from the City. The Water System Plan provides the criteria needed to implement the policies established for the water system and a measuring tool to identify any areas of the existing system that need to be improved to achieve the desired level of customer service.

The City has defined a "Retail Service Area" of approximately 8.4 square miles, representing the area of existing and near-term future service. However, not all areas of the City are currently served. The Water System Plan shows major components of the existing water system. Future facilities needed for future growth are proposed in the City's Capital Facilities Element and the Capital Improvement Plan.

**Water Supply**

Currently, the City gets most of its potable water from groundwater. The primary source of this groundwater is the Lower Issaquah Creek Basin Aquifer System, which lies below the valley floor. It is of vital importance for the City to protect the quality and quantity of water that enters the aquifer. Water quality is routinely monitored at the wellheads, and the aquifer currently produces exceptionally pure water. Threats to the aquifer include inappropriate development, stormwater runoff and potential hazardous spills along transportation corridors. This aquifer also supplies a substantial amount of water to the Sammamish Plateau Water and Sewer District (SPWSD). Coordination with the SPWSD and other adjacent agencies is an important part of aquifer protection since a significant portion of the recharge area lies outside the jurisdiction of the City.

The City also receives water purchased from the Cascade Water Alliance. This water enters the city system through the Highlands Regional Intertie and is blended with the city's groundwater supplies. A second intertie, the Talus Regional Intertie, is also in place to connect to regional water, but is unused at this time. In addition, the Montreux and Lakemont Triangle areas are served by interties with the City of Bellevue.

**Future Conditions**

Projected increases to population and commercial/ industrial land uses during the planning period within the City's service area and potential annexation areas will result in an increase in the demand for potable water. The City will need to develop alternative ways to meet future demands, in the event that additional groundwater rights cannot be obtained. The City participates in the Cascade Water Alliance, a regional water cooperative, to supply water. The transmission main for regional water has been constructed from Bellevue to Issaquah. If additional supply is not acquired, other methods may include a combination of conservation,

connections with adjacent purveyors, and wastewater reuse. Further, as part of a wellhead protection program the City should continue to investigate and develop a redundant water supply source, which can be used in case any of its wells should become unusable for any reason.

To meet the needs of additional growth within the existing service area, improvements to storage facilities and mains, and regular maintenance of the utility will be required.

**U Policy C1** Under the 2003 Municipal Water Law (RCW43.20.260), the City is required to plan for and provide direct retail water service to all properties within the City's retail service area as defined by the adopted Water System Plan Update, Chapter 2.

**U Policy C2** The City will provide water system service extensions if:
1. The development is within the City's retail service area, and;
2. The development is consistent with all adopted codes and policies, including the provisions of Issaquah Municipal Code (IMC) 13.88 as now exists or as hereafter may be amended, and;
3. A parcel meets special circumstances as defined with this Water Comprehensive Plan and codes, and;
4. The service extension shall have no cost to the City except as it chooses to participate to benefit the overall system.

**U Policy C3** The City will require the provision of adequate water system facilities by the applicable public or existing privately-owned community provider as a condition for approval for all development applications.

**U Policy C4** The City will provide direct service to water system customers within the City service area. If no other options are deemed feasible by the City, the City may enter into a satellite system written agreement with the satellite water system owner.

**U Policy C5** Certificates of Water Availability shall only be issued if the Public Works Director determines that there is potential for a significant shortage of available water supply therefore necessitating the need to track supply quantities available to serve customers within the service area.

**U Policy C6** The City requires ownership by the City of the service line leading from the main to the meter, the meter itself, and the meter box. The property owner shall own and maintain the service line and other facilities such as pressure reducing valves, pumps, or cross-connection devices beyond the meter. Where onsite fire hydrants are required, the City shall own the mains and hydrants. Easements shall be acquired for the mains and hydrants including that portion located on public property. Fire suppression system lines on private property are the responsibility of the property owner beginning at the first valve off of the City's water main.

**U Policy C7** The City's goal is to provide domestic water to all utility customers in sufficient quantity to meet demand conditions at a pressure that meets or exceeds minimum applicable regulations, except during emergency conditions. For new developments, a higher-pressure requirement is imposed as detailed in the Water System Planning and Design, Section 3.7.

**U Policy C8** The City will provide water that meets all state and federal water quality standards to all water system customers.

**U Policy C9** The City will invest the resources necessary to construct, maintain and rehabilitate water system infrastructure and equipment to ensure that customers are provided consistent, reliable service in accordance with WAC 246-290-420. In addition, all new developments shall meet the requirements set forth in WSP Policy 3.7.3, Water System Planning and Design).

**U Policy C10** The City will provide, maintain, and improve the infrastructure system necessary to supply water for firefighting purposes to all utility customers. The water supply shall meet or exceed all minimum applicable standards and regulations for fire flow, storage and peak-use periods, except under emergency conditions created by major disasters such as earthquake or flood.

**U Policy C11** Fire flow requirements for building-specific fire flow and the municipal water system level of service must both be provided as a condition of development and as a condition of any extension of the City water system.

**U Policy C12** The minimum fire flow requirements for existing structures and uses or occupancies are those that were required at the time of permit issuance, as determined by the City. For existing water system infrastructure upgrades, the City may allow pump stations to supplement fire flow volume provided by storage if the additional pumping does not degrade other pressure zones.

**U Policy C13** As resources become available, the City shall make water system improvements to meet current fire flow criteria. When prioritizing and scheduling system improvements, the City Capital Facilities planning procedures will consider the severity of deficiencies. The City seeks opportunities to make improvements in conjunction with other City projects to achieve economic efficiency. The City will only correct existing velocity deficiencies when other deficiencies exist.

**U Policy C14** Regularly update the Emergency Management Plan as part of the City's operations program. The Plan will assist in verifying that adequate emergency provisions are in place to provide for and organize responses to the most likely kinds of emergencies that may endanger public health and safety or operation of the water system, and will focus on problems created by major disasters, such as earthquakes, wind storms, or floods.

**U Policy C15** Take reasonable actions to increase the probability that the essential needs of its customers are met and that available supplies are equitably distributed to all

affected customers in the event of a water supply shortage caused by a drought or supply interruption.

**U Policy C16** The City will coordinate and cooperate with other adjacent and regional water purveyors and state regulators to identify, protect and maintain a reliable and sustainable water supply. Withdrawals from the aquifer greater than the sustainable yield for water supply needed to meet concurrency requirements shall not be allowed as per water rights law.

**U Policy C17** The City shall assume (or use some other method) municipal and special purpose district water utilities to provide direct retail service within the City of Issaquah Corporate Limits. Work cooperatively with neighboring municipalities and special purpose districts during the assumption of special purpose districts within the City limits or potential annexation areas.

**U Policy C18** Support emergency interties with adjacent water systems where there is a benefit to the water systems.

**U Policy C19** The City will consider water supply interties on a case-by-case basis.

**U Policy C20** Allow wheeling water (transporting water through the City water system for the benefit of another municipality or special-purpose district) if the proposal supports regional water supply needs, is consistent with adopted City policies, and is at no cost to the City except as it chooses to participate to benefit the overall system.

**U Policy C21** Participate in a mutual aid agreement. Coordinate and cooperate with adjacent and regional water purveyors and state regulators to identify, protect and maintain a reliable and sustainable water supply.

**U Policy C22** Pursue a combination of strategies to extend existing water supplies and obtain additional new sources of water supply needed to meet the needs of the City that balance the environmental and economic cost.

**U Policy C23** The Council should consider and evaluate blending of water supplies to meet the demands projected within the City based on future demand forecasts. Approval by the City Council of the blending of water supplies for these purposes shall be considered, if beneficial. The City may blend water supplies in emergency situations if needed to stay in compliance with State law or when supply is needed.

**U Policy C24** Plan and design water system facilities that can deliver continuous, safe water supply to meet customer demands under normal conditions, consistent with all applicable federal, state and local regulations. If the water system facilities are required to be installed or up-graded as a result of a developer's impact, this shall be accomplished at the developer's expense.

**U Policy C25** Design and operate water system facilities to minimize total life cycle costs of facility construction, operation and maintenance. Design and operations of facilities should also minimize negative environmental impacts, energy use, and associated air and climate emissions. The water utility should conduct audits of the water system and identify, prioritize and implement associated improvements which meet sustainability objectives. Regularly monitor energy use and consider renewable energy systems where appropriate.

**U Policy C26** Develop, implement, monitor and adapt: programs, procedures and practices to improve and protect water quality, habitat, the aquifer and other environmental values in areas where the City must construct, operate, maintain, or replace water system infrastructure.

**U Policy C27** Implement the Wellhead Protection Program to protect the City's groundwater supplies from degradation (based on the Wellhead Protection Plan (Golder Associates)) and coordinate implementation with SPW. These methods shall include but not be limited to:
1. Regulation of land use;
2. Public outreach and education;
3. Construction of capital facilities in appropriate areas, which will aid in protection of the wellheads.

**U Policy C28** Facility abandonment will be conducted in a safe and environmentally sound manner, consistent with all applicable federal, state and local regulations at the time of abandonment. Abandoning water system infrastructure shall not leave remaining, unutilized, pressurized sections since this may become a source of leaks, breaks, and/or contamination.

**U Policy C29** Continue implementation and enhance the current conservation program that addresses the need for adequate supply and protection of water resources. Water conservation measures shall be consistent with, and strive to exceed, all local, state, and federal laws and regulations, as well as any contractual obligations of any water purchase agreements that Issaquah is party to.

**U Policy C30** Limit the amount of well production such that it does not exceed the City's water rights. The City shall monitor water consumption to ensure that there is sufficient warning of production that approaches water right constraints.

**U Policy C31** Identify, protect and maintain the sustainable yield of the aquifer in order to avoid permanently affecting water tables in a manner which would damage related ecosystems.

**U Policy C32** Minimize risk, protecting the aquifer recharge quantity and quality through the regulation of types of land use allowed, encouraging low impact development, and requiring mitigation for land uses within the identified recharge areas and wellhead capture zones. The City should promote and participate in aquifer recharge storm infiltration projects within the aquifer recharge area and wellhead capture zones.

**U Policy C33** Design, develop, construct, operate and maintain new development in such a manner as to encourage for efficient and non-wasteful use of water that incorporates the best available proven water conservation technology prevailing at the time of development.

**U Policy C34** Issaquah will support Cascade Water Alliance's (CWA) study of reclaimed water use opportunities and will work with CWA and others to identify potential reclaimed water demand.

**U Policy C35** Manage the water utility funds and resources in a manner that is in compliance with applicable laws, regulations and city financial policies.

**U Policy C36** Maintain the water utility fund as a self-supporting enterprise fund. General Fund revenues may also be used to fund water utility programs if specifically budgeted.

**U Policy C37** Fund the Capital Improvement Program (CIP) at a level necessary to ensure system integrity over the long term to allow the water system to function well both today and into the future.

**U Policy C39** Maintain fees and charges to recover City costs related to development. General Facility Charges (GFCs) shall be charged to all new development properties to reimburse the utility for historical and future asset investments that provide overall benefits to the City's water system.

**U Policy C40** Establish Water Rate levels, to be reviewed annually, that cover utility expenses, infrastructure improvements, encourage conservation and maintain reserves.

**U Policy C41** Evaluate Water Rate levels, to be reviewed as part of the water utility budgeting process.

**U Policy C42** Support water conservation and wise use of water resources objectives. The water rate structure shall allocate costs equitably among customers.

**U Policy C43** Operate the water system in compliance with applicable laws and regulations in a manner that minimizes operational costs to the City.

**U Policy C44** Provide rate assistance programs for low-income senior citizens and other low-income customers.

**U Policy C45** Maintain water utility cash balances to serve as a contingency reserve fund.

**U Policy C46** Pursue an asset management approach to evaluating and managing capital investments and infrastructure operations and maintenance in order to reduce overall total life cycle costs of the water system while meeting level of service standards, environmental and sustainability goals and regulatory requirements.

## sewer utility

**Goal D. Provide and maintain a sanitary sewer collection system that protects public health and safety and water quality.**

### discussion

The City's policy is to provide direct retail sewer services to all customers within the City limits. Within the City's service area there are several areas that remain unsewered due to physical difficulties associated with bringing in sewer lines (such as the need to construct pump stations in low-lying areas).

As the regional sewerage authority, King County Department of Natural Resources, Division of Wastewater Treatment and Disposal (King County) provides transmission, treatment and disposal of Issaquah's sewage after it leaves the City system. Sewage from the City is currently discharged into two King County interceptors, the Issaquah and the Issaquah Creek Interceptors.

**Future Conditions**

The City's Sewer Service Plan was updated in 2014 and includes the location and capacity of the existing sewer facilities as well as discussion of future needs. Proposed facilities to meet future growth are within the City's Capital Facilities Plan/Element.

New development in the City is required to tie in to sanitary sewer lines. Older development in the city served by septic systems will continue to rely on septic systems until sewer service is extended.

**U Policy D1** Require sewer connections for all new developments, provided that the connection does not cause significant adverse environmental impact.

**U Policy D2** Allow existing single family homes with septic systems to continue to use them, provided that the systems are functioning properly, as documented by the Seattle-King County Health Department. All septic systems in the City shall be monitored according to Seattle-King County Department of Health regulations.

**U Policy D3** The goals and policies of the Sewer System Plan update, as currently adopted, are incorporated here by reference.

## surface water drainage (stormwater) utility

**Goal E. Protect public health and safety by providing and maintaining the municipal stormwater collection and treatment systems by managing the quantity and improving the water quality of discharges, ensuring private discharges meet water quality standards, managing and mitigating floodplain hazards, and protecting and improving aquatic habitat.**

## discussion

Issaquah's location presents a number of surface drainage concerns, relating to stormwater runoff, flooding, and the resulting impacts on natural resources. These concerns fall primarily under the purview of the City's stormwater utility and are regulated under IMC 13.28, Stormwater Management Policy, IMC 13.30, Stormwater Management Utility, and IMC 16.36, Areas of Special Flood Hazard.

Issaquah's stormwater program currently consists of many separate activities, conducted by the Public Works Operations, Public Works Engineering, and Development Services Departments, associated with stormwater, floodplains, and associated natural resources. This includes operation and repair of the existing public stormwater systems, stormwater and flood protection capital improvement projects, habitat protection and improvement projects, flood warning and flood response actions, resource monitoring of streams and their corridors, public involvement and education (with the assistance of the Office of Sustainability), and permitting and inspection of development. These activities are in response need for public services and safety; federal, state and local regulatory requirements and mandates; and the City's commitment to protecting and improving the quality of its natural resources.

**Lake Sammamish and Issaquah Creek Drainage Basins**

Stormwater and flooding relates to water originating upstream and flowing into the City, as well as water flowing from Issaquah downstream into Lake Sammamish (and further on to Puget Sound). Figure U-1, Municipal Stormwater Basins illustrates the stormwater basins located within Issaquah. Issaquah is located within the larger Lake Sammamish basin which encompasses about 100 square miles, including 63 square miles in the tributary area of the Issaquah and Tibbetts Creek system, and 27 square miles of other creeks draining to the lake; of which City lands cover approximately 11.4 square miles. Therefore Issaquah has to address flows that come through it from approximately 88.6 square miles outside of the City as they pass through it in addition to coordinating its actions with other agencies (King County, City of Bellevue, City of Sammamish) whose drainages impact Lake Sammamish and its shorelines. The Issaquah Creek system represents most of the inflow to the lake and includes several principal streams flowing through Issaquah, including Issaquah Creek, East Fork Issaquah Creek, North Fork Issaquah Creek, and Tibbetts Creek, providing valuable fish and wildlife resources. Other significant streams in the city include Lewis Creek and Laughing Jacobs Creek. These creeks and their tributaries flow from steep headwaters on adjacent foothills to Lake Sammamish.

The larger streams are used by many species of salmon, including two listed as threatened under the Endangered Species Act (Puget Sound chinook salmon and Puget Sound steelhead also). In addition, many smaller streams emanate from the hills surrounding the Issaquah Valley, providing habitat to other fish species such as kokanee salmon and cutthroat trout. Water quality and habitat regulations, including the Department of Ecology's National Pollution Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit, provide many mechanisms to protect and improve water quality and habitat in these streams.

Since local streams and Lake Sammamish overlap into adjacent jurisdictions, including Bellevue, Sammamish, and King County, regional coordination is needed to identify and develop effective programs to ensure protection of these resources and collaborate on efforts to improve and restore them. This includes the Cedar-Sammamish-Lake Washington (WRIA 8) Salmon Recovery Council, the Kokanee Work Group, various stormwater groups, and other involvement in stormwater, flooding, and habitat restoration.

**Stormwater Conveyance and Treatment**
Within Issaquah the storm drainage system is conveyed through open ditches, culverts, and stormwater pipes to outfalls on Issaquah Creek, Tibbetts Creeks, East Fork Issaquah Creek, North Fork Issaquah Creek, Lake Sammamish, and many of their tributaries. Built over time, a variety of public and private stormwater detention basins and water treatment facilities are connected to this system.

Issaquah's "MS4" (municipal separate stormwater system) is divided into six major basins: West Lake, East Lake, Tibbetts Creek, Issaquah Creek East Fork, and North Fork. Those major basins are divided into 51 drainage sub-basins, which each sub-basin typically draining to a single point. Figure U-1, Municipal Stormwater Basins shows these basin and sub-basins. Numerous facilities are located within each sub-basin.

The NPDES Phase II Municipal Stormwater Permit ("Permit") was first issued by the Department of Ecology in 2007 and affects the stormwater utility in many ways, including higher levels of stormwater system maintenance, public education and outreach, illicit discharge detection and elimination, staff training, spill response, increased requirements for new facilities being permitted for development, and other stormwater pollution reduction activities. Permit modifications have expanded the original Permit requirements and in the future the current requirements are anticipated to continue to expand.

**Flooding**
Within Issaquah flooding primarily impacts the largest streams: Issaquah Creek, Tibbetts Creek, East Fork Issaquah Creek, and North Fork Issaquah Creek. The combined floodplain encompasses approximately 380 acres – or about 5 % of the city. Federal Management Agency (FEMA) flood insurance maps term the 100-year floodplain as "areas of special flood hazard", which triggers special building standards to minimize impacts of flooding on structure (e.g., elevating the 1st floor one foot above the 100-year flood level) as well as flood insurance.

Historically, flood impacts and damage increased as development encroached into the floodplain combined with development outside of the flood plain but within the basins displacing farms and forests thereby increasing runoff contributing to flows in the system. Flooding affects many low-lying areas along Issaquah Creek and Tibbetts Creek. The 1996 and 2009 floods, which were both estimated to be 20-year flood events, caused substantial damage to many residential and commercial areas. Impacts of flooding typically start at about the 5 year flood, causing road closures, shallow flooding, and some flooded of structures. Recent flood mitigation projects, including home elevations and redevelopment of Gilman Square, will significantly reduce flood losses as compared to the 1996 and 2009 floods. In addition, over the years the City has acquired over 110 acres of property to remove structures and locally restore floodplain capacities. Such actions help reduce flood risks, mitigate existing flooding problems, improves habitat, and reduces flood insurance costs by improving the City's rating under the FEMA Community Rating System.

**Problems to be Addressed**
Problems within the existing system include: channel erosion in hillside drainage ways, capacity problems under current and future conditions, sediment accumulation during storm events, untreated stormwater runoff impacting streams and Lake Sammamish, aging stormwater pipe

materials, and degraded habitat. These conditions cause flood damage, decrease surface water quality, reduce the effectiveness of storm drainage facilities, and impact natural resources. The Stormwater capital facility plan addresses needed improvements to the stormwater infrastructure, mitigation of flood problems, and habitat improvements. A comprehensive evaluation of needs was addressed in the 2003 Stormwater Management Plan; this plan is proposed to be updated to reflect new information, changing needs, and requirements of the Phase II Permit.

**U Policy E1** Coordinate with local property owners to increase flood protection and improve habitat through both public and private projects.

**U Policy E2** Coordinate with regional jurisdictions and develop/implement floodplain, stormwater, water quality, and habitat management programs to achieve the goals of the Cedar-Sammamish-Lake Washington (WRIA 8) Chinook Salmon Recovery Plan (2005), the Puget Sound Partnership's Puget Sound Action Agenda (2012 and subsequent updates), and Lake Sammamish kokanee recovery.

## private utilities

**Goal F. Coordinate City land use and utility facility planning to ensure consistency, as well as enable utility service providers to meet public service obligations.**

### discussion

**Electricity**

Puget Sound Energy provides electricity to the Issaquah and surrounding areas. Electricity is supplied to the area by 115,000-volt transmission lines located as follows: Talbot-Lake Tradition #1 & #2, Lakeside-Lake Tradition, Lake Tradition, Berrydale-Lake Tradition, Sammamish-Lake Tradition and the Snoqualmie-Lake Tradition #1 & #2. There is also a 230 kV line that runs north to south from the Sammamish Plateau, through Issaquah Highlands and Lake Tradition. The Bonneville Power Administration (BPA) owns this line, but it is operated and maintained by Puget Sound Energy.

To meet the future electrical needs of East King County and to serve Issaquah and its environs, new substations and transmission lines are planned over the next several years. The new substations and transmission lines are planned to provide the needed electricity and to serve the anticipated population growth in the planning area through the year 2031.

**Natural Gas**
Puget Sound Energy, Inc. (PSE) provides gas service to Issaquah and the surrounding areas. PSE purchases the gas from various suppliers in the western United States and Canada, and is transported via a pipeline operated by William - Northwest Pipeline. Most of the homes and businesses throughout Issaquah are served by Puget Sound Energy.

**Telecommunications**
Century Link is the primary land line provider of telephone service and certain related special services (alarm circuits and data transmittal) to the Issaquah area. Numerous wireless providers also provide telecommunication service to the area. Due to changes in regulations by the State Utilities Commission, other providers such as Verizon, Comcast, Sprint, T Mobile, New Cingular, WAVE Broadband, etc., have been able to join in the market ensuring that telecommunication service will continue to be provided as the City moves toward our future housing and business growth projections.

**Cable Television**
Comcast and WAVE Broadband provide cable television service for Issaquah and the surrounding areas.

**U Policy F1** Encourage private utilities to solicit community input on the siting of proposed facilities which may have a significant impact on the surrounding community prior to seeking City approval for facilities.

**U Policy F2** Require that all maintenance, repair and installation activities by utilities are in compliance with the city codes and policies including critical areas regulations.

**U Policy F3** Require the undergrounding of all new electrical distribution lines where it is reasonably feasible and in accordance with State rules, regulations and tariffs.

**U Policy F4** Encourage the consolidation of facilities such as towers, poles, antenna, substation sites, trenches, and easements, and rights-of-way where reasonably feasible and in accordance with prudent utility practice to minimize adverse impacts on adjacent land uses.

**U Policy F5** Decisions regarding utility facilities shall be made consistent with the City's land use goals, regional demand and resources, and shall reinforce an interconnecting regional distribution network.

## solid waste utility

**Goal G. Manage the collection and disposal of solid waste, inclusive of garbage, recyclable materials and compostable materials, in order to protect public health and safety, provide efficient and reliable levels of service preserve environmental quality through pollution prevention and resource conservation and reduce climate impacts.**

discussion

**Existing Conditions**

The City of Issaquah provides for solid waste collection services to all residents and businesses. This includes collections of garbage, recyclable materials and compostable materials (yard debris and food waste). Commercial recycling and compost services are deregulated and are provided to businesses on a competitive basis through a variety of service providers.

Garbage collected in the City is currently delivered to the King County Cedar Hills regional landfill for final disposal primarily through a transfer station located in Factoria. Construction, demolition and landclearing (CDL) debris is taken to regional CDL transfer stations and recyclable materials are delivered to a variety of recovery and processing facilities in the region.

Hazardous wastes generated from small businesses and households are handled through both private collectors and, for households, both private collection services and public collection programs.

**Future Conditions**

Recycling and yard debris programs have achieved a fairly high diversion rate in the residential sector in a relatively short period of time. However, as of 2016, the City is diverting only about 59% of its total municipal solid waste stream – considerable additional effort will be necessary in order to achieve goals. Strategies for increasing waste reduction and recycling activities are included in the King County Comprehensive Solid Waste Plan, adopted by the City. These strategies include: waste prevention, packaging waste reduction, food waste diversion, construction, demolition and landclearing debris recycling, and business recycling.

**U Policy G1** Encourage solid waste reduction, reuse, recycling and composting throughout the City and with new construction and development.

**U Policy G2** Provide a cost-effective, safe, and responsive solid waste collection system for all areas of the City.

**U Policy G3** Reduce the climate impacts of solid waste collection operations, processing and disposal in order to meet or exceed community greenhouse gas emissions reduction targets of an 80% reduction in 2007 emissions by 2050.

**U Policy G4** Reduce the use of toxic and hazardous materials, their release to the environment and disposal in the solid waste stream. Implement programs and policies to reduce material use and improve collection and recycling.

**U Policy G5** Encourage regional coordination on solid waste issues such as waste export, compost facilities and new waste transport technologies in order to ensure viable, cost-effective and environmentally sound long-term options.

**U Policy G6** Coordinate with and encourage developers and contractors to implement comprehensive waste prevention and recycling programs through all phases of development. Minimize the generation of garbage associated with new development and construction and resultant increased residential uses through construction waste management plan submittals, waste management tracking and

appropriate recycling facilities and signage in commercial, residential and multifamily facilities.

**U Policy G7** Encourage and support development of sustainability technologies and innovations which improve management of wastes in order to reduce impacts and increase the value of recovered material resources.

**U Policy G8** Support implementation of targets as adopted in the King County Solid Waste Comprehensive Plan.

## public services

**Goal H. Provide for the City's current and future police and fire protection and emergency medical service needs.**

### discussion

**Fire**

Fire protection services are provided by Eastside Fire and Rescue (EFR), which was created in 1998 when Issaquah Fire Department consolidated with Fire District 10. Eastside Fire and Rescue provides a wide range of services, from fire protection and suppression, to emergency medical services and fire code planning. Today the partners in Eastside Fire and Rescue include Issaquah, Sammamish, North Bend, Fire District 10, and Fire District 38.

The City is currently served by three fire stations located in Olde Town, in the Issaquah Highlands, and on Maple Street adjacent to the Issaquah Transit Center. Eastside Fire and Rescue Headquarters is located on Newport Way. Additional fire stations, if any, needed to serve areas annexed into the City would be determined by studies prior to the proposed annexation. See the Capital Facilities Element for additional information.

**Police**

Police protection services are provided by the City of Issaquah Police Department. The Department handles many types of requests for service and prides itself on being community oriented and in partnership with the citizens in establishing needs. See the Capital Facilities Element for additional information.

**U Policy H1** Evaluate the effect that growth and land use decisions will have on police and fire services and ensure that adequate provisions are made to accommodate the demands of new development.

**U Policy H2** Coordinate land use planning, development review and police protection planning to ensure that adequate police protection services and facilities can be provided for the protection of life, property and maintenance of public safety and peace.

**U Policy H3** Maximize the ability of the police to protect life and property, and maintain public peace and safety through the design of future police facilities.

**U Policy H4** Coordinate land use planning, development review and fire protection planning to ensure that adequate fire protection and emergency medical services can be provided.

**U Policy H5** Support Eastside Fire and Rescue's provision of fire protection, emergency medical services, and fire code planning, engineering, and enforcement and other associated services.

## essential public facilities

**Goal I. Provide a process for the identification, siting, and design of Essential Public Facilities that provides for cooperation with adjacent jurisdictions, and public involvement, and is consistent with RCW 36.70A.200.**

### discussion

The Growth Management Act requires that jurisdictions establish a process for identifying and siting Essential Public Facilities. Essential Public Facilities are those facilities, as defined by state law (RCW 36.70A.200), that are typically difficult to site such as state or regional transportation facilities, correctional facilities, state educational facilities, solid waste handling facilities, group homes, and secure community transition facilities. Figure U-2, Essential Public Facilities identifies those within the City of Issaquah.

**Transportation Facilities**

State and regional transportation facilities are addressed primarily in the Transportation Element. New transportation facilities, if required, will be sited through the process identified in Title 18 of the Issaquah Municipal Code.

**Secure Community Transition Facilities**

Secure Community Transition Facilities (SCTF), as defined in RCW 71.09.020, are less restrictive community based facilities for civilly committed sexual offenders on court ordered conditional release from the Department of Social and Health Services (DSHS) Special Commitment Center. SCTFs are intended to serve as a "next step" in treatment for sex offenders when the court decides that the sex offender has completed the treatment regimen at the Special Commitment Center.

The Department of Social and Health Services has identified how many SCTFs are needed in each county based on a "fair share" concept. The number of facilities that each county that were civilly committed must accommodate is based on a number of sex offenders from each county at the Special Commitment Center pending civil commitment as of April 1, 2001. Although the Growth Management Act requires that the all jurisdictions provide a process for siting and accommodating SCTFs, each jurisdiction is allowed some discretion in locating the facilities within the jurisdictional limits.

**Other Essential Public Facilities**

Siting and design review of other Essential Public Facilities, such as state educational facilities, solid waste handling facilities, and group homes, is established in Title 18 of the Issaquah Municipal Code.

**U Policy I1** Essential public facilities shall be sited and designed to ensure compatibility with the surrounding neighborhood.

**U Policy I2** Establish site and design features to be addressed when siting essential public facilities in the Land Use Code to include: environmental protection, landscaping

requirements, building and site design compatibility with neighboring uses, and screening from the street as appropriate.

**U Policy I3** The siting of Secure Community Transitional Facilities (SCTF) shall follow the criteria established by the City providing that the City's criteria shall not be more restrictive than the criteria provided by the State (RCW 71.02.285 and RCW 71.09.290).

## information technology

**Goal J. Promote and support the development of 21st century telecommunications infrastructure. Encourage and support an atmosphere of investment in our telecommunication infrastructure that also promotes a wide range of telecommunications options.**

### discussion

It is important for people, businesses and institutions to have access to the information superhighway. The internet is a key resource for businesses, not just a value added service. Businesses rely on the internet to operate and grow. It is imperative to ensure that service levels can serve future residents, workers and students by responding to changes in technology and to work with telecommunications providers to help them succeed and build capacity that benefits residents, businesses and institutions in the City. This would allow Issaquah to achieve improvements in quality of life and business competitiveness as they relate to technology.

**U Policy J1** Join the Regional Fiber Consortium as a partner as soon as feasible.

**U Policy J2** Include language in the City regulations that would require conduit and/or fiber to be installed as part of all street and utility projects that are at least one block in length.

**U Policy J3** Require broadband readiness and availability for new or large development projects. Include requirements in the Central Issaquah Plan and revise the Olde Town Subarea Plan to include requirements for new development or large redevelopment to install conduit and/or fiber.

**U Policy J4** Work to develop a public-private partnership with telecommunications providers to ensure that as the network grows it is sited to ensure the greatest use possible.

**U Policy J5** Provide streamlined permitting of the installation of conduit and fiber when in the right of way.

**U Policy J6** Incrementally expand the City's existing fiber assets into a network that can serve municipal and institutional needs.

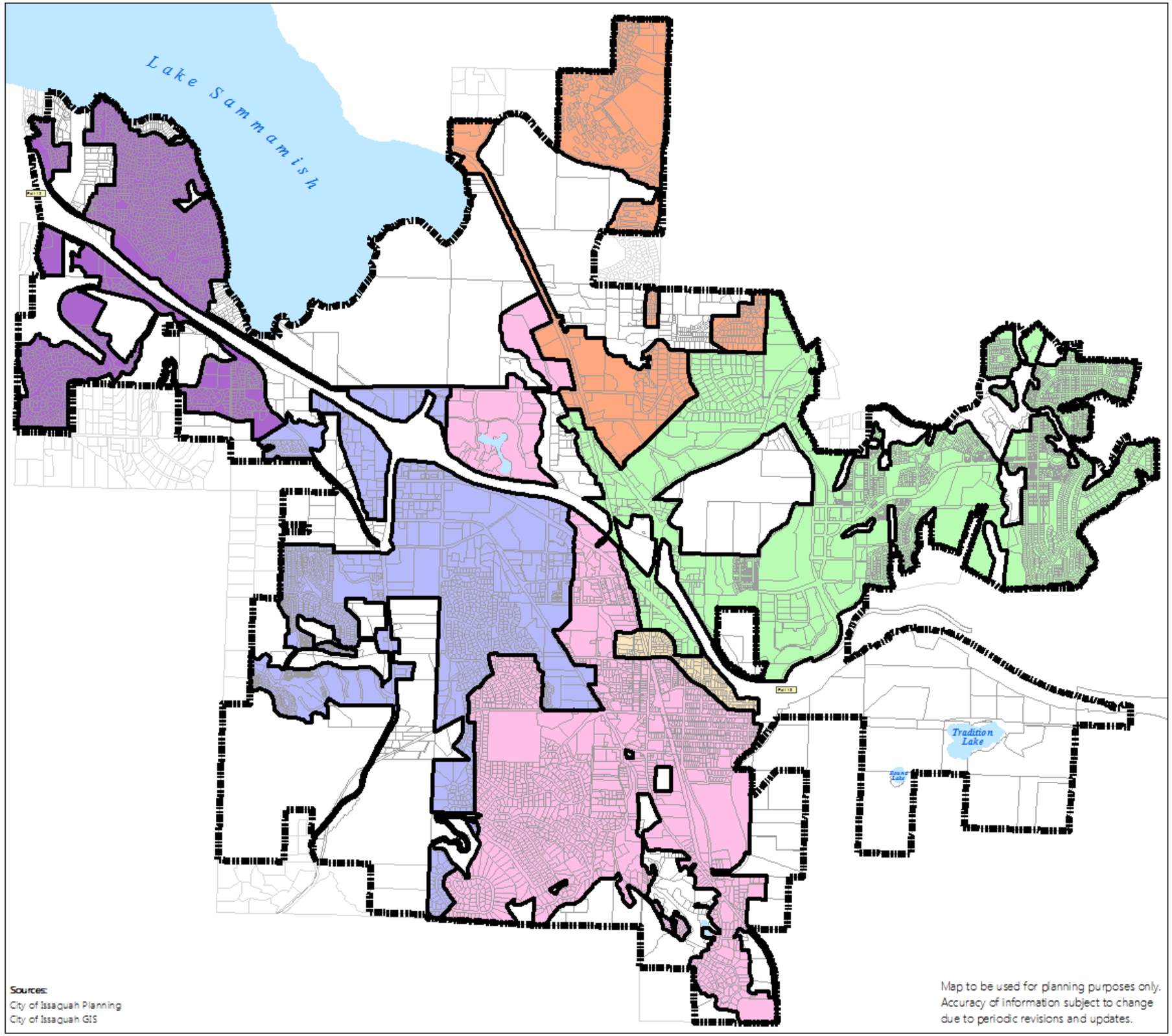
## implementation

**Goal K. Measure the effectiveness and success of the Comprehensive Plan in achieving community visions, goals and policies.**

## discussion

Achieving the visions of the Issaquah community for how our City should look, feel and function is dependent on implementation of the goals and policies adopted in this document. While there are not sufficient resources to accomplish all of the implementation strategies simultaneously, the City can make progress to carry out the Comprehensive Plan by identifying priorities and necessary resources. The City has established a list of Implementation Strategies (Appendix B) that are needed to accomplish the Community vision within the Comprehensive Plan, and although not complete, the list is intended to be used as a tool for prioritizing City resources, including budget and staff time. Additionally, the City cannot accomplish all the implementation strategies alone. As part of a much larger and growing metropolitan area, issues such as growth rates, housing supply and demand, and transportation systems require cooperation and partnerships with the public and private sectors as well as local, state and federal agencies.

**U Policy K1** Ensure Comprehensive Plan goals and policies are accompanied by related and required implementing actions, including but not limited to those listed in the Implementation Strategy (Appendix B).




LEGEND

CityLimits

Municipal Stormwater Basins

Municipal Stormwater Basins

Municipal Stormwater Basins

EAST FORK

EAST LAKE

ISSAQUAH CREEK

NORTH FORK

TIBBETTS CREEK

WEST LAKE

Properties with no publicly owned or maintained stormwater facility

N

W E

S

CITY OF ISSAQUAH WASHINGTON

Figure U-1

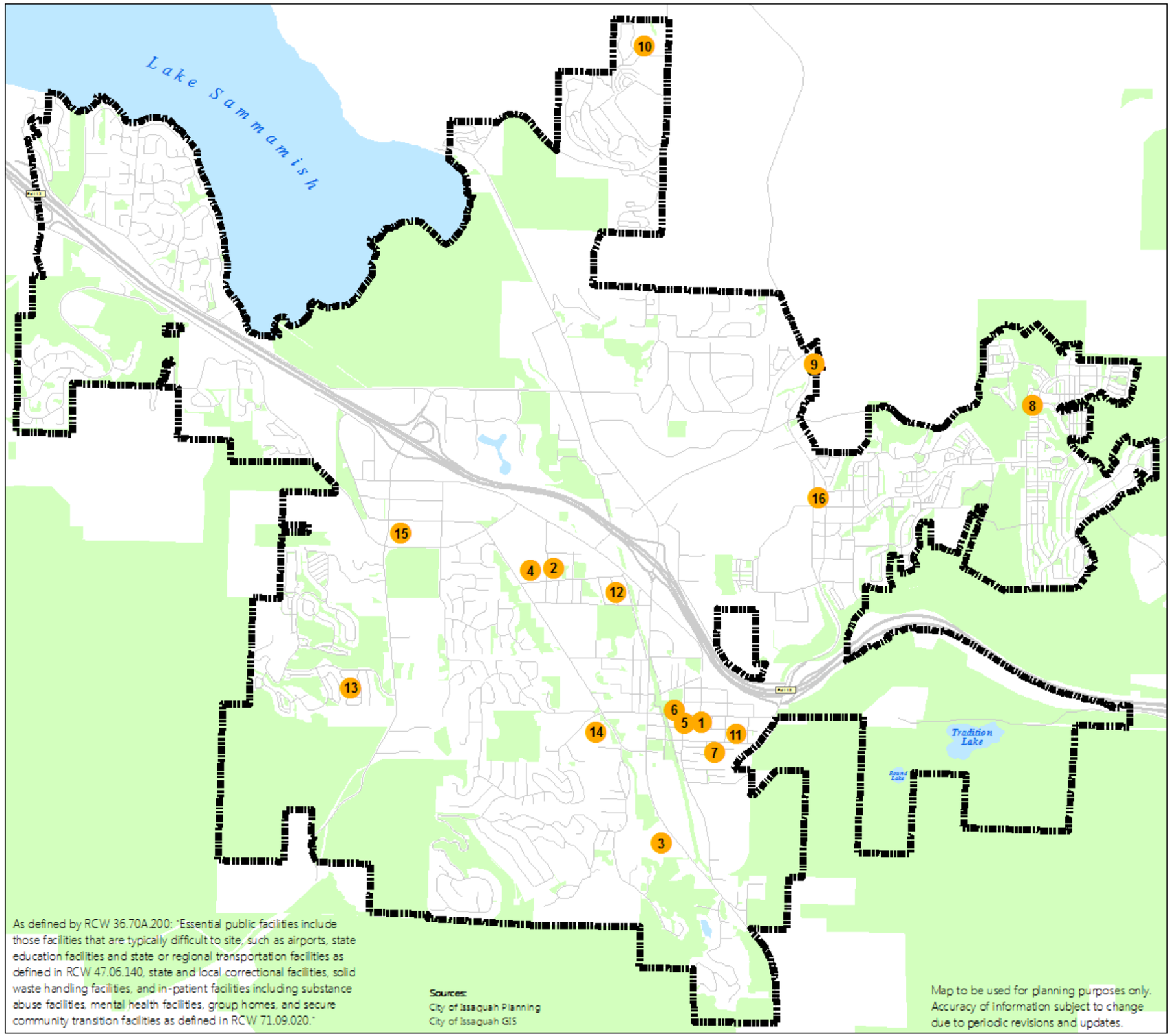
# Municipal Stormwater Basins

Ordinance #2741

Effective Date 6/30/2015

Sources:
City of Issaquah Planning
City of Issaquah GIS

Map to be used for planning purposes only. Accuracy of information subject to change due to periodic revisions and updates.




As defined by RCW 36.70A.200: "Essential public facilities include those facilities that are typically difficult to site, such as airports, state education facilities and state or regional transportation facilities as defined in RCW 47.06.140, state and local correctional facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, group homes, and secure community transition facilities as defined in RCW 71.09.020."

Sources:
City of Issaquah Planning
City of Issaquah GIS

Map to be used for planning purposes only. Accuracy of information subject to change due to periodic revisions and updates.

**LEGEND**

- CityLimits
- Parks - Open Space - NGPE

1. Compassion House
2. At Work!
3. Issaquah Nursing and Rehabilitation Center
4. AEGIS
5. Residence East
6. Issaquah Police Station & City Jail
7. LEO - Rose House
8. LEO Issaquah Highlands - Angela House
9. LEO - Ann Dennis House
10. Providence Marianwood
11. Mountain House
12. Park Place
13. Briarwood at Timber Ridge
14. Hutchison House
15. Issaquah Transit Center & Fire Station
16. Issaquah Highlands Park & Ride

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CITY OF ISSAQUAH WASHINGTON

Figure U-2

# Essential Public Facilities

As defined by RCW 36.70A.200

Ordinance #2741
Effective Date 6/30/2015

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# Appendix D

# SEPA Checklist

The SEPA checklist will be included in the final submittal.

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# Appendix E

# Wastewater Flow Calculations

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| basin_name | Base (2020) | | | Modeled Per Capita Flow Rates | | | | Assumed Per Capita Flow Rates[1] | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | Employment | ADF[4] GPD | Res GPCD | Emp GPCD | Res ADF GPD | Emp ADF GPD | Res GPCD | Emp GPCD | ADF GPD | |
| 2736 - North[1] | 3,847 | - | **199,286** | 34 | | 131,109 | | 65 | | **131,109** | |
| 2736 - East | - | 8,656 | **90,916** | | 6.9 | | 59,813 | | 10 | **59,813** | |
| 1974 | 2,359 | 183 | **163,715** | 49 | 8.1 | 114,628 | 1,482 | 65 | 10 | **116,110** | |
| ISSCK39A[2] | 431 | 2,300 | **86,178** | 106 | 17.6 | 45,611 | 40,567 | 65 | 10 | **86,178** | |
| ISSAQ2 | 5,371 | 3,969 | **625,055** | 62 | 10.4 | 335,249 | 41,290 | 65 | 10 | **376,539** | |
| 2423 - East | 542 | 104 | **102,103** | 64 | 10.6 | 34,594 | 1,106 | 65 | 10 | **35,700** | Flow meter 2423 |
| 2423 - West | 3,459 | 312 | **132,047** | 38 | 6.3 | 130,091 | 1,956 | 65 | 10 | **132,047** | Flow meter ISS015 |
| 0249 | 1,986 | 176 | **130,882** | 46 | 7.7 | 92,126 | 1,361 | 65 | 10 | **93,487** | |
| 0990 | 1,480 | 1,182 | **170,130** | 63 | 10.6 | 93,840 | 12,491 | 65 | 10 | **106,331** | |
| 0962 | 1,235 | 766 | **83,822** | 59 | 9.8 | 72,352 | 7,479 | 65 | 10 | **79,831** | |
| 1703 | 12,907 | 3,544 | **1,025,526** | 47 | 7.9 | 612,905 | 28,049 | 65 | 10 | **640,954** | |

1 - Assumed Per Capita ADF of 56 gpcd is used to project future flows and is based on 150 GPD/ERU from water system plan and 2.4 residents per ERU (2020 Census). Total is multiplied by 0.9 to reflect irrigation and non-sewer water use.

2 - ADWF and Employment adjusted to remove industrial user Darigold from per capita calculations. Darigold input in the model as a fixed flow rate of 144.4 gpm.

| | | |
|---|---|---|
| Basin 2423 | 4001 | Total population |
| | 416 | Total Employment |
| 2423 - East | 226 | ERUs |
| | 2.4 | Residents per URU |
| | 542.4 | Residents in East mini-basin |

| | | | |
|---|---|---|---|
| **2736 - North** | 3847 | Residents | |
| | 234 | ERUs in metered mini-basin | |
| | 2.4 | Residents per ERU | (2020 US Census for Issaquah) |
| | **561.6** | Residents in metered mini-basin | |

Pickering

| | |
|---|---|
| 259 | Pump Runtimes (08-09-2020 - 08-13-2020) |
| 655.33839 | Gal per cycle |
| 33,947 | Avg Gal per Day |
| | |
| 456 | Pump Runtimes (02-01-2021 - 02-05-2021) |
| 655.33839 | Gal per cycle |
| 59,767 | Avg Gal per Day |

| basin_name | 2028 Projected Increase from Baseline | | 2028 Projected Average Daily Flow | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Population | Employment | Res (gpcd) | Emp (gpcd) | Additional Res ADF (gal) | Additional Emp ADF (gal) | Total ADF (gal) | % Chg From Baseline |
| 2736 - North | 133 | - | 65 | | 8,645 | | **207,931** | 4.3% |
| 2736 - East | - | 553 | | 10 | | 5,530 | **96,446** | 6.1% |
| 1974 | 0 | 10 | 65 | 10 | 0 | 100 | **163,815** | 0.1% |
| ISSCK39A | 997 | 860 | 65 | 10 | 64,805 | 8,600 | **159,583** | 85.2% |
| ISSAQ2 | 1,334 | 2,978 | 65 | 10 | 86,710 | 29,780 | **741,545** | 18.6% |
| 2423 - East | 27 | 67 | 65 | 10 | 1,787 | 665 | **104,556** | 2.4% |
| 2423 - West | 176 | 200 | 65 | 10 | 11,408 | 1,995 | **145,449** | 10.1% |
| 0249 | 40 | (5) | 65 | 10 | 2,600 | -50 | **133,432** | 1.9% |
| 0990 | 185 | 277 | 65 | 10 | 12,025 | 2,770 | **184,925** | 8.7% |
| 0962 | 34 | 233 | 65 | 10 | 2,210 | 2,330 | **88,362** | 5.4% |
| 1703 | 76 | 1,398 | 65 | 10 | 4,940 | 13,980 | **1,044,446** | 1.8% |

| | | |
|---|---|---|
| Basin 2423 | 4,204 | Total population |
| | 14% | East |
| | 86% | West |
| | 682 | Total Employment |
| | 25% | East |
| | 75% | West |

| basin_name | 2042 Projected Change from Baseline | | 2042 Projected Average Daily Flow | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Population | Employment | Res (gpcd) | Emp (gpcd) | Additional Res ADF (gal) | Additional Emp ADF (gal) | Total ADF (gal) | % Chg From Baseline |
| 2736 - North | 365 | - | 65 | - | 23,725 | 0 | **223,011** | 11.9% |
| 2736 - East | - | 1,658 | - | 10 | 0 | 16,580 | **107,496** | 18.2% |
| 1974 | 0 | 30 | 65 | 10 | 0 | 300 | **164,015** | 0.2% |
| ISSCK39A | 2,740 | 2,538 | 65 | 10 | 178,100 | 25,380 | **289,658** | 236.1% |
| ISSAQ2 | 3,669 | 8,934 | 65 | 10 | 238,485 | 89,340 | **952,880** | 52.4% |
| 2423 - East | 76 | 200 | 65 | 10 | 4,922 | 1,998 | **109,023** | 6.8% |
| 2423 - West | 483 | 599 | 65 | 10 | 31,413 | 5,993 | **169,452** | 28.3% |
| 0249 | 111 | (15) | 65 | 10 | 7,215 | -150 | **137,947** | 5.4% |
| 0990 | 508 | 831 | 65 | 10 | 33,020 | 8,310 | **211,460** | 24.3% |
| 0962 | 94 | 699 | 65 | 10 | 6,110 | 6,990 | **96,922** | 15.6% |
| 1703 | 208 | 4,194 | 65 | 10 | 13,520 | 41,940 | **1,080,986** | 5.4% |

| | | |
|---|---|---|
| Basin 2423 | 4,560 | Total population |
| | 14% | East |
| | 86% | West |
| | 1,215 | Total Employment |
| | 25% | East |
| | 75% | West |

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# Appendix F

# Diurnal Curves

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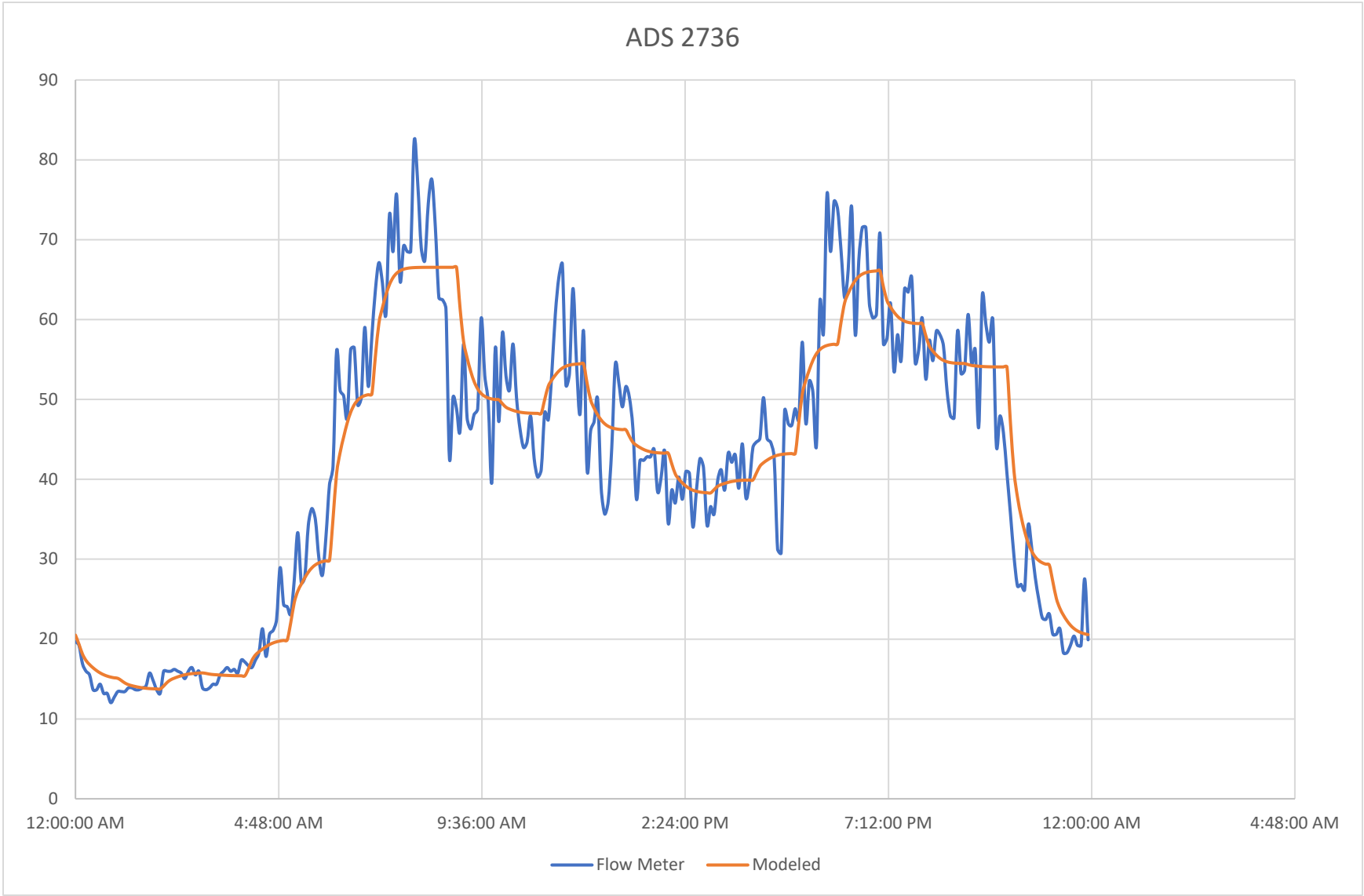
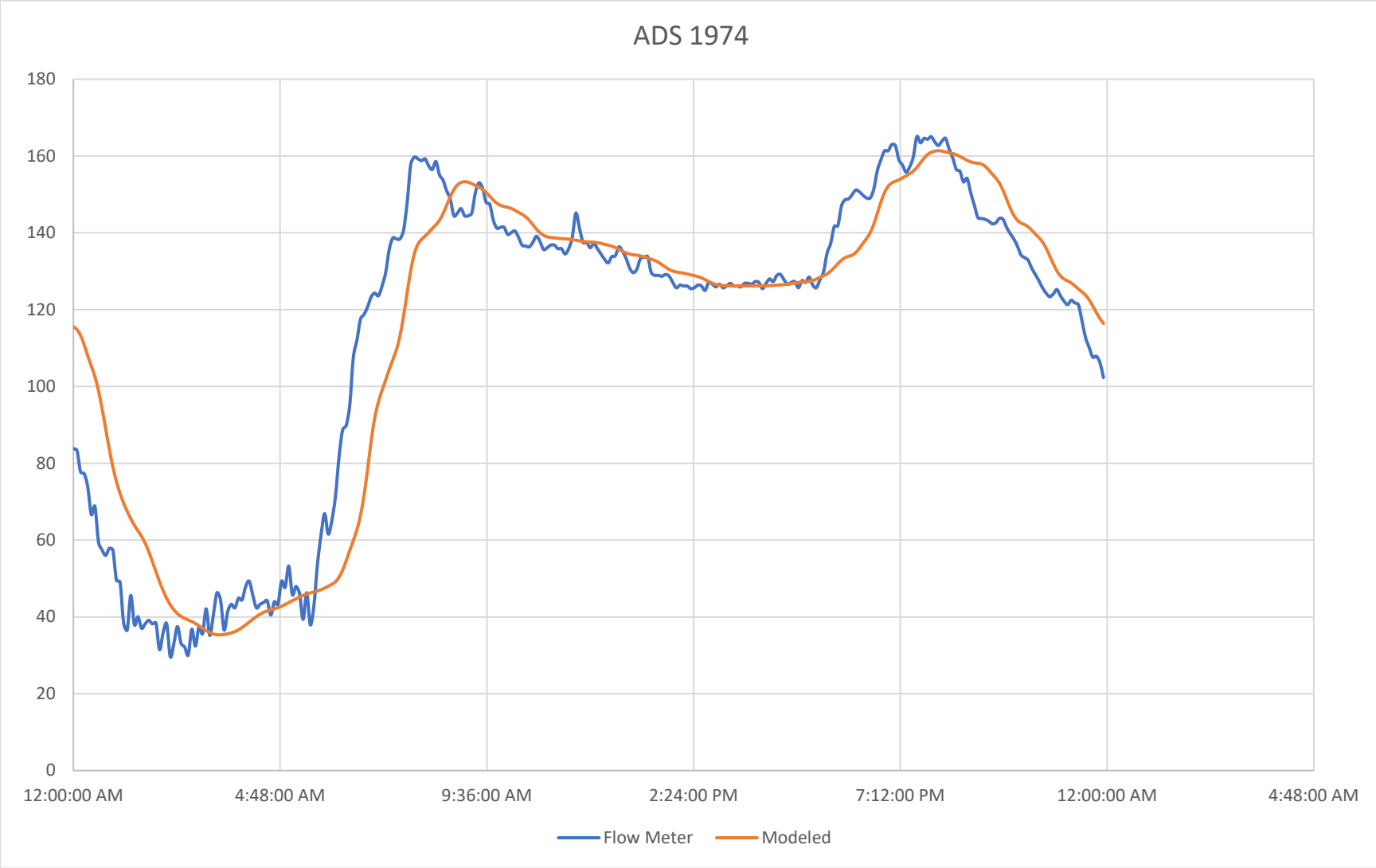
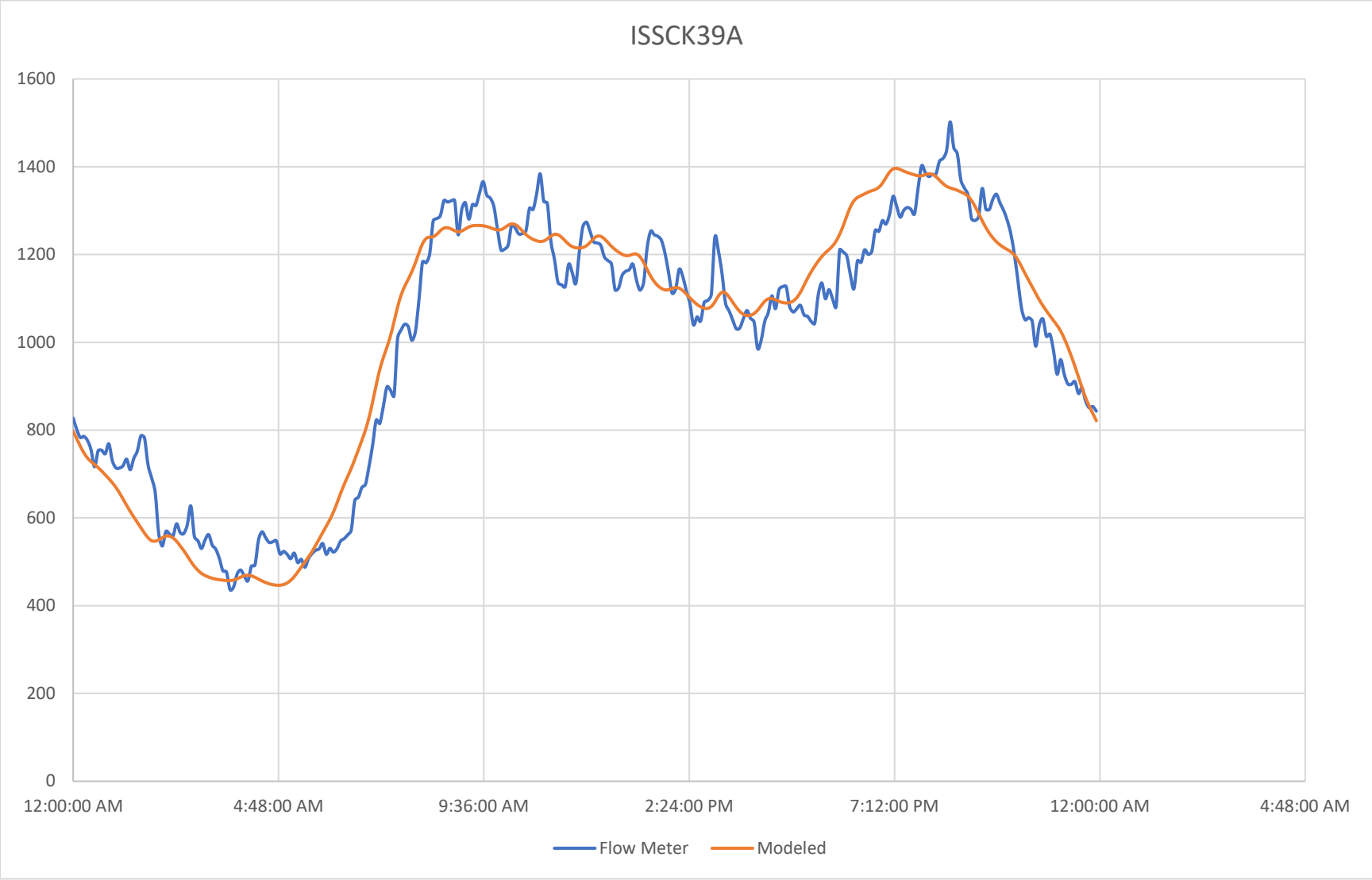
# Diurnal Curve: Meter Basin 1



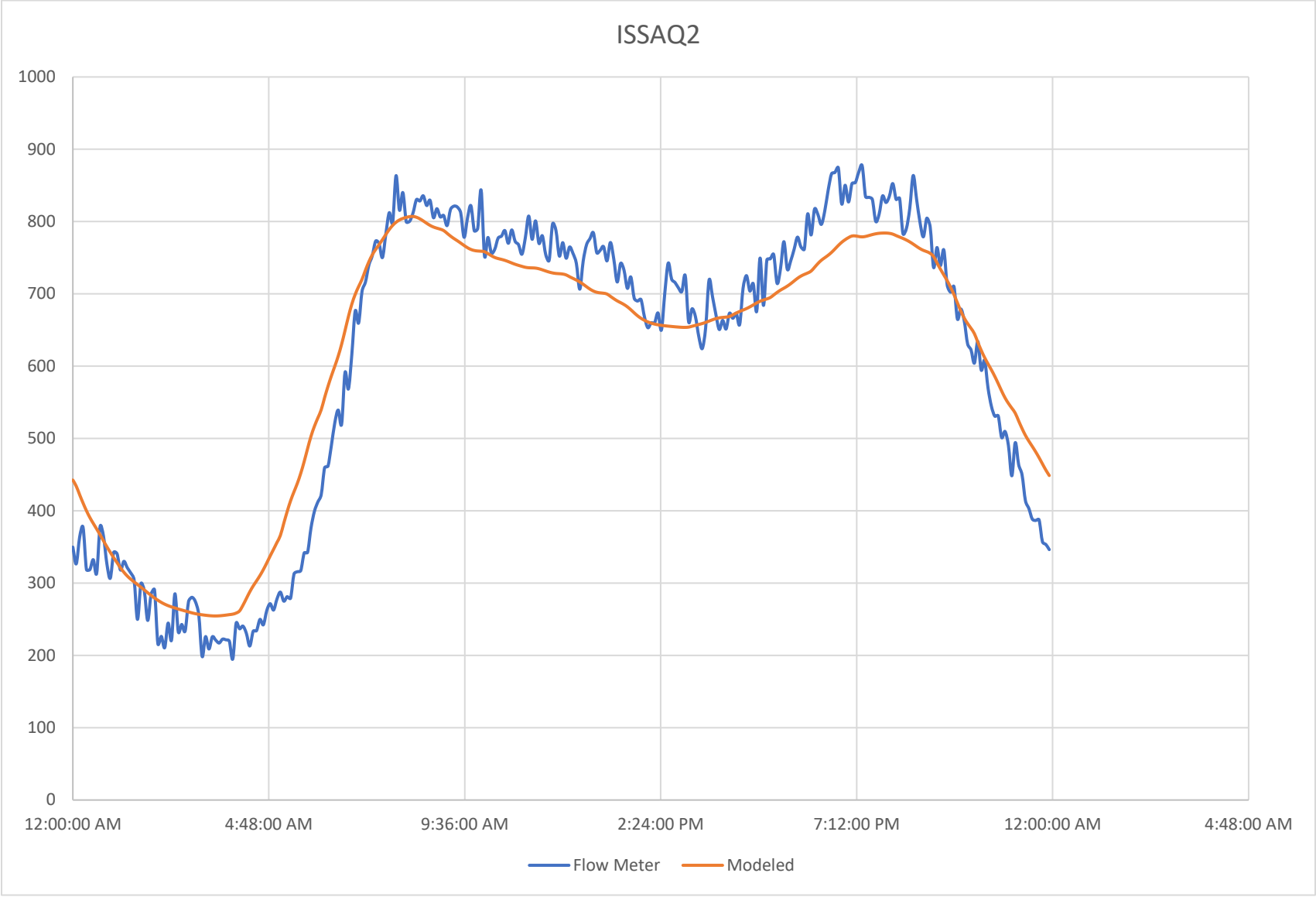
# Diurnal Curve: Meter Basin 2



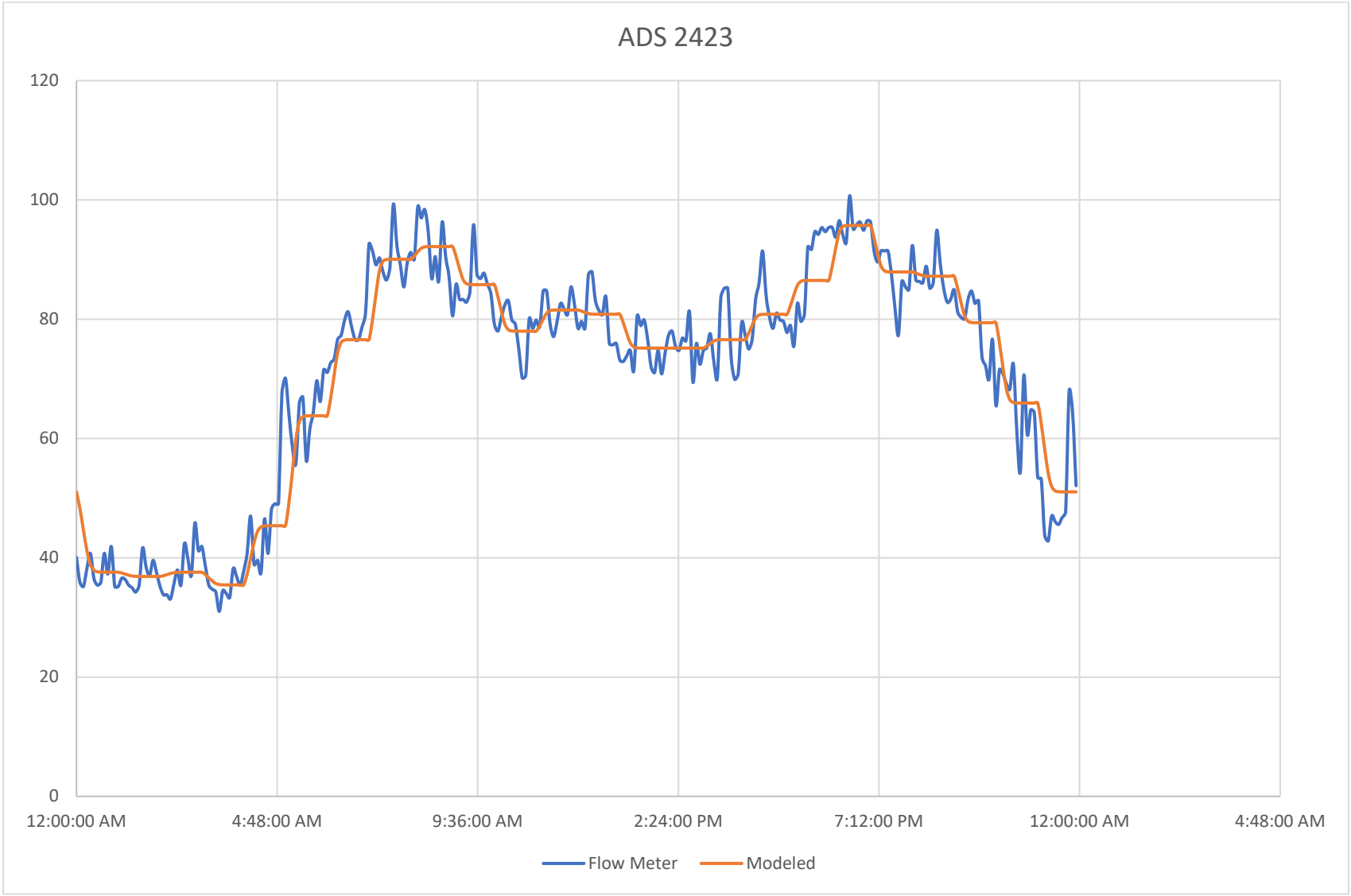
# Diurnal Curve: Meter Basin 3



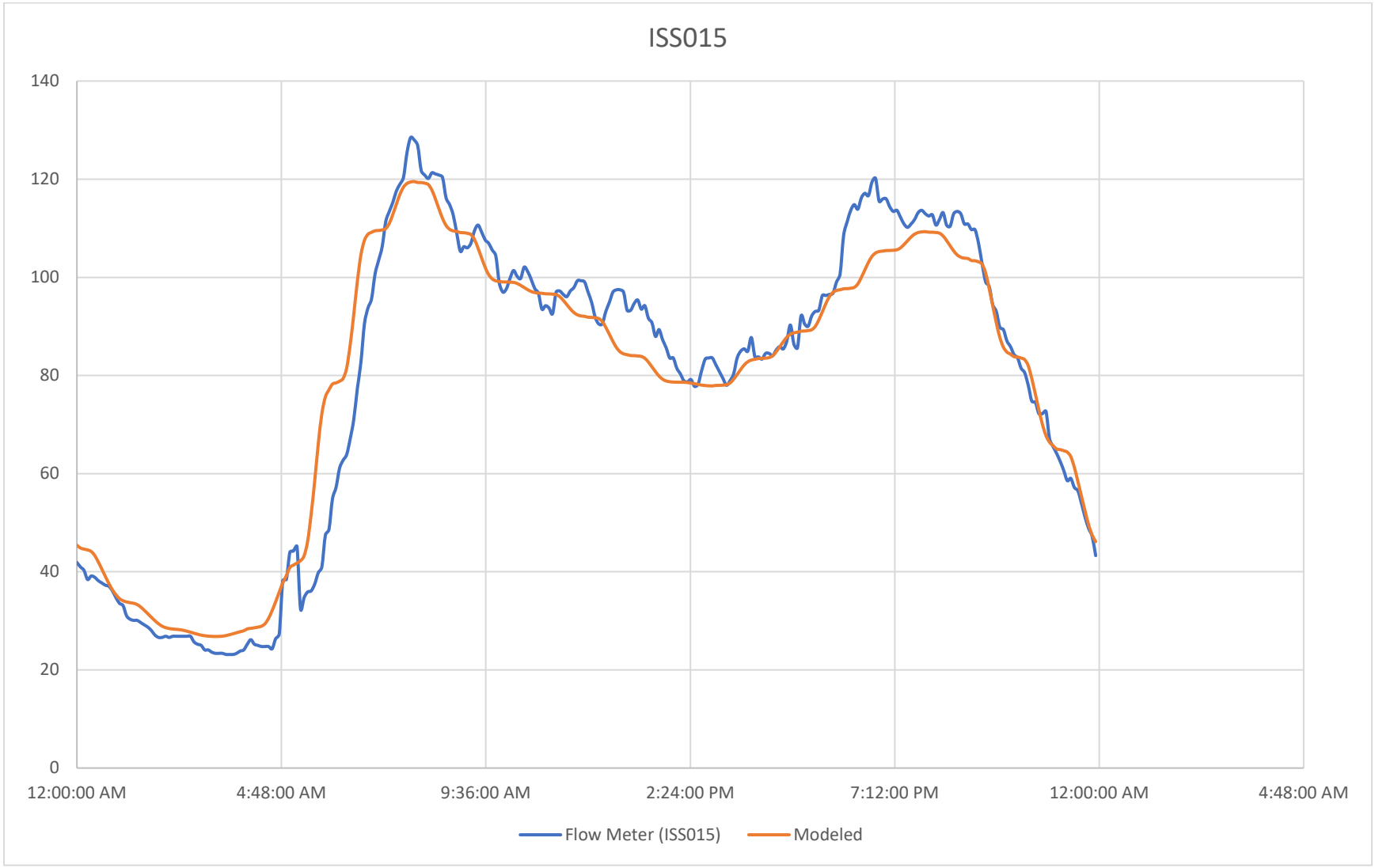
# Diurnal Curve: Meter Basin 4



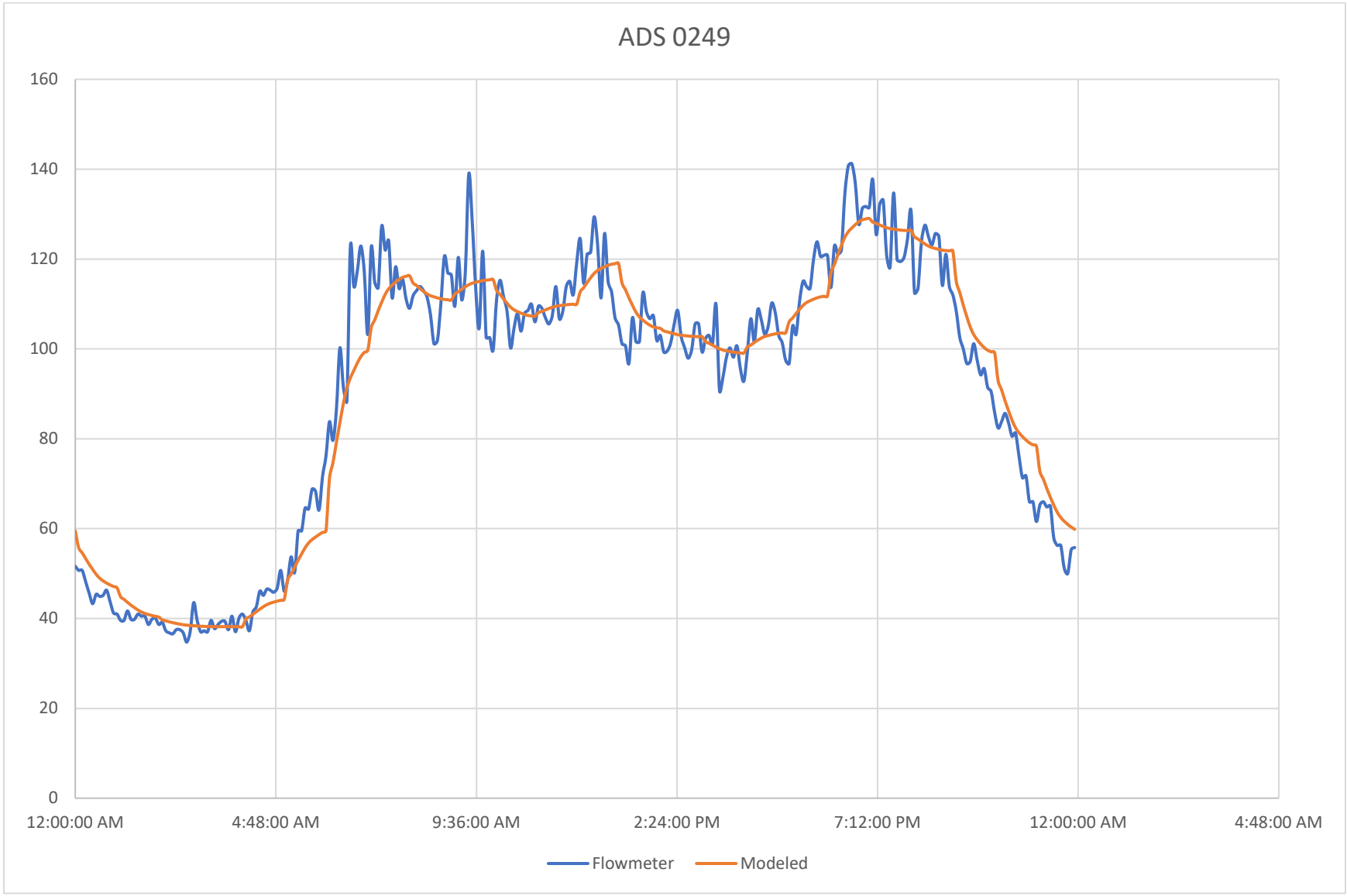
# Diurnal Curve: Meter Basin 5



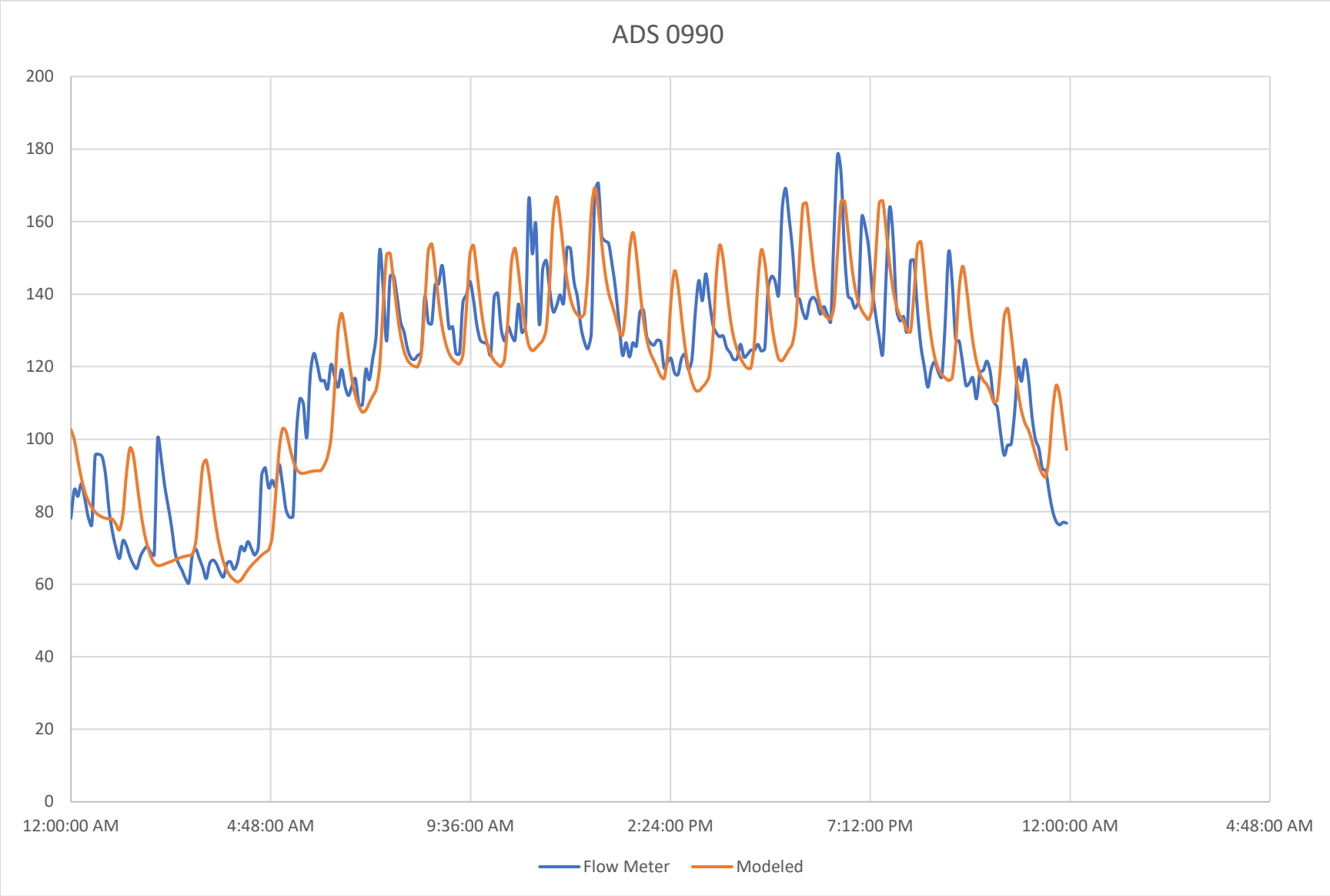
# Diurnal Curve: Meter Basin 6



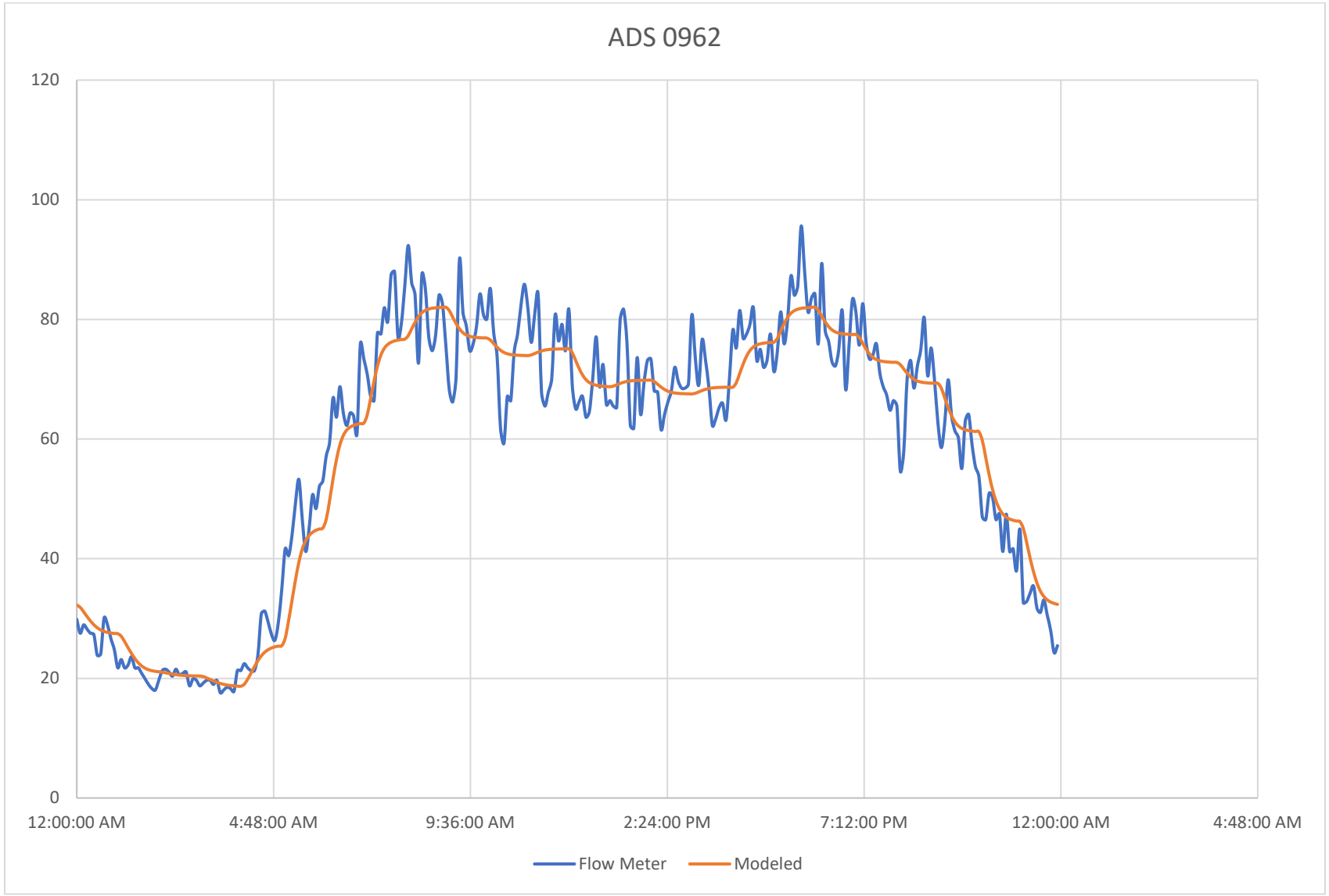
# Diurnal Curve: Meter Basin 7



# Diurnal Curve: Meter Basin 8



# Diurnal Curve: Meter Basin 9



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# Appendix G

# King County Regional Wastewater Services Plan Report

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# Regional Wastewater Services Plan 2017 Annual Report

Prepared in accordance with

Ordinance 15384, Section 6, as amended, and King County Code 28.86.165

**September 2018**

King County

Department of Natural Resources and Parks
Wastewater Treament Division

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## Introduction

King County Ordinance 15384, Section 6, as amended, and King County Code 28.86.165 require the King County Executive to transmit a report to the King County Council in September each year to cover the previous year's implementation of the Regional Wastewater Services Plan (RWSP). The RWSP outlines programs and projects through 2030 to increase wastewater system capacity and function; gives guidance on recovering and recycling beneficial resources from the wastewater treatment process; and provides direction on protecting and monitoring water quality and meeting permit conditions.

Specifically, the Ordinance, as amended, and the King County Code, require the report to:

- Summarize activities for the major components and plan elements of the RWSP;
- Include a summary of odor complaints;
- Summarize the results for the water quality monitoring program; and
- Provide an update of anticipated RWSP program costs through the year 2030.

This report addresses each requirement under a separate heading that corresponds to the particular requirement. This is the 18th and final RWSP Annual Report that the Wastewater Treatment Division (WTD) of the Department of Natural Resources and Parks has prepared.[1] As changes in WTD projects and programs before 2030 will now be considered in the systemwide planning process, the RWSP 2017 Annual Report is the final RWSP annual report.

## Executive Summary

The RWSP 2017 Annual Report summarizes the progress made during 2017 in implementing the plan's major programs and projects. Highlights are as follows:

- Progress was made on capital projects associated with the Conveyance System Improvement Plan and the Long-term Combined Sewer Overflow (CSO) Plan;
- West Point, South, and Brightwater treatment plants produced 117,195 wet tons of Loop® biosolids, all of which were recycled and used as a fertilizer and soil amendment for forestry and agricultural applications or to make compost;
- Carbon sequestered from the use of Loop in agriculture, forestry, and composting totaled 38,427 $MtCO_2e$ (metric tons of carbon dioxide equivalents—the standard measure of carbon storage). This amount is equivalent to taking 8,000 cars off the road;
- The South, West Point and Brightwater treatment plants continued to use digester gas to produce heat, electricity and natural gas;
- The WTD distributed 107 million gallons (MG) of reclaimed water to off-site uses.

[1]Previous RWSP annual reports are available at http://www.kingcounty.gov/environment/wtd/Construction/planning/rwsp/Library/AnnualReport.aspx.

In addition, 621 MG of filtered effluent was produced and used for on-site process water and irrigation at South, West Point and Brightwater treatment plants; and

- South, Vashon, and Carnation treatment plants received Platinum Peak Performance Awards from the National Association of Clean Water Agencies. Platinum-level awards are given for five or more consecutive years of compliance with effluent limits established by National Pollutant Discharge Elimination System (NPDES) permits.

## RWSP Components and Plan Elements

This section summarizes activities in 2017 for the following major components and plan elements of the RWSP:

- Conveyance System Improvement Program
- Infiltration and Inflow Program
- Combined Sewer Overflow Control Program
- Treatment Plant Flows and Loads Study
- Biosolids Recycling Program
- Energy Efficiency and Recovery Program
- Reclaimed Water Program
- Permit Compliance

## Conveyance System Improvement Program

In accordance with RWSP policies, the Conveyance System Improvement (CSI) Program identifies capacity needs in areas of the separated conveyance system to meet the RWSP 20-year peak flow design standard. The King County Council adopted this standard to serve as an objective measure for designing and building conveyance facilities intended to meet NPDES permit requirements that there be no overflows from the separated system. A 20-year peak flow consists of both storm flow (infiltration and inflow) and base flow (wastewater from homes and businesses) and has a five percent chance of occurring in any year.

Seven CSI projects were underway in 2017:

- Sunset and Heathfield Pump Stations and Force Main Upgrade Project: http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/sunset-heathfield.aspx;
- North Creek Interceptor Project: http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/north-creek-interceptor.aspx;

- North Mercer Island and Enatai Sewer Upgrade Project: http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/north-mercer-island-enatai-sewer-upgrade.aspx;
- Lake Hills and Northwest Lake Sammamish Sewer Upgrade Project: http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/lake-hills-nw-lake-sammamish.aspx;
- Kent Auburn Conveyance System Improvements Project (Phase B): http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/kent-auburn.aspx;
- North Lake Sammamish Flow Diversion Project: https://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/north-lake-sammamish-flow-diversion.aspx; and
- Coal Creek Sewer Upgrade Project: https://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/coal-creek-sewer-upgrade.aspx.

The RWSP conveyance policies call for regular program updates to verify, modify or identify new conveyance system needs. The most recent CSI Program Update was completed in 2017. The WTD worked with the Engineering and Planning Subcommittee of the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) and individual sewer agencies on the update. The update verifies, adjusts, and identifies new CSI projects needed for increasing capacity in the conveyance system to accommodate future flow from both the projected growth in population and infiltration and inflow (I/I) through 2060.

The 2017 CSI Program Update is available at https://www.kingcounty.gov/services/environment/wastewater/csi/updates-history/2017.aspx.

## Infiltration and Inflow Control Program

The Infiltration and Inflow (I/I) Control Program was created in 1999 as part of the RWSP to reduce the amount of I/I that enters the regional wastewater system, as I/I affects the capacity needs of sewer pipes and treatment plants. I/I is excess water that flows into sewer pipes from groundwater and stormwater. Groundwater (infiltration) seeps into sewer pipes through holes, cracks, joint failures, and faulty connections. Stormwater (inflow) rapidly flows into sewers via roof drain downspouts, foundation drains, storm drain cross-connections, and through holes in maintenance hole covers.

Activities in 2017 included working with MWPAAC's Engineering and Planning Subcommittee to explore concepts and develop frameworks for further evaluation to reduce I/I programmatically, with a focus on private side sewers. Concepts include region-wide side sewer standards and inspection training, interagency coordination to identify and manage I/I, side sewer inspection and repair programs, and side sewer grant/loan programs. In addition, WTD staff met with staff from the local agencies to

learn more about each agency's sanitary and side sewer standards and inspection programs.

More information on the I/I Control Program is available at http://www.kingcounty.gov/environment/wastewater/II.aspx.

## Combined Sewer Overflow Control Program

Work continued in 2017 to implement the Combined Sewer Overflow (CSO) Control Program. The RWSP policies and the 2013 consent decree, which the County entered into with the U.S. Department of Justice, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology, require control of all CSO locations by 2030. Control means that each location meets the Washington state standard of no more than one untreated discharge per year on a 20-year moving average.

Seven CSO control projects and a water quality assessment and monitoring study were under way in 2017:

- Rainier Valley Wet Weather Storage Project: http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/rainier-valley-wet-weather-storage.aspx;
- Georgetown Wet Weather Treatment Station Project: https://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/georgetown.aspx;
- West Duwamish CSO Control Project: http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/west-duwamish-cso-control.aspx;
- Joint City of Seattle and King County Ship Canal Water Quality Project: http://www.seattle.gov/util/EnvironmentConservation/Projects/ShipCanalWaterQuality/index.htm;
- Chelan CSO Control Project: http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/chelan-cso-control.aspx;
- South Magnolia CSO Control Project (pipe repair project[2]): https://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/south-magnolia-cso-storage.aspx;
- University Green Stormwater Project: https://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/university-gsi.aspx; and

[2] In the fall of 2016, WTD crews discovered that the pipe that carries flows to the storage tank was broken beneath the intersection of West Galer Street and Thorndike Avenue. In December 2017, construction began to repair the pipe.

- Water Quality Assessment and Monitoring Study (completed in 2017): http://www.kingcounty.gov/services/environment/wastewater/cso/projects/water-quality-study.aspx.

In 2017, work was underway to prepare an update to the CSO Long-term Control Plan. This effort is looking at what has changed since the last time the plan was updated in 2012. It will reflect environmental, social, and financial goals to meet current needs. Updates to the CSO Long-term Control Plan are required as part of the NPDES permit renewal process for the West Point Treatment Plant. Information on the process to update the CSO Long-term Control Plan is available at http://kingcounty.gov/services/environment/wastewater/cso/projects/system-plan.aspx.

## Treatment Plant Flows and Loads Study

The RWSP calls for ongoing long-term assessments of wastewater system needs. In general, WTD updates its treatment plant influent flow and loading forecasts every 10 years using population and employment forecasts provided by the Puget Sound Regional Council (PSRC). The 2013 RWSP Comprehensive Review used PSRC's 2013 Land Use Forecast to update influent flow and loadings forecasts through 2060 for WTD's three regional treatment plants. The 2013 comprehensive review noted that it is possible that the plants' loadings capacity could be reached in the 2030s and recommended further study to determine future needs. Because of this, WTD initiated the Treatment Plant Flows and Loadings Study in 2017.

The purpose of the study is to assess the flows and loadings capacity and the timing of capacity needs of each process within each regional treatment plant. The study will determine current capacity and performance of each major process, forecast when a process will reach capacity, and potential constraints that could affect meeting future capacity needs.

Activities in 2017 focused on consultant procurement and selection for the project. The consultant team conducted site visits and data collection in fall 2017. The WTD expects the study to be complete at the end of 2018.

## Biosolids Recycling Program

Biosolids are the nutrient-rich organic material produced by treating wastewater solids. After being processed and treated, biosolids are used beneficially as a fertilizer and soil amendment. The RWSP biosolids policies encourage the County to continue to produce and market Class B biosolids and to evaluate alternative technologies to produce the highest quality marketable biosolids, including Class A biosolids.[3,4]

[3]Class B biosolids refer to biosolids that have been treated to significantly reduce pathogens to levels that are safe for beneficial use in land application.
[4]Class A biosolids refer to biosolids that have been treated to reduce pathogens to below detectable levels. Biosolids that meet this designation can be used without site access or crop harvest restrictions

In 2017, a total of 117,195 wet tons of Loop® biosolids were produced at the West Point, South and Brightwater treatment plants, all of which were recycled and used beneficially as a soil amendment for forestry and agricultural applications or were used to make compost.

Carbon sequestered from the use of Loop® in agriculture, forestry, and composting totaled 38,427 $MtCO_2e$ after subtracting diesel emissions for transport and land application. This amount is equivalent to taking 8,000 cars off the road.

In 2017, the Biosolids Program initiated an internal strategic planning process to re-evaluate WTD's biosolids management strategies, including marketing, production, further product development, technology, regulations, and cost.

More information on the Biosolids Recycling Program is available at http://www.kingcounty.gov/environment/wastewater/Biosolids.aspx.

## Energy Efficiency and Recovery Program

The RWSP policies call for the County to use digester gas, an energy-rich methane gas naturally produced as a byproduct of solids treatment, for energy and other purposes when it is cost-effective to do so. In addition, the County's Strategic Climate Action Plan (SCAP) includes goals to implement energy efficiencies and increase renewable energy production.

In 2017, 12.10 million kilowatt-hours (kWh) of electricity were produced at South (1.17 million kWh) and West Point (10.93 million kWh) treatment plants. South Treatment Plant sold 2.25 million therms of scrubbed natural gas to a third party who will in turn use that gas in vehicle fleets using compressed natural gas (CNG). This will offset using fossil fuel-based diesel, generating valuable renewable identification numbers (RINs) for WTD. The resulting revenue will help to offset some of the energy operating costs and fund future efficiency, renewables, and other carbon neutrality-related efforts.

The WTD is making progress toward meeting the SCAP's energy reduction targets. The targets include reducing normalized energy use in County-owned facilities by at least 7.5 percent by 2020 and 10 percent by 2025, as compared to a baseline year of 2014. Projects completed or underway in 2017 that will help to meet these targets include replacement of raw sewage pumps at South Treatment Plant with more energy efficient pumps, lighting upgrades at treatment plants, and the West Point Treatment Plant aeration mixer replacement project. In addition, work on a WTD Energy Plan was underway to identify strategies and recommendations through 2025 to sustainably improve the division's overall use and production of energy and its carbon footprint.

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and are exempt from site-specific permits. Federal regulations require Class A level of quality for biosolids that are sold or given away in a bag or other container or that are applied to lawns or home gardens.

More information on the Energy Efficiency and Recovery Program is available at http://www.kingcounty.gov/services/environment/wastewater/resource-recovery/Energy.aspx.

## Recycled Water Program

The RWSP encourages the County to explore ways to increase the use of reclaimed water from its wastewater treatment plants. In 2017, 107 MG of reclaimed water was distributed to off-site uses. In addition, 621 MG of filtered effluent was produced and used at the treatment plants for on-site process water and irrigation. Information on reclaimed water production and use by treatment plants in 2017 is summarized below.

- The South Treatment Plant produced and used about 55 MG of filtered effluent for process water at the plant. About 3.2 MG of Class A reclaimed water was distributed and used offsite by reclaimed water customers. The reclaimed water was used for irrigation of the Starfire Sports Complex, a wetland plants nursery, City Soil Community Farm Project, City of Tukwila landscaping irrigation, and for city public works uses such as street sweeping and sewer flushing;
- The West Point Treatment Plant produced and used about 114 MG of filtered effluent for process water and landscape irrigation at the plant;
- The Brightwater Treatment Plant produced and used about 450 MG of filtered effluent for process water at the plant. In addition, about 69 MG of Class A reclaimed water was distributed to the Brightwater Education and Community Center; the Brightwater Influent, North Creek, York, and Hollywood pump stations; Willows Run Golf Course; 60 Acres Park, and to King County's Water and Land Resources Division for mitigation plantings from the York reclaimed water fill station. The water was used for irrigation, toilets/urinals, and public art that includes water features; and
- All of the effluent produced at the Carnation Treatment Plant is Class A reclaimed water quality; 35.7 MG of reclaimed water was used to beneficially enhance a wetland in the County's Chinook Bend Natural Area.

In 2017, the Recycled Water Program initiated an internal strategic planning process to guide the program's efforts and decision-making and to facilitate the timeliness and reliability of serving existing and future recycled water customers.

More information on the Recycled Water Program is available at http://www.kingcounty.gov/services/environment/wastewater/resource-recovery/recycled-water.aspx.

## Permit Compliance

On average, the County's wastewater treatment plants processed about 179 MG of wastewater each day. In 2017, four of the County's treatment plants—South, Brightwater, Vashon, and Carnation—operated without a violation of their NPDES permit effluent limits. South, Vashon, and Carnation each received a Platinum Peak

Performance Award from the National Association of Clean Water Agencies, and Brightwater received a Gold Award. Platinum-level awards are given for five or more consecutive years of compliance with effluent limits established by NPDES permits, and Gold-level awards are presented to facilities with no permit violations for the entire calendar year.

The West Point Treatment Plant had exceedances of its permit effluent limits in 2017, resulting from electrical and equipment failures that led to flooding during a storm in February 2017. The WTD immediately focused on restoration and repair activities, and the plant was able to resume normal operations in May 2017.

More information on WTD's NPDES permits is available at http://www.kingcounty.gov/depts/dnrp/wtd/system/npdes.aspx.

## Odor Prevention and Control Program

The RWSP policies provide direction on implementing an odor prevention and control program that goes beyond traditional odor control for the County's wastewater treatment plants and associated conveyance facilities. The RWSP policies also call for including a summary of odor complaints in annual reports.

The WTD received and investigated 46 odor complaints in 2017 (Table 1). When investigating an odor complaint, the source of the odor is not always identifiable. For example, some complaints were from areas where there are no WTD facilities.

Of the 46 complaints received in 2017, 28 were determined to be attributable to WTD facilities. No odor complaints were attributed to the Brightwater and Carnation treatment plants.

The two complaints attributed to the West Point Treatment Plant resulted from the odor control units being offline due to the flooding incident that occurred in February 2017. The complaints attributable to South Treatment Plant occurred during cleaning of tanks and doors being open in the dewatering process area due to buildup of ammonia odors. Staff intend to use odor-neutralizing chemicals during future cleaning of the tanks, and are working to resolve the ammonia odors in order to keep the doors closed to the dewatering process area.

The complaints attributable to the conveyance facilities in the West Point, East, and Vashon service areas were resolved through replacing fans, changing out filters in odor control facilities, and cleaning and sealing maintenance hole covers.

**Table 1. Odor Complaints in 2017**

| Location | Complaints Received | Complaints Attributed to WTD Facilities |
|---|---|---|
| West Point Treatment Plant | 3 | 2 |
| Conveyance facilities in the West Point service area | 14 | 4 |
| South Treatment Plant | 6 | 4 |
| Brightwater Treatment Plant | 1 | 0 |
| Conveyance facilities in the East Service Area (serving South and Brightwater Treatment Plant service areas) | 21 | 17 |
| Vashon Treatment Plant/Pump Station | 1 | 1 |
| Carnation Treatment Plant | 0 | 0 |
| **Total** | **46** | **28** |

## Water Quality Monitoring

The RWSP policies call for a comprehensive water quality monitoring program of streams and water bodies. The polices guide the County in identifying and resolving regional water quality issues, protecting public and environmental health, and protecting the public's investment in the regional wastewater system and water resource management.

The parameters used to assess a water body's health under Washington state Water Quality Standards are fecal coliform bacteria, dissolved oxygen, temperature, pH, nutrients, turbidity, and a variety of chemical compounds.

Monitoring results for the previous year are presented as environmental indicators on the County's Department of Natural Resources and Parks KingStat website at http://your.kingcounty.gov/dnrp/measures/.

Key findings in 2017 included the following:

- Waters in most urban streams are frequently warmer, have more fecal coliform bacteria, and less dissolved oxygen than Washington state standards allow;
- The health of streams, as measured by the diversity and abundance of the invertebrate community that lives on the stream bottom, is generally better in streams that have less urban development;
- In 2017, there were six beaches monitored in Lake Washington and one beach in Lake Sammamish that had short-term incidents of high bacteria. Juanita Beach was closed for 13 days in August due to high bacteria levels. No beaches were closed in Lake Sammamish, and bacteria levels were low in Green Lake for the 14th year in a row;

- Twenty-five lakes were sampled in 2017 for cyanotoxins. One site on Lake Washington and five small lakes had algal blooms with toxin concentrations above guidance values;
- Typical Puget Sound marine water temperatures were observed in the first half of 2017, followed by slightly warmer than typical conditions for the second half of the year;
- Based on the Marine Water Quality Index, most offshore monitoring stations, including those at the County's treatment plant marine outfalls, were at a low level of concern in 2017. Elliott Bay was at a moderate level of concern in 2017 due to low dissolved oxygen and strong water column stratification. Both Quartermaster Harbor stations were at a high level of concern in 2017 due to low dissolved oxygen levels and very low surface dissolved inorganic nitrogen, an indicator of potential sensitivity to additional inputs of nutrients;
- No exceedances of fecal coliform bacteria standards occurred at the County's treatment plant marine outfalls or at other offshore stations;
- Slightly more than half (55 percent) of marine beaches in 2017 had high bacteria concentrations that exceeded state water quality standards. Most of the stations with exceedances of the bacteria standards are located near freshwater sources such as creek outflows;
- Ambient subtidal sediment samples were collected in 2017 from Elliott Bay and the mainstem of Puget Sound's Central Basin. Half of the stations exceeded state sediment quality standards for mercury and/or benzoic acid. Concentrations of all other chemicals met state standards;
- The West Point Treatment Plant flooding incident in February 2017 caused short-term increases in bacteria levels at nearby marine beaches. Beaches were closed for 12 days until the bacteria levels returned to normal;
- West Point Treatment Plant effluent quality was worse than typical during the period of reduced treatment from February to May 2017, which occurred after the flooding-related overflow ended. Several metals were present at higher levels than in typical secondary treated effluent; and
- No substantial differences in ambient Puget Sound receiving water quality was observed from March through June 2017 compared to previous years. The potential accumulation of metals and organic chemicals in sediments and tissues is being investigated.

Data and reports are available on the Water and Land Resources Division's Science and Technical Support Section website at http://www.kingcounty.gov/depts/dnrp/wlr/sections-programs/science-section.aspx.

## RWSP Cost Estimates

The RWSP reporting policies call for an update of anticipated RWSP program costs through the year 2030. In accordance with Section 110, Proviso P1 in Budget Ordinance 17941 and Motion 14384, WTD began work in 2015 to review and make recommendations regarding the processes the division uses to establish and update planning-level cost estimates for capital projects. The cost-estimating improvements

resulting from this work was used in 2017 to develop planning-level cost estimates associated with the 2017 CSI Program Update.

The CSI Program Update identified 41 conceptual projects to meet identified capacity needs through 2060, based on a 50-year planning period. The planning-level AACE Class 5 cost estimate for these projects is $1.7 billion.[5] Class 5 cost estimates are considered to have an accuracy range of -50 percent to +100 percent for the known scope at the time of the estimate. The level of project definition is minimal or near a zero percent level of engineering development. More information on the individual conceptual projects and cost estimates is provided in the CSI program update and supporting documents available at https://www.kingcounty.gov/services/environment/wastewater/csi/updates-history/2017.aspx.

The cost-estimating improvements will also be applied during the process to update the CSO Long-term Control Plan. Cost estimates for RWSP projects that are underway and have been baselined are provided on a monthly basis in the financial section of WTD's Operational Performance Metrics website: https://www.kingcounty.gov/depts/dnrp/wtd/system/performance-metrics.aspx.

## Conclusion

The WTD continues to implement programs and projects in accordance with the RWSP. Highlights of efforts in 2017 are as follows:

- Seven CSI projects were underway;
- Seven CSO Control projects were underway;
- The CSI Program Update was completed;
- The Water Quality Assessment and Monitoring Study was completed;
- Work continued to update the 2018 CSO Long-term Control Plan;
- The WTD initiated a Treatment Plant Flows and Loads Study; and
- The WTD continued to recycle and beneficially use wastewater treatment products, which also help to meet the County's SCAP energy and greenhouse gas emissions reduction targets.

Many of the major projects outlined in the RWSP have been completed, are underway, or are planned for the future. Information related to RWSP major components, elements, costs, and programs is provided on WTD's website, through regular briefings to the King County Council's Regional Water Quality Committee, and through the King County budget process. In addition, in 2018, WTD will initiate a wastewater systemwide planning effort that is expected to result in a new plan that sets direction for WTD beyond 2030 (see Next Steps). Changes in WTD projects and programs before 2030 will also be considered in the systemwide planning process. For these reasons, the

[5] AACE International has been serving the total cost management community since 1956. The legal name since 1992 is AACE International. In 1956, the organization was established as the American Association of Cost Engineers.

RWSP 2017 Annual Report is the final RWSP annual report.

## Next Steps

Billions of dollars will be invested in the County's regional wastewater treatment system over the next few decades. With many pressing priorities arising, WTD is initiating a systemwide planning effort in 2018 so that the right investments are made at the right time through and beyond 2030.

The systemwide planning effort will consider the following topics:

- Aging infrastructure and increased asset management
- Increasing demand for treatment in a growing region
- Requirements to reduce the amount of untreated sewage and polluted stormwater sent to Puget Sound during storms
- Changing climate resulting in more extreme weather events
- Potential new requirements for additional wastewater treatment

At the same time as regional wastewater improvements are needed, people in the Puget Sound region are being asked to help fund other important regional efforts, such as improvements to stormwater systems, transit options, roads, and affordable housing through other rates, fees and taxes. Understanding how these costs affect people as the region becomes increasingly expensive is important, and will also be considered in the planning process.

# Appendix H

# City of Issaquah Standard Operating Procedures for Sanitary Sewer Overflow

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**CITY OF ISSAQUAH**

**PUBLIC WORKS DEPARTMENT**

**STANDARD OPERATING PROCEDURES**

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**ACTIVITY: Sanitary Sewer Overflow (SSO)**

**DIVISION: Sewer DATE: 02/07/2024 FILE: Sanitary Sewer.SOP.DOC**

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**SAFETY EQUIPMENT:**

**SUPPORT MATERIAL: PPE SOP, Spill and Water Quality Response SOP, Jet Truck Operations SOP (Truck # 2049 or 2074), storm BMP**

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**PURPOSE:** The intent of this SOP is to provide Public Works Operations staff with guidance to quickly clear a blocked sewer line which results in a sanitary sewer overflow (SSO) and the methods to prevent public exposure by securing the site, containing the overflow and clean up.

**OPERATING PROCEDURE:**

**First Response:**

1. Sanitary Sewer Overflows are emergencies, they pose a hazard to the public and the environment.
    a. Investigate all reports in Issaquah immediately.
    b. Use appendix A to determine if the manhole is part of Issaquah's sanitary sewer system.
        i. Other agencies in Issaquah which operate sanitary sewer systems:
            1. King County Metro
            2. Sammamish Plateau Water and Sewer District
            3. Private systems
2. Locate the overflowing sanitary sewer manhole.
    a. Inspect the area to identify the extent of the spill.
    b. Secure the area for public safety using caution tape and barricades or other barriers as necessary.
    c. Inspect adjacent stormwater structures for contamination and potential illicit discharge.
3. If the sewer system belongs to another agency, or private party, contact the appropriate owner of the system.
    a. King County Metro 24-hour emergency line, (206) 386-1800
    b. Sammamish Plateau Water and Sewer 24-hour emergency line, (425) 392-6256
    c. Locate the next downstream manhole that is surcharged or holding water,
    d. Contact support crew to bring Jet Truck and any additional supplies needed. If entering storm system, have crew bring Service Truck and the appropriate plug.

e. Take pictures of spill and the area of containment.

**Clearing Blockage:**

1. Containment:
    a) If spill is entering storm system, follow the storm downstream to find an uncontaminated catch basin and plug the outfall line inside of basin. This will be used as a containment area.
    a. If you need to contain the spill, find a downstream catch basin and plug the outfall line inside of the basin. Divert spill into upstream catch basin.
    b.
2. Jetting Sewer Line:
    a. Set up on downstream manhole that is clear.
    b. Install the chisel/piercing nozzle on the end of the jet hose.
    c. Set up to jet upstream following the normal Jetting SOP.
    d. Place debris basket in front of downstream line to collect debris while jetting the line.
    e. When jet hose becomes slack and the nozzle has hit the blockage, pull back about 6" and let nozzle work on blockage to open.
    f. Jet through the blockage. Stop when the blockage begins to flow.
    g. Continue jetting to the surcharging manhole and slowly pull debris back.
        a. If possible, have Jet Truck set up to Jet/Vac and vac any debris coming down the line.
    h. Check the surcharging manhole and affected upstream manholes and spray down walls and shelves if needed.
    i. Pull out debris basket and empty.
    j. Walk downstream and check manholes for any other debris or blockages.
        a. You may have to jet downstream lines to collect any missed debris.

**Clean Up :**

1. Jetting Sewer line
    a. After blockage is cleared with the Chisel nozzle, change nozzle to the cleaning or flushing nozzle.
    b. Wash affected roadway areas by pressure washing and vacuuming up any debris with the jet truck. Vacuum adjacent landscape, shoulder, native vegetation and other areas as needed.
2. Storm System Clean Up
    a. Starting at the upstream contaminated catch basin, vac out basin .
    b. Jet lines and clean the catch basins downstream until you reach the plug line.
    c. Remove plug after all contaminated lines and basins are cleaned.
3. Lawn, landscaping, or soil saturated with sewage.
    a. Rake up and bag all large debris and dispose.
    b. Apply a light covering of lime to affected area.
        i. If none is stock, can be picked up at Lowes or The Grange.
4. When all is completed, schedule line to be CCTV Inspected to determine cause of blockage, i.e., root intrusion, side sewer grease discharge, offset.

**Notifications:**

1. Report the SSO as a spill to Ecology through Environmental Report Tracking System (ERTS) within 24 hours of spill. Inform them of location, estimated amount of discharge, cause of blockage, and cleanup efforts that have taken place.
    a. ERTS reporting - Department of Ecology through the Washington Emergency

Management Division at 1-800-OILS-911.

b. Spill reporting web page can be found at this link. https://ecology.wa.gov/footer-pages/report-an-environmental-issue/report-a-spill

2. For discharges to landscaping or soil, notify the King County Department of Health at 206-477-8050 to mitigate public health hazards.

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# Appendix I

## Opinion of Probable Construction Cost

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# City of Issaquah

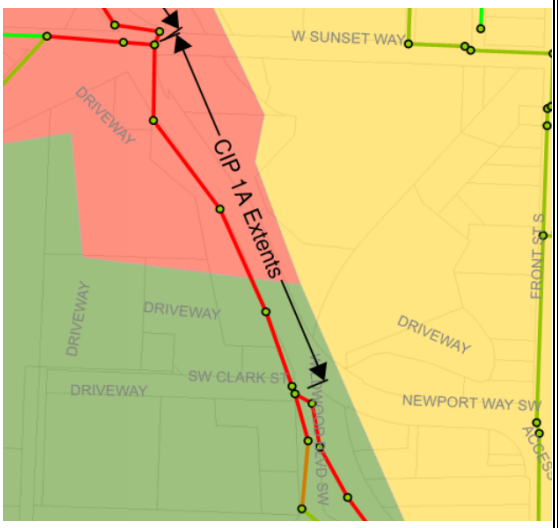
## Capital Improvement Project Summary

### PROJECT OVERVIEW

**PROJECT NAME:** Newport Way NW, Wildwood Boulevard SW to W Sunset Way Sewer System Improvements

**PROJECT NUMBER:** CIP 1A

**MAP:**




**PROJECT DESCRIPTION:**

Replace and/or upsize the gravity sewer trunk between Wildwood Blvd SW and W Sunset Way

**PROJECT REASON:**

Based on hydraulic modeling results, the existing sewer line is expected to surcharge in the 2042 modeling scenario.

**SPECIAL CONSIDERATIONS:**

This project will likely require predesign engineeering services such as alternative routing, feasibility and environmental permitting analysis. No special funding is expected.

### ESTIMATED PROJECT COST BREAKDOWN

| | |
|---|---|
| Administration/Legal | $42,004 |
| Property/Easement Acquisition | $0 |
| Engineering/Survey/Permitting | $210,018 |
| Construction Services | $98,009 |
| Construction | $1,400,123 |
| **Total Opinion of Probable Project Costs*** | $1,751,000 |

*All costs are rounded up to neareast $1000 and presented in 2023 dollars.

**City of Issaquah**
**2023 Sanitary Sewer Master Plan**
**Prepared By: K. Garcia**
**Checked By: D. Harms**
**10/20/2023**

**CIP 1A** **Opinion of Probable Project Costs**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | 12-inch PVC Gravity Upsize | $214 | 1,023 | LF | $218,615 |
| 2 | 48-inch Diameter Manhole | $12,000 | 6 | EA | $72,000 |
| 3 | Lateral Connection | $10,000 | 20 | EA | $204,600 |
| 4 | Dewatering | $15,000 | 1 | LS | $15,000 |
| 5 | Sheeting, Shoring, Bracing | $10 | 1,023 | LF | $10,230 |
| 6 | HMA Trench Patch | $250 | 320 | TN | $80,000 |
| 7 | Half-Width Grind and HMA Overlay | $200 | 160 | TN | $32,000 |
| 8 | Imported Trench Backfill | $40 | 1,760 | TN | $70,400 |
| 9 | Crushed Surfacing | $50 | 550 | TN | $27,500 |
| 10 | Temporary Sewer Bypassing | $20,000 | 1 | LS | $20,000 |
| 11 | Traffic Control (5%) | $38,000 | 1 | LS | $38,000 |
| 12 | General Restoration (2%) | $15,000 | 1 | LS | $15,000 |
| 13 | Mobilization (12%) | $90,000 | 1 | LS | $90,000 |
| 14 | Temporary Erosion & Sediment Control (2%) | $15,000 | 1 | LS | $15,000 |
| | **Construction Costs Subtotal** | | | | $908,345 |
| | Sales Tax @ 10.1% | | | | $91,743 |
| | Subtotal | | | | $1,000,088 |
| | Risk/Difficulty | High | Contingency | 40% | $400,035 |
| | **Total Construction Cost (Rounded)** | | | | $1,400,123 |
| | **Allied Costs** | | | | |
| | Engineering/Survey/Permits | | | | $210,018 |
| | Administration/Legal | | | | $42,004 |
| | Construction Services | | | | $98,009 |
| | Property/Easement Acquisition | | | | $0 |
| | **TOTAL ESTIMATED PROJECT COST (ROUNDED UP TO NEAREST $1000)** | | | | $1,751,000 |

Assumptions, Notes

1. All Costs in 2023 Dollars. Costs are not escalated for assumed date of implementation.
2. One Lane HMA Overlay at 2-inches by 12' wide, 4"deep x 8' HMA patch and 12-inches x 6' Wide Crushed Surfacing.
3. Each pipe unit price includes all fittings,pipe,bedding,shoring, testing, compaction, excavation, haul and disposal
4. Assume 48-inch MH for Pipe up to 18-inches, 54-inch MH for pipe 21-inch to 24-inch, 60-inch MH above 24-inch pipe.
5. Assume one manhole per every 200 linear feet of gravity pipe, on average.
6. Assume one Lateral Reconnection every 50 lineal feet
7. Assume temporary sewer bypassing is needed to upsize existing pipes.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

# City of Issaquah

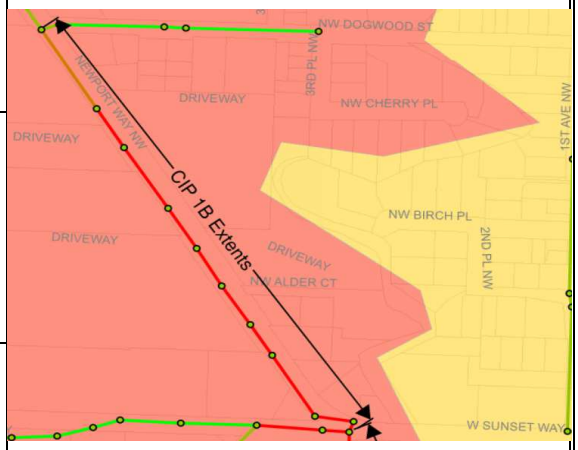
## Capital Improvement Project Summary

### PROJECT OVERVIEW

**PROJECT NAME:** Newport Way NW, W Sunset Way to NW Dogwood St Sewer System Improvements

**PROJECT NUMBER:** CIP 1B

**MAP:**




**PROJECT DESCRIPTION:**

Replace and/or upsize the gravity sewer trunk between W Sunset Way to NW Dogwood St

**PROJECT REASON:**

Based on hydraulic modeling results, the existing sewer line is expected to surcharge in the 2042 modeling scenario.

**SPECIAL CONSIDERATIONS:**

This project will likely require predesign engineeering services such as alternative routing, feasibility and environmental permitting analysis. No special funding is expected.

### ESTIMATED PROJECT COST BREAKDOWN

| | |
|---|---|
| Administration/Legal | $69,425 |
| Property/Easement Acquisition | $0 |
| Engineering/Survey/Permitting | $347,126 |
| Construction Services | $161,992 |
| Construction | $2,314,174 |
| **Total Opinion of Probable Project Costs*** | $2,893,000 |

*All costs are rounded up to neareast $1000 and presented in 2023 dollars.

**City of Issaquah**
**2023 Sanitary Sewer Master Plan**
**Prepared By: K. Garcia**
**Checked By: D. Harms**
**10/20/2023**

**CIP 1B** **Opinion of Probable Project Costs**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | 15-inch PVC Gravity Upsize | $230 | 1,657 | LF | $381,276 |
| 2 | 48-inch Diameter Manhole | $12,000 | 9 | EA | $108,000 |
| 3 | Lateral Connection | $10,000 | 33 | EA | $331,400 |
| 4 | Dewatering | $30,000 | 1 | LS | $30,000 |
| 5 | Sheeting, Shoring, Bracing | $10 | 1,657 | LF | $16,570 |
| 6 | HMA Trench Patch | $250 | 520 | TN | $130,000 |
| 7 | Half-Width Grind and HMA Overlay | $200 | 260 | TN | $52,000 |
| 8 | Imported Trench Backfill | $40 | 2,840 | TN | $113,600 |
| 9 | Crushed Surfacing | $50 | 890 | TN | $44,500 |
| 10 | Temporary Sewer Bypassing | $33,000 | 1 | LS | $33,000 |
| 11 | Traffic Control (5%) | $62,000 | 1 | LS | $62,000 |
| 12 | General Restoration (2%) | $25,000 | 1 | LS | $25,000 |
| 13 | Mobilization (12%) | $149,000 | 1 | LS | $149,000 |
| 14 | Temporary Erosion & Sediment Control (2%) | $25,000 | 1 | LS | $25,000 |
| | **Construction Costs Subtotal** | | | | $1,501,346 |
| | Sales Tax @ 10.1% | | | | $151,636 |
| | Subtotal | | | | $1,652,982 |
| | Risk/Difficulty | High | Contingency | 40% | $661,193 |
| | **Total Construction Cost (Rounded)** | | | | $2,314,174 |
| | **Allied Costs** | | | | |
| | Engineering/Survey/Permits | | | | $347,126 |
| | Administration/Legal | | | | $69,425 |
| | Construction Services | | | | $161,992 |
| | Property/Easement Acquisition | | | | $0 |
| | **TOTAL ESTIMATED PROJECT COST (ROUNDED UP TO NEAREST $1000)** | | | | $2,893,000 |

Assumptions, Notes

1. All Costs in 2023 Dollars. Costs are not escalated for assumed date of implementation.
2. One Lane HMA Overlay at 2-inches by 12' wide, 4"deep x 8' HMA patch and 12-inches x 6' Wide Crushed Surfacing.
3. Each pipe unit price includes all fittings,pipe,bedding,shoring, testing, compaction, excavation, haul and disposal
4. Assume 48-inch MH for Pipe up to 18-inches, 54-inch MH for pipe 21-inch to 24-inch, 60-inch MH above 24-inch pipe.
5. Assume one manhole per every 200 linear feet of gravity pipe, on average.
6. Assume one Lateral Reconnection every 50 lineal feet
7. Assume temporary sewer bypassing is needed to upsize existing pipes.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

# City of Issaquah

## Capital Improvement Project Summary

### PROJECT OVERVIEW

**PROJECT NAME:** 7th Ave NW and NW Juniper St to NW Maple St and 12th Ave NW Sewer System Improvements

**PROJECT NUMBER:** CIP 2

**MAP:**

**PROJECT DESCRIPTION:**

Replace and/or upsize the gravity sewer trunk between 7th Ave NW and NW Juniper St to NW Maple St and 12th Ave NW.

**PROJECT REASON:**

Based on hydraulic modeling results, the existing sewer line is expected to surcharge in the 2042 modeling scenario.

**SPECIAL CONSIDERATIONS:**

This project will likely require predesign engineeering services such as alternative routing, feasibility and environmental permitting analysis. No special funding is expected.

### ESTIMATED PROJECT COST BREAKDOWN

| | |
|---|---|
| Administration/Legal | $177,195 |
| Property/Easement Acquisition | $0 |
| Engineering/Survey/Permitting | $885,976 |
| Construction Services | $413,455 |
| Construction | $5,906,506 |
| **Total Opinion of Probable Project Costs*** | $7,384,000 |

*All costs are rounded up to neareast $1000 and presented in 2023 dollars.

**City of Issaquah**
**2023 Sanitary Sewer Master Plan**
**Prepared By: K. Garcia**
**Checked By: D. Harms**
**10/20/2023**

**CIP 2 Opinion of Probable Project Costs**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | 18-inch PVC Gravity Upsize | $267 | 1,263 | LF | $337,347 |
| 2 | 21-inch PVC Gravity Upsize | $301 | 2,619 | LF | $788,843 |
| 3 | 48-inch Diameter Manhole | $12,000 | 7 | EA | $84,000 |
| 4 | 54-inch Diameter Manhole | $15,000 | 14 | EA | $210,000 |
| 5 | Lateral Connection | $10,000 | 78 | EA | $776,400 |
| 6 | Dewatering | $60,000 | 1 | LS | $60,000 |
| 7 | Sheeting, Shoring, Bracing | $10 | 3,882 | LF | $38,820 |
| 8 | HMA Trench Patch | $250 | 1,210 | TN | $302,500 |
| 9 | Half-Width Grind and HMA Overlay | $200 | 610 | TN | $122,000 |
| 10 | Imported Trench Backfill | $40 | 6,650 | TN | $266,000 |
| 11 | Crushed Surfacing | $50 | 2,080 | TN | $104,000 |
| 12 | Temporary Sewer Bypassing | $78,000 | 1 | LS | $78,000 |
| 13 | Traffic Control (5%) | $158,000 | 1 | LS | $158,000 |
| 14 | General Restoration (2%) | $63,000 | 1 | LS | $63,000 |
| 15 | Mobilization (12%) | $380,000 | 1 | LS | $380,000 |
| 16 | Temporary Erosion & Sediment Control (2%) | $63,000 | 1 | LS | $63,000 |
| | **Construction Costs Subtotal** | | | | $3,831,910 |
| | Sales Tax @ 10.1% | | | | $387,023 |
| | Subtotal | | | | $4,218,933 |
| | Risk/Difficulty | High | Contingency | 40% | $1,687,573 |
| | **Total Construction Cost (Rounded)** | | | | $5,906,506 |
| | **Allied Costs** | | | | |
| | Engineering/Survey/Permits | | | | $885,976 |
| | Administration/Legal | | | | $177,195 |
| | Construction Services | | | | $413,455 |
| | Property/Easement Acquisition | | | | $0 |
| | **TOTAL ESTIMATED PROJECT COST (ROUNDED UP TO NEAREST $1000)** | | | | $7,384,000 |

Assumptions, Notes

1. All Costs in 2023 Dollars. Costs are not escalated for assumed date of implementation.
2. One Lane HMA Overlay at 2-inches by 12' wide, 4"deep x 8' HMA patch and 12-inches x 6' Wide Crushed Surfacing.
3. Each pipe unit price includes all fittings,pipe,bedding,shoring, testing, compaction, excavation, haul and disposal
4. Assume 48-inch MH for Pipe up to 18-inches, 54-inch MH for pipe 21-inch to 24-inch, 60-inch MH above 24-inch pipe.
5. Assume one manhole per every 200 linear feet of gravity pipe, on average.
6. Assume one Lateral Reconnection every 50 lineal feet
7. Assume temporary sewer bypassing is needed to upsize existing pipes.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

# City of Issaquah

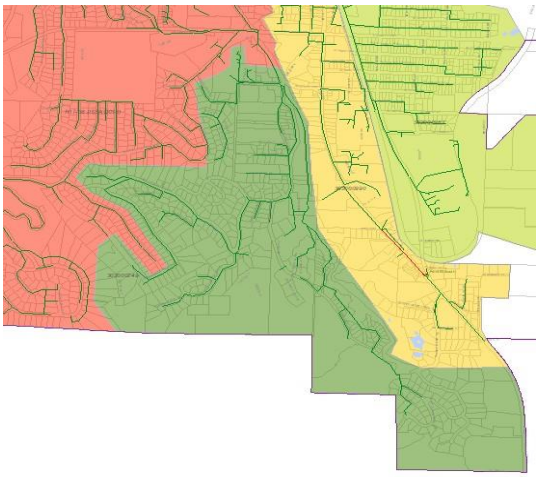
## Capital Improvement Project Summary

### PROJECT OVERVIEW

**PROJECT NAME:** MB 6 I/I Study

**PROJECT NUMBER:** CIP 1A

**MAP:**



**PROJECT DESCRIPTION:**

Perform I/I study in the sewer basin upstream of CIP projects 1A, 1B, and 2.

**PROJECT REASON:**

CIP projects 1A, 1B and 2 will upsize collection system piping to convey peak wet weather flows. Flow monitoring performed for model calibration identified a significant upstream I/I response to rainfall events. The goal of the I/I study is to investigate potential upstream sources for the elevated I/I. If I/I can be mitigated upstream of the CIP projects, they will be re-evaluated to determine if they can be downsized or removed.

**SPECIAL CONSIDERATIONS:**

### ESTIMATED PROJECT COST BREAKDOWN

| | |
|---|---|
| Administration/Legal | $0 |
| Property/Easement Acquisition | $0 |
| Engineering/Survey/Permitting | $75,000 |
| Construction Services | $0 |
| Construction | $0 |
| **Total Opinion of Probable Project Costs*** | $75,000 |

*All costs are rounded up to neareast $1000 and presented in 2023 dollars.

# City of Issaquah

## Capital Improvement Project Summary

| PROJECT OVERVIEW | |
|---|---|
| **PROJECT NAME:** 5th Place NE Sewer System Improvements | |
| **PROJECT NUMBER:** CIP 3 | **MAP:** |
| **PROJECT DESCRIPTION:**<br>Replace and/or upsize the gravity sewer trunk on 5th Place NE | |
| **PROJECT REASON:**<br>Based on hydraulic modeling results, the existing sewer line is expected to surcharge in the 2042 modeling scenario. | |
| **SPECIAL CONSIDERATIONS:**<br>This project will likely require predesign engineeering services such as alternative routing, feasibility and environmental permitting analysis. No special funding is expected. | |

| ESTIMATED PROJECT COST BREAKDOWN | |
|---|---|
| Administration/Legal | $48,918 |
| Property/Easement Acquisition | $0 |
| Engineering/Survey/Permitting | $244,592 |
| Construction Services | $114,143 |
| Construction | $1,630,616 |
| **Total Opinion of Probable Project Costs*** | $2,039,000 |

*All costs are rounded up to neareast $1000 and presented in 2023 dollars.

**City of Issaquah**
**2023 Sanitary Sewer Master Plan**
**Prepared By: K. Garcia**
**Checked By: D. Harms**
**10/20/2023**

**CIP 4 Opinion of Probable Project Costs**

| Bid Item No. | Bid Item Description | Unit Bid Price | Quantity | Unit | Total |
|---|---|---|---|---|---|
| 1 | 20-inch PVC Gravity Upsize | $301 | 1,025 | LF | $308,730 |
| 2 | 54-inch Diameter Manhole | $15,000 | 6 | EA | $90,000 |
| 3 | Lateral Connection | $10,000 | 21 | EA | $205,000 |
| 4 | Dewatering | $30,000 | 1 | LS | $30,000 |
| 5 | Sheeting, Shoring, Bracing | $10 | 1,025 | LF | $10,250 |
| 6 | HMA Trench Patch | $250 | 320 | TN | $80,000 |
| 7 | Half-Width Grind and HMA Overlay | $200 | 160 | TN | $32,000 |
| 8 | Imported Trench Backfill | $40 | 1,760 | TN | $70,400 |
| 9 | Crushed Surfacing | $50 | 550 | TN | $27,500 |
| 10 | Temporary Sewer Bypassing | $21,000 | 1 | LS | $21,000 |
| 11 | Traffic Control (5%) | $44,000 | 1 | LS | $44,000 |
| 12 | General Restoration (2%) | $17,000 | 1 | LS | $17,000 |
| 13 | Mobilization (12%) | $105,000 | 1 | LS | $105,000 |
| 14 | Temporary Erosion & Sediment Control (2%) | $17,000 | 1 | LS | $17,000 |
| | **Construction Costs Subtotal** | | | | $1,057,880 |
| | Sales Tax @ 10.1% | | | | $106,846 |
| | Subtotal | | | | $1,164,726 |
| | Risk/Difficulty | High | Contingency | 40% | $465,890 |
| | **Total Construction Cost (Rounded)** | | | | $1,630,616 |
| | **Allied Costs** | | | | |
| | Engineering/Survey/Permits | | | | $244,592 |
| | Administration/Legal | | | | $48,918 |
| | Construction Services | | | | $114,143 |
| | Property/Easement Acquisition | | | | $0 |
| | **TOTAL ESTIMATED PROJECT COST (ROUNDED UP TO NEAREST $1000)** | | | | $2,039,000 |

Assumptions, Notes

1. All Costs in 2023 Dollars. Costs are not escalated for assumed date of implementation.
2. One Lane HMA Overlay at 2-inches by 12' wide, 4"deep x 8' HMA patch and 12-inches x 6' Wide Crushed Surfacing.
3. Each pipe unit price includes all fittings,pipe,bedding,shoring, testing, compaction, excavation, haul and disposal
4. Assume 48-inch MH for Pipe up to 18-inches, 54-inch MH for pipe 21-inch to 24-inch, 60-inch MH above 24-inch pipe.
5. Assume one manhole per every 200 linear feet of gravity pipe, on average.
6. Assume one Lateral Reconnection every 50 lineal feet
7. Assume temporary sewer bypassing is needed to upsize existing pipes.

The opinion of probable cost herein is based on our perception of current conditions at the project location. This opinion reflects our professional opinion of costs at this time and is subject to change as the project design progresses. BHC Consultants has no control over variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means and methods of executing the work or of determining prices, competitive bidding or market conditions, practices or bidding strategies. BHC Consultants cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented as shown.

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# Appendix J

# Utility Rate Study

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CITY OF ISSAQUAH WASHINGTON

Final Report

# Water, Sewer, and Stormwater Rate Study

*July 2020*

HDR

July 22, 2020

Mr. Bob York
Interim Public Works Director
City of Issaquah
130 East Sunset Way
Issaquah, WA 98027

**Subject: City of Issaquah Comprehensive Water, Sewer, and Stormwater Rate Study**

Dear Mr. York:

HDR Engineering, Inc. (HDR) is pleased to present the final report on the comprehensive water, sewer, and stormwater rate study recently conducted for the City of Issaquah (City). The overall objective in conducting each utility rate study was to establish cost-based rates that provide adequate and sustainable funding for the operational and capital needs of each utility. This report outlines the approach, methodology, findings, and conclusions of the rate study process undertaken for the City's water, sewer, and stormwater utilities.

This report was developed utilizing the City's specific accounting, operating, and historical customer billing records. HDR utilized this information to develop our analyses which shaped our findings, conclusions, and recommendations. At the same time, this study was developed utilizing generally accepted rate setting principles as outlined in the American Water Works Association M1 and the Water Environment Federation Manual of Practice No. 27 rate setting manuals. The conclusions and recommendations contained within this report are intended to provide the City with cost-based and equitable rates for its customers.

We appreciate the assistance provided by the City staff, management, and the City Council in the development of this study.

Sincerely yours,
HDR Engineering, Inc.

Shawn Koorn
Associate Vice President

900 108th Ave NE, Suite 1300
Bellevue, WA 98004

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# Executive Summary

## Introduction

HDR Engineering, Inc. (HDR) was retained by the City of Issaquah (City) to perform a comprehensive water, sewer, and stormwater rate study as an update to the prior rate study which was performed in 2015. There were a number of issues that impacted the timing and need for the rate study update – namely in the water utility – which were not included as assumptions in the 2015 rate study. First, the water utility expended approximately $2.0 million for water quality concerns related to PFOS / PFAS. Next, there was an increase in indirect cost allocation expense to the water, sewer, and stormwater utilities which were not anticipated nor included in the 2015 study.

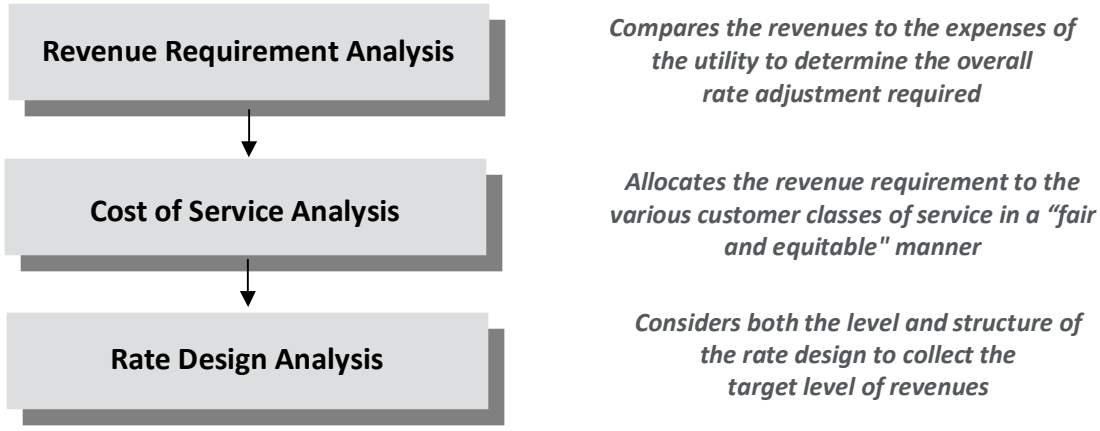
For water, the central treatment plant – after a revised water supply analysis and presentations to the City Council – has been delayed till early 2030 with discounted purchased water from CWA. In the case of the sewer and stormwater utilities, the increases in cost allocation also impact the overall revenue requirements. In an effort to minimize rate impacts - and due to adequate reserve levels - it was determined that available reserve funds would be utilized, in the short-term, in order to transition the rates more smoothly for these two utilities. Although this approach may provide short term rate relief from substantial rate increases, care should be given to closely watch the reserve levels and annual cash flows. The use of reserve funds essentially delays the need for rate adjustments but does not replace the need to fund the utilities through rates on an annual basis.

In general, the development of this study examines the adequacy of the current rates (i.e., revenues vs. expenses) for each utility and provides the cost-basis for any recommended revenue adjustments. Additionally, the rate levels should be set to adequately and equitably fund the operating and capital (O&M) needs of each utility. This report describes the overall methodology used to analyze the City's water, sewer, and stormwater rates along with the findings, conclusions, and recommendations for each.

## Overview of the Rate Study Process

A comprehensive water, sewer, and stormwater rate study uses three interrelated analyses to address the adequacy and equity of a utility's rates. These three analyses are a revenue requirement analysis, a cost of service analysis, and a rate design analysis. These three analyses are illustrated below in Figure ES-1.

**Figure ES – 1**
**Overview of the Comprehensive Rate Analyses**




For the City's rate study, HDR conducted a revenue requirement and rate design analyses. A cost of service analysis was conducted as a part of previous comprehensive rate studies completed for the City. Although the cost of service analysis was not performed for this review, cost of service principles were referenced and drawn upon when evaluating and developing the rate design analysis. However, it is recommended that the City conduct a cost of service analysis the next time a comprehensive study is completed. The results from each task of the rate study - for the water, sewer, and stormwater utilities - were used as the basis for establishing cost-based and equitable rates for the City's customers.

## Key Rate Study Results

The water, sewer, and stormwater utilities were all financially evaluated on a stand-alone basis. By reviewing the utilities individually, the costs (expenses) required to adequately fund both O&M and capital infrastructure must be balanced against the rate impacts to customers. Likewise, future rate impacts should be considered. For example, the delayed action to fund capital improvements in the current time period could result in future higher costs and in turn increased rate adjustments as well as risk associated with catastrophic failure. As with most studies, it is challenging to balance the desire for least cost rates with the operating and capital needs required to provide a high-level service to customers.

Based on the technical analysis undertaken as part of this study, the following findings, conclusions, and recommendations were noted.

- Revenue requirement analyses were developed for the water, sewer, and stormwater utilities for 2020 – 2029.
- The starting point for the revenue requirement analysis was the City's adopted 2019 water, sewer, and stormwater budgets.
- The capital improvement plans for each utility were updated by City staff in early 2020 to reflect current projections of projects and timing of improvements.

- The previously adopted 2020 rate adjustments for water, sewer, and stormwater, as outlined in the 2015 rate study were implemented and included within the revenue projections
- A five-year rate transition plan (2021 – 2025) was developed to adequately fund the operating and capital needs of each utility.
- Based on the review of the technical analyses and their preliminary recommendations the City Council directed staff and HDR, the following annual rate adjustments are proposed to smoothly transition the City's rates:
  - ✓ **Water Utility**[1] – 0.0% in 2021, 7.5% annually in 2022 through 2025
  - ✓ **Sewer Utility**[2] – 0.0% in 2021 and 3.5% annually from 2022 to 2025
  - ✓ **Stormwater Utility**[3] – 0.0% in 2021, 5.5% annually in 2022 – 2024, and 4.0% in 2025
- Rates were developed for a 5-year period to provide the City Council with a projection of rates necessary to meet future operating and capital needs
- The proposed rate adjustments are necessary for the City to adequately fund its financial needs and maintain prudent financial measures and operating metrics
  - ✓ Adequate funding of capital improvements from rates to prudently maintain the City's existing infrastructure (i.e., renewal and replacement programs).
  - ✓ Maintain adequate minimum reserve levels for routine operating and capital needs and emergencies
- By no later than 2025, the City should conduct a review of the financial/rate status of each utility and the potential need for cost of service adjustments, rate adjustments, or some combination of the two.

Provided below is a more detailed summary of each of the utility's and their proposed rates.

## Water Rate Study

The water rate study reviewed the overall adequacy of the existing water rates, at current implemented (adopted) rates. The water utility was evaluated on a financially stand-alone basis. That is, no funding sources other than those generated by the water utility, such as water sales and other water-related fees and revenues, were considered or used to fund water utility expenses.

### Water Revenue Requirement Analysis

The starting point of the revenue requirement analysis was the adopted 2019 budget. In addition to existing budget levels, additional projected operation costs were included in future years such as additional staff to support new capital infrastructure needs as included within the capital funding analysis. HDR developed a projection of revenues and expenses for future years based on assumed escalation (inflationary) factors. The study was developed for a 10-year period to review future rate needs based on operating and capital needs. While revenues and expenses were projected for a longer time period, the focus for rate setting purposes was five-year rate setting period of 2021 – 2025, which is referred to as the rate transition plan.

[1] Adopted water rate adjustment for 2020 was 3.5% and is included within the rate study revenue projections

[2] Adopted sewer rate adjustment for 2020 was 5.5% and is included within the rate study revenue projections

[3] Adopted stormwater rate adjustment for 2020 was 3.0% and is included within the rate study revenue projections

A major component within water utility's revenue requirement analysis was the development of the capital improvement funding plan. The development of the plan was based on the City's 2020 – 2025 adjusted CIP which delayed certain capital projects to help smooth the impact to rates. Shown in Table ES – 1 below is a summary of the water utility capital improvement plan for the study period.

**Table ES - 1**
**Summary of the Water Capital Improvement Plan ($000s)**

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| Total Capital Projects | $2,975 | $4,293 | $5,506 | $658 | $1,570 | $1,539 |
| Transfer to Cash Reserves | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Total Capital Expenses*** | **$2,975** | **$4,293** | **$5,506** | **$658** | **$1,570** | **$1,539** |
| ***Less: Outside Funding Sources*** | | | | | | |
| Operating Fund Reserves | $0 | $0 | $0 | $0 | $0 | $0 |
| Capital Fund Reserves | 2,219 | 24 | 3,606 | 0 | 0 | 0 |
| Assumed Revenue Bonds | 0 | 4,300 | 0 | 0 | 0 | 0 |
| Add'l Low Interest Loan | 0 | 0 | 0 | 0 | 0 | 0 |
| Add'l Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Total Funding Sources*** | **$2,219** | **$4,324** | **$3,606** | **$0** | **$0** | **$0** |
| **Rate Funded Capital** | **$1,100** | **$1,100** | **$1,900** | **$658** | **$1,570** | **$1,539** |

Although many large projects have been delayed, such as the central treatment plant per City Council direction, the water capital improvement plan still contains a significant level of capital projects over the next five years. This includes large projects related to the SPAR booster pump station. Major sources of funding for these projects include capital reserves and long-term borrowing (revenue bond) which is prudent funding source given the funding magnitude needed for these projects. Whereas annual repair and replacement projects should be funded through rates on a "pay-as-you-go" basis, large one-time capital projects may be best, and most affordably funded, from long-term borrowing. This helps spread the cost of the project across current and future customers who will benefit from this major investment.

After incorporation of the adopted 2019 budget and 2020 – 2025 CIP, there were additional costs that were included based on discussion with the City's staff. As part of analyzing different water supply alternatives, it was identified that there would need to be additional O&M costs related to utilization of discounted CWA water to delay the central treatment plant construction. First, Wells 1, 2, and 4 will need updated chemical feeds to blend effectively with CWA water. Additionally, there will additional costs related to a temporary additional RCFC for CWA discounted water. Finally, the City has anticipated that the customers will be able to begin paying their bills using credit cards in 2021. There were also a number of cost allocation changes that resulted in additional indirect charges for the water utility which start in 2020 and include HR, communications, emergency management, and fuel. The total additional indirect cost allocation is $157,000 in 2020. This coupled with the cost of ACH payment processing has resulted in increased costs to the City which start in 2021 and total approximately $346,000 per year.

The revenue requirement analysis sums the utility's operating and capital expenses and compares it to the total water revenues to determine the overall rate adjustment required. As noted above, a rate transition plan was developed for the water utility to smoothly implement the needed rate adjustments. Provided below in Table ES - 2 is a summary of the water revenue requirement analysis.

**Table ES - 2**
**Summary of the Water Revenue Requirements ($000s)**

| | Projected | | | | | |
|---|---|---|---|---|---|---|
| | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Revenues** | | | | | | |
| Rate Revenues | $10,295 | $10,398 | $10,502 | $10,607 | $10,713 | $10,820 |
| Other Revenues | 2,109 | 2,180 | 1,802 | 1,799 | 1,734 | 1,797 |
| **Total Revenues** | **$12,403** | **$12,578** | **$12,303** | **$12,406** | **$12,447** | **$12,617** |
| **Expenses** | | | | | | |
| O&M Expenses | $9,816 | $10,713 | $11,177 | $11,847 | $12,347 | $12,984 |
| Taxes & Transfers | 1,223 | 1,130 | 1,134 | 1,144 | 1,152 | 1,163 |
| Rate Funded Capital | 1,100 | 1,100 | 1,900 | 658 | 1,570 | 1,539 |
| Net Debt Service | 419 | 581 | 113 | 110 | 108 | 106 |
| Change in Working Capital | (154) | (947) | (1,270) | 218 | (259) | 280 |
| **Total Expenses** | **$12,403** | **$12,578** | **$13,053** | **$13,977** | **$14,918** | **$16,072** |
| Bal./(Defic.) of Funds | $0 | $0 | ($750) | ($1,572) | ($2,471) | ($3,456) |
| Plus: Additional Taxes | 0 | 0 | (38) | (79) | (124) | (174) |
| ***Total Bal./(Defic.) of Funds*** | $0 | $0 | ($788) | ($1,651) | ($2,596) | ($3,630) |
| Bal. / (Def.) as % of Rate Rev | 0.0% | 0.0% | 7.5% | 15.6% | 24.2% | 33.5% |
| **Proposed Rate Adjustments** | **0.0%** | **0.0%** | **7.5%** | **7.5%** | **7.5%** | **7.5%** |
| Add'l Revenue with Rate Adj. | $0 | $0 | $788 | $1,651 | $2,596 | $3,630 |
| Bal. / (Def.) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 |

* - Rate revenues include the adopted 2020 rate adjustment of 3.5%

Based upon the revenue requirement analysis developed and shown above in Table ES – 2, HDR recommends the City increase the overall water utility revenue levels by 0.0% in 2020 and 7.5% annually in 2022 through 2024. The deficit in 2022 - absent any rate adjustments - is approximately $788,000 and increases to approximately $3.6 million by 2025. The water rate adjustments are necessary for a variety of reasons with impacts on the operating and capital side of expenses. For operations and maintenance, expenses are impacted by the additional O&M expenses related to blending groundwater with discounted CWA purchased water. On the capital side, there is the impact of the additional annual debt service related to borrowing needs for capital projects.

The proposed rate adjustments also maintain adequate debt service coverage ratios as new long-term issuances occur for the funding of capital projects. This level of rate adjustment will also provide the City financial flexibility, should the need arise, to issue additional long-term debt to fund future capital improvements.

## Water Rate Design Analysis

The final component of the rate study is the development of rates, which reflect the overall revenue needs, as developed in the revenue requirement analysis. Based on the review of customer consumption patterns as well as the City's goals and objectives, HDR is recommending that the City maintain their current water rate structures for all customer classes of service (e.g., residential, commercial, irrigation). The current residential rate structure is an effective tool in incentivizing conservation with a 5-tiered consumption (usage) charge. Similarly, duplex customers also have a 4-tiered inclining block rate structure. Commercial, public authorities, apartments, trailer parks, and irrigation customers all have a 2-tiered consumption charge structure with the block sizes varying by the service meter size. After review of all of the City's water rates, it appears that they are contemporary and effectively encourage efficient water use.

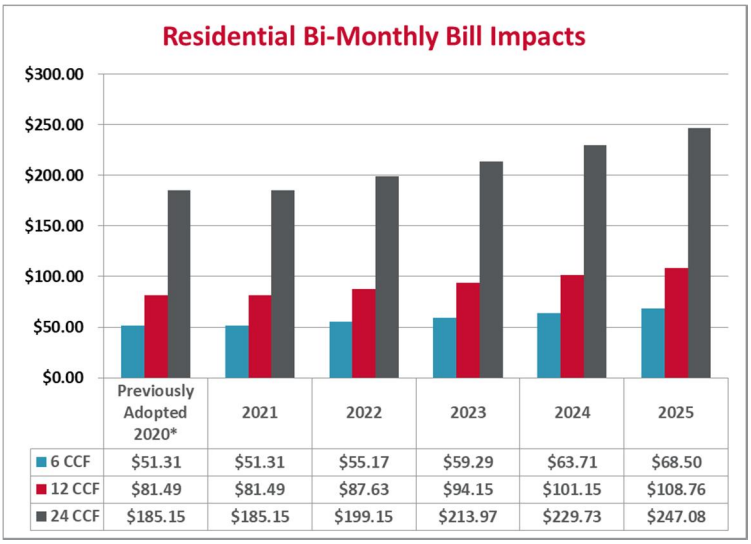
In the establishment of rates, it is important to understand how the water utility generates revenues from rates. Generally a majority of the water utility revenues are generated through the consumption charge, which is variable and dependent on water use by customers. Given this, the relationship between fixed and variable (consumption) charges should be reviewed as a part of a rate study. As would be expected for the water utility, the current rates are generating approximately 28.8% of the revenues through the fixed charge and 71.2% through the variable charge. Given the proportion of charges collected through the variable (volumetric) portion of the rate, this further shows that the rate structure is designed to encourage conservation which is growing increasingly important to the public. Table ES - 3 summarizes the present and proposed Single Family Residential rate structure.

**Table ES – 3**
**Present and Proposed Single Family Residential Bi-Monthly Water Rates**

| | Present | Proposed | | | | |
|---|---|---|---|---|---|---|
| | Rates* | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Fixed Charge** | ***$/Acct./Bi-Mo*** | | | | | |
| 3/4" | $32.77 | $32.77 | $35.23 | $37.87 | $40.71 | $43.76 |
| 1" | 71.19 | 71.19 | 76.53 | 82.27 | 88.44 | 95.06 |
| 1 1/2" | 133.54 | 133.54 | 143.56 | 154.32 | 165.90 | 178.33 |
| 2" | 212.22 | 212.22 | 228.15 | 245.25 | 263.64 | 283.39 |
| 3" | 454.49 | 454.49 | 488.61 | 525.22 | 564.61 | 606.91 |
| 4" | 688.70 | 688.70 | 740.40 | 795.88 | 855.57 | 919.67 |
| 6" | 1,330.95 | 1,330.95 | 1,430.86 | 1,538.09 | 1,653.43 | 1,777.31 |
| **Volume Charge** | ***$/CCF*** | | | | | |
| 0-4 CCF | $2.12 | $2.12 | $2.28 | $2.45 | $2.63 | $2.83 |
| 5-14 CCF | 5.03 | 5.03 | 5.41 | 5.81 | 6.24 | 6.71 |
| 15-30 CCF | 9.36 | 9.36 | 10.07 | 10.82 | 11.61 | 12.49 |
| 30-50 CCF | 15.25 | 15.25 | 16.40 | 17.62 | 18.92 | 20.36 |
| 50+ CCF | 21.91 | 21.91 | 23.56 | 25.32 | 27.18 | 29.25 |

* - Rates include the adopted 2020 rate adjustment of 3.5%

The proposed single family residential water rates maintain the current rate structure. This includes a fixed, bi-monthly meter charge based on meter size and a 5-tier, increasing block rate structure. At present rates, a typical residential customer with a 3/4" meter and 12 CCF of consumption per bi-month would pay $81.49 bi-monthly. Under the proposed rates, the same customer would pay $81.49 in 2021, or no change in the average monthly bill. The bill comparison graph provides a range of customer bill impacts assuming typical monthly consumption at various times of the year and the proposed adjustments in 2022 through 2025.




| | Previously Adopted 2020* | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| 6 CCF | $51.31 | $51.31 | $55.17 | $59.29 | $63.71 | $68.50 |
| 12 CCF | $81.49 | $81.49 | $87.63 | $94.15 | $101.15 | $108.76 |
| 24 CCF | $185.15 | $185.15 | $199.15 | $213.97 | $229.73 | $247.08 |

The proposed single-family residential rate designs, along with the remaining water customer classes of service, are further reviewed and discussed in Section 3 of this report.

## Sewer Rate Study

Similar to the water rate study, the sewer rate study determined the overall adequacy of the existing sewer rates, on a stand-alone basis, at the current rate levels. That is, no funding sources other than those generated by the sewer utility were used to fund sewer utility expenses. For the sewer rate study, a concerted effort was made to minimize rate impacts over the five year review period. This was accomplished by using reserve funds to finance the impact of increased expenses of, and to, the utility, slowly drawing down reserves.

The City also incurs sewer treatment related costs from King County Metro. While the analysis included these costs, they are a direct pass-through to the City's customers through the bi-monthly bills and do not impact (i.e., expenses equal revenues) the City's local sewer collection costs. Given this, the summary of the sewer revenue requirement and the development of the proposed sewer rates only include the City's collection system cost components. As a point of reference, Metro is planning on a 4.5% increase in rates that would be passed through to the City's customers.

### Sewer Revenue Requirement Analysis

As with the water analysis, the starting point of the sewer revenue requirement analysis was the 2019 budget. The sewer revenue requirement was also impacted in a similar was as water by the increased cost allocation expenses and the addition of ACH payment fees. HDR developed a projection of revenues and expenses for future years based on assumed escalation (inflationary) factors. The sewer study developed a 10-year period to review future rate needs based on operating and capital needs, however, the focus for purposes of rate setting was the next five-

year period (2021 – 2025). A rate transition plan was developed for this five-year time period in a way that creates a smooth transition to fully funding the utility in the future.

The sewer capital funding plan was developed in a manner similar to the water utility. The updated 2020 – 2025 CIP was used as the starting point. HDR then worked with the City's staff to develop a funding plan that provided the needed revenue to construct the projects but also minimized the long-term rate impacts to customers. Shown below in Table ES – 4 is a summary of the sewer capital improvement plan.

**Table ES - 4**
**Summary of the Sewer Capital Improvement Plan ($000s)**

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| ***Total Capital Expenses*** | **$804** | **$398** | **$2,618** | **$953** | **$430** | **$1,188** |
| ***Less: Outside Funding Sources*** | | | | | | |
| Operating Fund Reserves | $0 | $0 | $0 | $0 | $0 | $0 |
| Capital Fund Reserves | 454 | 35 | 2,218 | 538 | 0 | 743 |
| Grants | 0 | 0 | 0 | 0 | 0 | 0 |
| Add'l Low Interest Loan | 0 | 0 | 0 | 0 | 0 | 0 |
| Add'l Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Total Funding Sources*** | **$454** | **$35** | **$2,218** | **$538** | **$0** | **$743** |
| **Rate Funded Capital** | **$350** | **$363** | **$400** | **$415** | **$430** | **$445** |

Table ES – 4 shows the capital funding for the projects in the CIP are entirely funded by either reserves or annually through rates. This is a prudent method to the fund the renewal and replacement projects of the sewer utility. This approach to cash fund the capital was achievable given the adequate level of current reserves. Although cash funding helps to minimize rates by avoiding the impact of capital funding through debt, the level of available cash balances should be watched closely to make sure the ending balance does not dip below target levels. This could ultimately lead to larger rate increases in the future if the replacement of reserve funds is outpaced by uses of funds. The issuance of long-term debt does have a relevant place in a capital funding plan, the ability to limit debt service can help minimize costs and rates over time. Additionally, it will be important for the City to closely monitor the capital fund reserve level to make sure it is not severely depleted due to over-use of reserve funds for capital.

The sewer revenue requirement has included the expense related to the adopted 2019 budget and the updated 2020 – 2025 CIP. As with the water utility, there were additional (new) costs that were included based on discussion with the City's staff. This included the anticipated additional costs related to the CCTV program for sewer lines of $85,000 per year in O&M starting in 2020. The increase in cost allocations will also impact the sewer utility and will start in 2020. The total additional indirect cost allocation for sewer is approximately $64,000 in 2020. Finally, the City's sewer utility will also be impacted by the costs related to electronic payments (ACH). Similar to the water analysis, this impact is assumed to start in 2021 and is projected to be approximately $374,000 per year for the sewer utility.

Once the sewer utility's operating and capital expenses are summed, a comparison to the total sewer revenues can be made to determine the size and timing of any needed rate (revenue) adjustments. A sewer rate transition plan was developed to meet the financial needs of the utility. The summary of the sewer revenue requirement is shown below in Table ES - 5. It indicates the need for rate adjustments in order to properly fund the sewer utility. As a point of reference, the revenue requirement, and subsequent revenue adjustments, reflect only the City's collection component for sewer services. The treatment component, for METRO, is a direct pass through to the City's customers.

**Table ES – 5**
**Summary of Sewer Revenue Requirement ($000s)**

| | Projected | | | | | |
|---|---|---|---|---|---|---|
| | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Revenues** | | | | | | |
| City Rate Revenues | $3,120 | $3,151 | $3,183 | $3,215 | $3,247 | $3,279 |
| Other Revenues | 55 | 83 | 90 | 88 | 91 | 88 |
| **Total Revenues** | **$3,176** | **$3,234** | **$3,273** | **$3,303** | **$3,338** | **$3,367** |
| **Expenses** | | | | | | |
| City Expenses | $1,957 | $2,397 | $2,303 | $2,373 | $2,483 | $2,579 |
| Taxes & Transfers | 651 | 558 | 569 | 573 | 584 | 589 |
| Rate Funded Capital | 350 | 363 | 400 | 415 | 430 | 445 |
| Net Debt Service | 0 | 0 | 0 | 0 | 0 | 0 |
| Reserve Funding | 217 | (84) | 107 | 158 | 176 | 213 |
| **Total Expenses** | **$3,176** | **$3,234** | **$3,379** | **$3,520** | **$3,673** | **$3,826** |
| Bal/(Def) of Funds | $0 | $0 | ($106) | ($217) | ($335) | ($459) |
| Additional Taxes | 0 | 0 | (6) | (12) | (18) | (25) |
| Total Bal/(Def) of Funds | $0 | $0 | ($111) | ($229) | ($353) | ($484) |
| Bal as a % of Rates | 0.0% | 0.0% | 3.5% | 7.1% | 10.9% | 14.8% |
| Proposed Rate Adjustment | **0.0%** | **0.0%** | **3.5%** | **3.5%** | **3.5%** | **3.5%** |
| Add'l Revenue from Rate Adj. | $0 | $0 | $111 | $229 | $353 | $484 |
| Bal/(Def) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 |

* - Rate revenues include the adopted 2020 rate adjustment of 5.5%

Table ES – 5 shows the total deficiency of revenues before any sewer rate adjustments ranges from $111,000 in 2022 to $484,000 by 2025. A 3.5% annual sewer revenue adjustment is proposed from 2022 through 2025. The proposed revenue adjustments are designed to provide sufficient revenue to fund the annual O&M and capital needs of the sewer utility, as well as maintaining strong financial metrics such as debt service coverage ratios and ending reserve balances. As was noted in the capital section, the sewer utility is proposed to rely heavily on the reserve funds and draws approximately $4.0 million over the projected time period (2021 – 2025) to fund capital projects and minimize overall rate impacts. This was feasible given adequate current reserve levels and results in inflationary level rate adjustments to maintain adequate reserve levels. However, the annual cash flow and ending reserve balances should be scrutinized

each year to make sure that the uses of funds does not place the reserve below the minimum level. Additionally, as the sewer reserves approach the minimums, the need for rate adjustments should be evaluated so as to avoid future, large rate adjustments for customers. As noted previously, wastewater treatment costs are not included within this analysis and those costs are treated as a "pass-through" by the City and developed by King County Metro.

### Sewer Rate Design Analysis

The proposed sewer rate designs maintain their current rate structure. It is proposed that only the level of the sewer rates be adjusted based on the recommendations of the study. As noted, these rate designs only include the City's sewer collection rates and do not include the rates charged by King County Metro for treatment. The Metro treatment rates are directly passed through to the City's customers on the bi-monthly bill. As noted, Metro is proposing a 4.5% increase in rates for 2021. All components of the rate structure – fixed and variable – are proposed to be increased to meet the target revenue levels based on the rate transition plan. It is important to note that there is no proposed revenue adjustment for 2020 as there are already adopted rates from the prior rate study. Under the adopted 2020 rates, the variable charge is held flat and the fixed charge is the only component that increases in order to produce greater revenue stability, which was highlighted as a risk during the previous rate study. Provided below in Table ES – 6 are the present and proposed bi-monthly sewer rates for residential customers.

**Table ES – 6**
**Present and Proposed Sewer Rates – Local Collection Only**

| | Present Rate* | Proposed | | | | |
|---|---|---|---|---|---|---|
| | | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Fixed Charge** | ***($ / Acct. / Bi-Mo.)*** | | | | | |
| All Customers | $9.04 | $9.04 | $9.36 | $9.69 | $10.03 | $10.38 |
| *Senior (25% discount)* | 6.78 | 6.78 | 7.02 | 7.27 | 7.52 | 7.79 |
| **Variable Charge** | ***($ / CCF)*** | | | | | |
| All Consumption | $2.17 | $2.17 | $2.25 | $2.33 | $2.41 | $2.49 |
| *Senior (25% discount)* | 1.63 | 1.63 | 1.69 | 1.75 | 1.81 | 1.87 |

* - Reflects the adopted 2020 rate adjustment of 5.5%

As previously noted, the present rates above are the previously adopted rates for 2020, and are the local sewer collection charges only and do not include the Metro component for treatment. Metro rates (costs) are a 100% pass-through and are established by King County. The proposed 4.5% Metro rate adjustment will be passed directly through to the City's customers. Section 4 of this report provides a more detailed discussion of the sewer rate study undertaken for the City.

## Stormwater Rate Study

The stormwater rate study determined the overall adequacy of the City's existing stormwater rates, at current rate levels. The stormwater utility was evaluated on a financial stand-alone basis. That is, no funding sources other than those generated by the stormwater utility were used to fund the utility's expenses.

## Stormwater Revenue Requirement Analysis

Consistent with the water and sewer revenue requirement analyses, the starting point for the stormwater revenue requirement analysis was the City's adopted 2019 stormwater budget. Unique impacts to stormwater is the additions of the creekside property acquisition and street sweeping expenses that were both added in 2020 and are a driver in the overall increase in the revenue requirement. HDR developed a projection of the stormwater revenues and expenses for future years based on assumed escalation factors. These escalation factors were discussed with City staff to confirm their appropriateness and relevance for the stormwater utility to reflect historical changes in stormwater related O&M. Similar to the water and sewer utilities, the stormwater revenue requirement analysis was developed for a 10-year period, with a focus on the next five years for rate setting purposes.

To develop the stormwater capital funding plan, the updated 2020 – 2025 stormwater CIP was revised and used as the starting point. With input from City staff, HDR worked to develop a funding plan that provided the necessary revenue for the stormwater capital projects, while attempting to minimize the overall long-term rate impacts. Shown below in Table ES – 7 is a summary of the capital improvement plan that was used in the stormwater rate study.

**Table ES - 7**
**Summary of the Stormwater Capital Improvement Plan ($000s)**

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| ***Total Capital Expenses*** | **$667** | **$4,092** | **$425** | **$817** | **$1,211** | **$2,052** |
| ***Less: Outside Funding Sources*** | | | | | | |
| Operating Fund Reserves | $0 | $0 | $0 | $0 | $0 | $0 |
| Capital Fund Reserves | 0 | 2,272 | 0 | 317 | 241 | 82 |
| Developer Contributed | 0 | 130 | 0 | 0 | 0 | 500 |
| Grants | 40 | 1,490 | 0 | 0 | 220 | 620 |
| Add'l Low Interest Loan | 0 | 0 | 0 | 0 | 0 | 0 |
| Add'l Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Total Funding Sources*** | **$40** | **$3,892** | **$0** | **$317** | **$461** | **$1,202** |
| **Rate Funded Capital** | **$627** | **$200** | **$425** | **$500** | **$750** | **$850** |

For the stormwater utility capital improvement plan, it can be seen in Table ES – 7 that a variety of funding sources are used. The majority of funding will be derived from available reserve funds and annual funding of capital through the stormwater rates. Although this is a prudent approach and one that minimizes rate impacts, given the amount of reserve funding of capital the City should be vigilant to observe the ending reserve balances to make sure it does not fall below the minimum level. There is also a number of projects that City staff has identified as being highly likely to receive grant funding. The final funding component is long-term debt which none has been assumed during the timeframe.

The stormwater utility also had additional (new) O&M expenses. This included additional costs related to the CCTV program. In 2020 it is assumed at $85,000 per year in O&M, which is shared jointly with the sewer utility. Additionally, the new cost allocation which are present in the water and sewer utilities will impact the stormwater utility similarly starting in 2020. The total additional indirect cost allocation for the stormwater utility is approximately $196,000 in 2020 that are in addition to the 2019 budget. In addition, other cost allocation components included in the budget have increased at levels greater than projected in the 2015 rate study. Finally, the City's stormwater utility will also be impacted by the costs related to electronic payments (ACH). This impact is assumed to start in 2021 and total approximately $188,000 per year.

The revenue requirement analysis sums the utility's operating and capital expenses and compares it to the total revenues to determine the overall rate adjustment required. Provided below in Table ES – 8 is a summary of the stormwater revenue requirement analysis.

**Table ES – 8**
**Summary of Stormwater Revenue Requirement ($000s)**

| | Projected | | | | | |
|---|---|---|---|---|---|---|
| | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Revenues** | | | | | | |
| Rate Revenues | $5,588 | $5,643 | $5,700 | $5,757 | $5,814 | $5,873 |
| Other Revenues | 40 | 48 | 38 | 45 | 48 | 48 |
| **Total Revenues** | **$5,628** | **$5,691** | **$5,738** | **$5,801** | **$5,863** | **$5,920** |
| **Expenses** | | | | | | |
| O&M Expenses | $4,324 | $4,923 | $5,073 | $5,318 | $5,515 | $5,735 |
| Taxes & Transfers | 645 | 548 | 554 | 560 | 567 | 573 |
| Rate Funded Capital | 627 | 200 | 425 | 500 | 750 | 850 |
| Net Debt Service | 0 | 0 | 0 | 0 | 0 | 0 |
| Change in Working Capital | 31 | 20 | (6) | 64 | 30 | 42 |
| **Total Expenses** | **$5,628** | **$5,691** | **$6,047** | **$6,442** | **$6,861** | **$7,200** |
| Bal./(Def.) of Funds | $0 | $0 | ($309) | ($641) | ($998) | ($1,280) |
| Additional Taxes | 0 | 0 | (5) | (10) | (15) | (19) |
| *Total Bal./(Def.) of Funds* | $0 | $0 | ($313) | ($651) | ($1,013) | ($1,299) |
| Bal./Def. as % of Rate Rev. | 0.0% | 0.0% | 5.4% | 11.1% | 17.2% | 21.8% |
| **Proposed Rate Adjustments** | **0.0%** | **0.0%** | **5.5%** | **5.5%** | **5.5%** | **4.0%** |
| Add'l Revenue with Rate Adj. | $0 | $0 | $313 | $651 | $1,013 | $1,299 |
| Bal. / (Defic.) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 |

* - Reflects adopted 2020 rate adjustment of 5.5%

Based upon the revenue requirement analysis shown in Table ES - 8, it is recommended that the City increase the overall stormwater rates annually by 5.5% in 2022 through 2024 and 4.0% in 2025. The deficit in 2022 - absent any rate adjustments - is approximately $313,000 and increases to $1.3 million by 2025. The rate adjustments are primarily needed to fund additions in O&M expenses related to increased cost allocation and ACH payment fees; renewal and replacement capital improvement projects; maintenance of adequate reserve funds, and maintaining strong

financial metrics. As part of the capital funding plan, the stormwater utility will use approximately $2.9 million in reserve funds for capital from 2020 through 2025. This has been done as the reserve fund were currently sufficient and available to minimize rate impacts. The use of cash funding is a prudent funding method but care will need to be taken to review the annual cash flow and ending reserve balances so as to not run the reserves below the minimum level. This may cause larger one-time rate adjustments in the future if the stormwater utility gets behind in maintaining and replenishing reserve funds.

### Stormwater Rate Design Analysis

The last step of the comprehensive rate study is the development of rates which reflect the overall revenue needs, as developed in the revenue requirement analysis. At this time, HDR is not recommending any rate structure changes to the stormwater rates. After a review of the City's stormwater rates, it appears that the current rate structure for the stormwater utility is contemporary and equitable. Table ES - 9 summarizes the present and proposed stormwater rate structure.

**Table 5 - 3**
**Present and Proposed Stormwater Rates**

| | Present | Proposed | | | | |
|---|---|---|---|---|---|---|
| | Rate* | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Developed** [1] | ***($ / Parcel or ESU / Bi-Mo.)*** | | | | | |
| Fixed Charge | $33.92 | $33.92 | $35.79 | $37.76 | $39.84 | $41.43 |
| **Undeveloped** | ***($ / Parcel / Bi-Mo.)*** | | | | | |
| Fixed Charge | $16.98 | $16.96 | $17.90 | $18.88 | $19.92 | $20.72 |

* - Reflects adopted 2020 rate adjustment of 5.5%
[1] Residential Developed is charged on a $ / Parcel / Bi-Month basis and Non-Residential Developed is charged on a $ / ESU / Bi-Month basis.

The proposed bi-monthly stormwater rates maintain the current rate structure. This includes a monthly fixed charge for all customer classes. At present rates, a typical residential customer would pay a bi-monthly bill of $33.92. Under the proposed stormwater rates, the same customer would pay $33.92 in 2021 or a bi-monthly increase of $0.00. A more detailed discussion of the stormwater rate study can be found in Section 5 of the report.

## Summary of the Water, Sewer, and Stormwater Rate Study

The adequacy of the City's water, sewer, and stormwater rates were reviewed by HDR. Based upon the analyses developed herein, which included the budgeted operating and capital expenses, HDR has proposed a comprehensive set of revenue recommendations for each utility. The following sections of the report provide a more detailed discussion of the technical analyses undertaken, along with the findings, conclusions and recommendations of the study.

# 1.0 Introduction and Overview

## 1.1 Introduction

The City of Issaquah (City) retained HDR Engineering, Inc. (HDR) to perform a comprehensive utility rate study update for the City's water, sewer, and stormwater utilities which was completed in 2015 and developed rates through 2020. There were a number of issues that impacted the timing and necessity for the rate study update – namely in the water utility – which were not included as assumptions in the 2015 rate study. First, the water utility expended approximately $2.0 million for water quality concerns related to PFOS / PFAS. Next, there was an increase in cost allocation expense to the utilities which were not anticipated nor included in the 2015 study. As a result of this and with the significant capital improvements planned for the water system, the water utility will need to borrow funds to pay for the capital and increase rates to cover debt service. As part of the rate study, the City further reviewed the timing and impacts of the centralized treatment plant. Through an alternatives analysis, it was determined that the construction would be delayed until the early 2030's and pursue discounted CWA purchased water to bridge the gap of water supply.

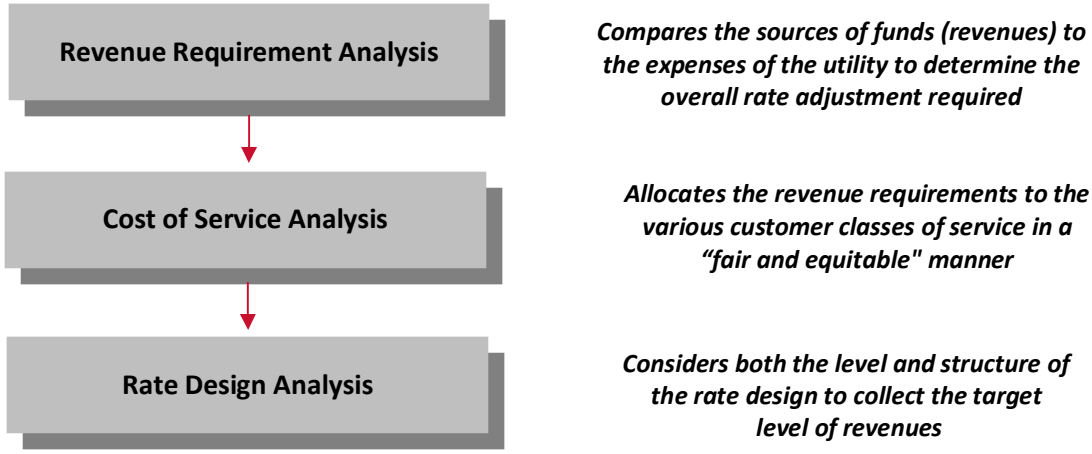
In general, the rate studies are designed to determine the financial adequacy of the existing rates and provide the cost and policy-basis for any adjustments to rates. This report describes the methodology used to analyze the City's water, sewer, and stormwater rates, along with our findings, conclusions and recommendations. The City has historically conducted comprehensive water, sewer and stormwater rate studies and this study is consistent with the City's past rate setting practices.

A rate study is conducted to determine whether a utility's existing rate revenues are adequate (sufficient) to meet the operating and capital expenses with revenues received from customers. Rates set too low may result in insufficient funds to maintain system integrity. These studies also identify and provide a means to address issues of equity between a utility's various rates.

## 1.2 Overview of the Rate Study Process

A comprehensive study generally consists of three interrelated analyses performed for each utility. Figure 1 - 1 provides an overview of these analyses.

**Figure 1 - 1**
**Overview of the Comprehensive Rate Analyses**




In a comprehensive rate study, a revenue requirement analysis is concerned with the overall funding sources (revenues) and expenses (both operating and capital) of the utility. From this analysis, a determination can be made as to the overall *level* of adjustment to rates. Next, a cost of service analysis is performed to equitably allocate the revenue requirements to the various types of customers served (e.g., residential, commercial, etc.). Finally, given the overall level of revenues to be collected, along with an equitable allocation of those costs, the last step of the rate study process in the design of rates to collect the appropriate level of revenues while considering the other rate design goals and objectives of the utility (e.g. revenue stability, conservation, ease of administration, customer understanding, etc.).

In the case of the City's study, the revenue requirement analysis and rate design analysis were conducted for each utility. Although the cost of service analysis was not performed for this review, cost of service principles were referenced and drawn upon when evaluating the rate design analyses. This study has focused, in particular, on the level of rate revenue needed to fully fund each utility system on a stand-alone basis. The results from each task of the rate study, for the water, sewer, and stormwater utilities, were used as the basis for establishing cost-based proposed rates for the City's customers.

In developing this study, HDR utilized "generally accepted" cost of service and rate setting techniques and industry best practices in the development of the City's utility rate studies.

## 1.3 Report Organization

A detailed written report has been developed to document the analyses undertaken for each utility. This report is organized as follows:

- Section 2 provides background information about the utility rate setting process.
- Section 3 reviews the development of the water rate analysis.
- Section 4 reviews the development of the sewer rate analysis.

- Section 5 reviews the development of the stormwater rate analysis.

At the end of this report, a technical appendix for each utility is attached which provides a copy of the technical analyses undertaken in the preparation of this report.

## 1.4 Summary

This report reviews the water, sewer, and stormwater utility rate analyses prepared for the City of Issaquah. The report has been developed utilizing generally accepted utility setting methodologies. This report was prepared utilizing data, information and records provided by the City.

# 2.0 Overview of the Rate Setting Process

## 2.1 Introduction

Gaining an understanding of the overall rate setting process and the specific rate setting methodologies used within this study is important in order to better understand the City's approach to these studies. This section of the report provides background information about the rate setting process, including descriptions of generally accepted principles, types of utilities, methods of determining revenue requirements, and rate design. This should provide the reader with a better understanding of the detailed analyses presented in following sections of the report and the basis for our findings, conclusions and recommendations.

## 2.2 Generally Accepted Rate Setting Principles

As a practical matter, utilities should set rates on generally accepted or global principles and guidelines. Utility rates should be:

- ✓ Cost-based, equitable, and set at a level that meets the utility's full revenue requirement
- ✓ Easy for the customer to understand and easy for the utility to administer
- ✓ Designed to conform with generally accepted rate setting techniques
- ✓ Stable in their ability to provide adequate revenues to meet the utility's financial, operating, capital infrastructure and regulatory requirements
- ✓ Established at a level that is, from the customer's perspective, stable from year-to-year

These general principles and guidelines have historically been used by the City to establish their current water, sewer, and stormwater rates. For this study, they were again applied, to the degree possible, in the development of the rate analyses developed for the City.

## 2.3 Prudent Financial Planning

Financial rate-setting policies and guidelines are integral to the process of developing a utility rate study. Financial policies are intended to provide guidance in the financial planning and rate-setting process, and in the day-to-day financial management of the City's utilities. Adoption of financial policies provides a strong foundation for the long-term financial sustainability of the utilities and provides the outside financial community with a better understanding of the City's commitment to managing the utilities in a financially prudent manner.

## 2.4 Determining the Revenue Requirement

Most public utilities use the "cash basis" methodology for establishing their revenue requirement and setting rates. This revenue requirement methodology conforms to most public utility budgetary requirements and the calculation is easy to understand. Under the "cash basis" revenue requirement methodology, a public utility:

- ✓ Adds operation and maintenance (O&M) expenses to any applicable taxes or transfer payments to determine total operating expenses. Operation and maintenance expenses include the materials, electricity, labor, supplies, etc. needed to keep the utility functioning.
- ✓ Calculates capital costs by adding debt service payments (principal and interest) to capital improvements financed with rate revenues. In lieu of including capital improvements

financed with rate revenues, a utility can include (i.e., substitutes) depreciation expense to stabilize the annual revenue requirement from year-to-year.

Note that the two portions of the capital expense component (debt service and capital improvements financed from rates) are necessary under the cash basis methodology because utilities generally cannot finance all their capital facilities with strictly rates or long-term debt.

Under the cash basis revenue requirement methodology the sum of the operating expenses and capital costs equals the utility's total revenue requirement during any period of time (see Table 2 - 1).

**Table 2 - 1**
**"Cash Basis" Revenue Requirement Methodology**

| | |
|---|---|
| + | O&M Expense |
| + | Taxes or Transfer Payments |
| + | CIP Financed with Rate Revenues (≥ Deprec. Exp.) |
| + | Debt service (Principal + Interest) |
| = | Total Revenue Requirement |

The analyses developed within this report utilized the "cash basis" methodology. This is consistent with past practices of the City's utility rate-setting.

## 2.5 Designing Rates

In the design of rates for each utility, the initial starting point is a cost-based rate design. However, the process of designing rates may also consider non-cost factors such as a customer's ability to pay, continuity of the City's past rate setting philosophy, efficient use, encouragement of economic development, ease of administration, and customer understanding. These other non-cost factors that may be taken into account when designing final proposal rates are considered but a utility should maintain rates as close to cost-based as possible to avoid subsidies and inequities between customers.

## 2.6 Economic Theory and Rate Setting

One of the major justifications for a utility rate study is founded in economic theory. Economic theory suggests that the price of a commodity must roughly equal its cost if equity among customers is to be maintained. This statement's implications on utility rate designs are significant. For example, a water utility usually incurs capacity-related costs in meeting its peak day requirements. It follows that the customers who cause maximum peak day demands should pay for those demand-related facilities in proportion to their contribution to maximum demands. Emphasis on seasonal and marginal cost-based utility rates embraces this economic concept. When costing and pricing techniques are refined, consumers have a more accurate picture of what the commodity costs to produce and deliver.

> ***"...a utility should maintain rates as close to cost-based as possible to avoid subsidies and inequities between customers."***

## 2.7 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and economic theory used to set water, sewer, and stormwater utility rates. These principles and methodologies have been the basis for the City's past utility rate studies and continue to be the basis for the City's current rate analyses. The next section of the report discusses the water utility rate study and the technical analyses undertaken.

# 3.0 Development of the Water Rate Study

## 3.1 Introduction

This section of the report describes the development of the City's water rate study. The first analytical step in the comprehensive rate study process is the revenue requirement analysis. This analysis determines the adequacy of the overall water rate revenues at current (presently adopted) rates. The timely need for this analysis to be updated has been driven by the impact of the water utility expending approximately $2.0 million for water quality concerns related to PFOS / PFAS. Additionally, there was an increase in cost allocation expense to the utilities which were not anticipated in the 2015 study as well as additional cost allocations starting in 2020. As a result of this and with the significant capital improvements planned for the water system, the water utility will need to borrow funds to pay for the capital and increase rates to cover debt service.

The City has also been evaluating alternative analyses with regards to long-term water supply and the timing of designing and constructing a central water treatment plant. Based on the discussion of the alternatives with the City Council, it was determined that the design and construction of a central treatment plant would be delayed approximately ten years, based on current water demand assumptions, and utilize short-term discounted CWA purchased water to provide the necessary demands of the City's customers.

Based on the result of the revenue requirement analysis, proposed water rates were developed that reflect the overall revenue needs of the water utility and take into consideration the City's goals and objectives (e.g., conservation, equity, revenue stability).

## 3.2 Determining the Water Utility Revenue Requirement

In developing the water utility revenue requirement, it was assumed the utility must financially "stand on its own" and be properly funded. As a result, the revenue requirement as developed herein assumes the full and proper funding needed to operate and maintain the system on a financially sound and prudent basis. This includes maintaining adequate reserve levels, prudently funding annual renewal and replacement needs (i.e., rate funded capital), and meeting other industry standard financial metrics (e.g., minimum reserves, minimum debt service coverage, etc.). Provided in the following subsections is a more detailed discussion of the development of the revenue requirement analysis for the City's water utility.

> ***"...the revenue requirement as developed herein assumes the full and proper funding needed to operate and maintain the system on a financially sound and prudent basis.***

### 3.2.1 Determining the Time Period and Methodology

The first step in calculating the revenue requirement for the water utility was to establish a test period or the time period to review the revenue requirement analysis. For this study, the revenue requirement was developed for a 10-year projected time period, with a focus on the development of a rate transition plan for the next five years (2021 – 2025). Reviewing a multi-

year time period is recommended to help identify any major expenses that may be on the horizon, but to also identify any trends that may be occurring in revenues or expenses. By anticipating future financial requirements, the City can begin planning for these changes sooner, thereby minimizing short-term rate impacts and minimizing overall long-term rate volatility.

The second step in determining the revenue requirement was to decide on the basis of accumulating costs. For the City's water revenue requirement analysis, a "cash basis" approach was utilized. This method is the most commonly used methodology by municipal utilities to set their revenue requirement, and the method used by the City in prior rate studies. The revenue requirement developed for the City was developed specifically for the City and customized to follow the City's system of accounts (budget documents) while still maintaining the components of a "cash basis" methodology.

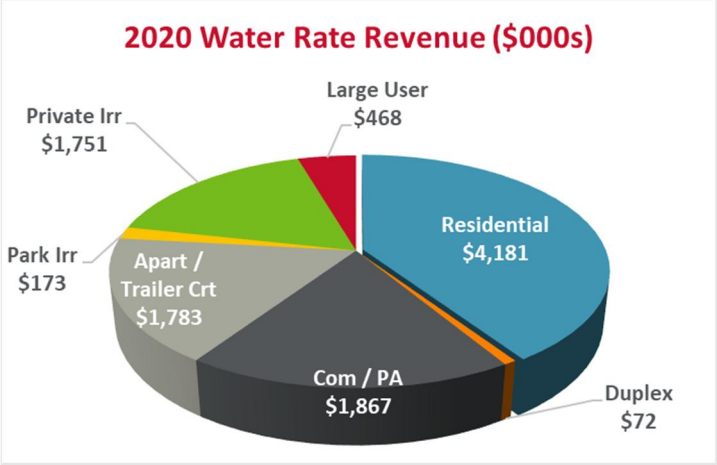
The primary financial inputs into the water revenue requirement analysis were the City's historical billing records, operating budget, and updated capital improvement plan. The following discussion details the key assumptions and steps contained in the development and projections of the City's water revenues and expenses.

### 3.2.2 Projection of Water Utility Revenues

The City receives revenue for the water utility from two primary sources; water (user) rates and miscellaneous revenue. Water rate revenues are based on the current water rate structure and collected on a bi-monthly basis. Miscellaneous or other revenue includes items such as licenses, permits, late fees, and other miscellaneous revenues.

The first step in developing the revenue requirement was to develop a projection of water rate revenues, at present (currently adopted) rate levels. In general, this process involved developing projected consumption and/or billing units for each customer group (e.g., rate schedule). The billing units were then multiplied by the current applicable water rates. This method of independently calculating revenues is used to help confirm that projected revenues used within the analysis tie to the projected billing units used in the rate design analysis and reflect current revenue levels. The metered consumption assumed within the study was based on historical consumption records.

As can be seen in the graph, the vast majority of the City's rate revenues are derived from residential customers. There are a number of customer classes of service: residential, duplex, apartment/trailer courts, commercial/public authority, private irrigation, parks irrigation, and large user. In total, at present water rates, the City is projected to receive approximately $10.3 million in water rate revenues in 2020. This figure includes a previously adopted rate



adjustment of 3.5% from the 2015 water rate study. Over the planning horizon of this study, customer growth is expected to be 1.0% annually. This assumed gradual customer growth over time, in conjunction with the revenue adjustment for 2020, results in projected total water rate revenues of approximately $10.8 million for 2025.

In addition to rate revenues, the City also receives a variety of miscellaneous or other revenues. Other water revenues are projected to be approximately $2.1 million in 2020. Other revenues are expected to decrease over the review period. This is primarily due to the repayment of the water revenue bond which has offsetting revenue from the sewer and stormwater utilities. In addition, the rents and leases miscellaneous revenues are projected to be eliminated. When taken together, the projected miscellaneous revenue declines to approximately $1.8 million by 2025.

When rate revenues and miscellaneous revenues are summed together, the City's total water revenues are projected to be approximately $12.4 million in 2020, increasing gradually to $12.6 million by 2025, absent any rate adjustments. This increase in overall revenues is primarily a result of assumed customer growth on the water system.

### 3.2.3 Projection of the Water Utility O&M Expenses

Operation and maintenance (O&M) expenses are incurred by the City to operate and maintain the water system. The costs incurred in this area are expensed during the current year and are not capitalized or depreciated. In general, operation and maintenance O&M expenses are grouped into a number of different functional categories. To begin the process of projecting O&M expenses over the review period, escalation factors were developed. Escalation factors were developed for the basic types of expenses incurred such as salaries, benefits, materials and supplies, utilities, purchased water, etc. The City's escalation factors were projected based upon recent inflationary trends. The escalation factors were generally in range of 2.5% to 3.5% per year. The exception to this level of estimated escalation was related to benefits which historically risen faster than inflationary levels. For this study, they were assumed to escalate at 6.0% per year. Purchased water varied by year but was generally assumed to be slightly less than 5.0% per year on average.

Given the development of escalation factors and the budgeted 2019 O&M expenses, HDR then escalated the O&M expenses based on the escalation factors. Several cost allocation changes have been made recently which resulted in an additional allocations to the water fund for HR, emergency management, communications, and fuel that have not been allocated to the water utility in the past. It was also noted that past projections of cost allocations have increased greater than what was projected in the 2015 rate study. Starting in 2020, the water utility will need to fund an annual equipment replacement that is greater than prior funding requirements as well. In 2021, another impact to the water O&M expenses is the addition of ACH payment fees which are estimated at approximately $346,000 annually.

Additionally, with utilization of short-term discounted CWA purchased water for source of supply, purchase water costs increase by an additional $300,000 by 2025. In addition, to blend the CWA water with groundwater, upgrades are necessary at Wells 1, 2, and 4 which results in additional O&M of approximately $200,000 per year by 2025.

*"The City's single largest O&M expense is related to purchased water. In 2020, this cost is projected to be approximately $2.1 million..."*

The City's single largest O&M expense is related to purchase water. In 2020, this cost is projected to be approximately $2.1 million, increasing over time to $2.8 million by 2025. This is in addition to the increase for the discounted short-term CWA water purchases.

Total water operation and maintenance expenses for the City are projected to be approximately $9.8 million in 2020. Water O&M expenses are projected to increase to approximately $13.0 million by 2025 as a result of assumed inflation over the time period, along with additional O&M, increased cost allocation, and ACH payment expenses.

### 3.2.4 Projection of Water Utility Capital Improvement Projects and Funding

The City developed a water capital improvement plan (2020 – 2025) that was utilized for the rate study. Due to the impacts from the COVID-19 pandemic, the CIP was updated and capital projects were delayed as a cost saving measure. A major component of the capital costs includes the annual renewal and replacement needs of the water system. These are items such as the water main replacement program, pump/booster station and reservoir refurbishment, and well-house replacement. There are also several larger projects that impact the CIP related to the SPAR reservoir and booster station which is primarily related to growth and expansion on the system as well as the design and construction of the central water treatment plant in the 2030's.

The City's water capital improvement plan totals approximately $18.0 million for the 2021 through 2025 rate setting period. Provided below in Table 3 - 1 is the projected capital improvement program and funding sources. The actual capital projects completed during the time period will depend on available funding sources and priority of the projects. The primary funding sources for these projects are assumed to be from a combination of capital reserves, issuance of new long-term debt, and rate funded capital.

**Table 3 – 1**
**Summary of the Water Capital Improvement Plan ($000s)**

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| **Total Capital Improvement Projects** | **$2,975** | **$4,293** | **$5,506** | **$658** | **$1,570** | **$1,539** |
| ***Less: Outside Funding Sources*** | | | | | | |
| Operating Fund Reserves | $0 | $0 | $0 | $0 | $0 | $0 |
| Capital Fund Reserves | 2,219 | 24 | 3,606 | 0 | 0 | 0 |
| Assumed Revenue Bond | 0 | 4,300 | 0 | 0 | 0 | 0 |
| ***Total Outside Funding*** | **$2,219** | **$4,324** | **$3,606** | **$0** | **$0** | **$0** |
| **Rate Funded Capital** | **$1,100** | **$1,100** | **$1,900** | **$658** | **$1,570** | **$1,539** |

There are a number of different methods that may be used to finance the capital improvement projects which include long-term debt, reserve funds, and rates. A significant portion ($7.9 million) of the projects in the City's capital improvement program are funded from current rate

revenues which is a very sound and prudent practice. However, past increases in O&M have reduced the annual rate revenue available for annual rate funded renewal and replacements. This rate study update moves the City towards rate funding capital at more prudent levels. Capital reserves will also be used in years where rate funding does not provide sufficient funding for capital projects. With the level of cash funding from the reserves that the plan assumes, it will be important for the City to pay close attention to the annual cash flow and ending reserve balances so that they do not trend below minimums and trigger additional rate adjustments in the future. The last funding source is from the issuance of new long-term debt (assumed revenue bond). Provided below is a more detailed discussion of the capital improvement funding sources the City has used, and has planned to use, to fund the planned improvements over the five-year period of 2021 – 2025.

***Rate Funding*** **–** As a general financial guideline - at a minimum - a utility should annually fund from rates an amount equal to, or greater than, annual depreciation expense. Annual depreciation expense reflects the current investment in plant being depreciated or "losing" its useful life. Therefore, this portion of plant investment needs to be annually funded to maintain the existing level of infrastructure. In addition, consideration should be given to funding within rates some amount greater than annual depreciation expense for renewals and replacements as the labor and material cost for infrastructure replacement escalates over time. If possible, the City should be funding capital projects from rates in an amount greater than annual depreciation expense to better reflect replacement cost. For 2017, the annual depreciation expense of the water utility was approximately $1.8 million. In 2020, it is proposed that the City's rate funded capital for the water utility be $1.1 million (approximately 61% of depreciation expense). Over time, and with the implementation of the proposed rate revenue adjustments, the water utility will be funding approximately $1.5 million per year by 2025. This is an annual average of $1.4 million over the five-year rate setting period. With the proposed level of rate funding included within this study, the water utility will be making a significant step towards prudent and adequate funding for the renewal and replacement of the existing water infrastructure. It is important to note that the 10-year analysis for the water utility was able to increase the rate funded capital figure to levels that reflect the overall system renewal and replacement needs.

> ***"If possible, the City should be funding capital projects from rates in an amount greater than annual depreciation expense to better reflect replacement cost."***

***Capital Reserve Funding*** **-** There will be approximately $5.8 million in capital reserves used as a funding source for capital improvement projects over the review period (2021 – 2025). Annually, the capital reserve fund is being funded through collections of General Facility Charge revenues as well as any surplus where capital projects may be less than rate funded capital. This allows the City to reserve funds for capital projects in later years when more or larger projects are undertaken. This approach helps to mitigate the need for future rate adjustments and it also smooths the need for rate adjustments over time. However, close attention should be given to the capital reserve balance as to not reduce it below the minimum target. Typically, the minimum capital reserve level is set at the average of the annual capital projects for the next five years (2021 – 2025). Capital projects can change and fluctuate over time. A minimum balance provides the City with the flexibility to address any changes and fluctuations with minimal financial or project schedule impact. In setting the targeted minimum balance, it was noted that the City has

a few large projects such as the SPAR booster. It was decided to look at the average level of capital without those major projects. From 2021 through 2025, the average annual capital is approximately $2.0 million. The capital reserve is above this target initially but then falls below as the capital reserve is relied more heavily on for funding capital improvements.

***Long-Term Debt*** **–** The use of long-term debt is another potential source of funding for capital projects. There are certain advantages and disadvantages with the issuance of any long-term debt and it is important to weigh them when deciding whether to issue long term debt. Long-term debt does have prudent applications, whereby, it acts as a financial device to spread the costs of a larger project, such as the SPAR booster, over multiple years to mirror the time period that the benefits are received by customers. Doing so then assigns the costs of the new facility to the customers who benefit from it over the life of the facility. As mentioned previously, there a number of large capital projects that HDR and the City have identified as candidates to fund utilizing long-term debt. For the SPAR booster, it is assumed that the City will issue $4.3 million in revenue bonds with an assumed annual payment of $336,000 per year (calculated at 20 years with a rate between 4.6% and 4.8%)[4]. This assumption would carry the most conservative terms for a long-term debt issuance. However, before issuing any new debt the City would explore all options to secure the most favorable debt and schedule of debt service payments for the customers. For purposes of this study, HDR is not acting as a municipal advisor but rather is attempting to highlight the funding needs and working with City staff to develop the proposed funding plan for the water utility capital projects and establish rates to support the anticipated future debt the City may need to issue.

As can be seen, there are multiple methods by which the City may fund their capital projects. Each method has an impact upon the revenue requirements of the water utility.

### 3.2.5 Projection of Taxes and Transfer Payments

The water revenue requirement also includes taxes and transfer payments. In this particular case, taxes are the payments that the City has to pay for the water utilities business activities. There are two forms or taxes that the City pays; the State of Washington utility tax and business and occupation (B&O) tax. State utility taxes are calculated at 5.029% of retail water sales. For 2020, the utility tax is calculated at $518,000. The water utility also pays B&O taxes on 1.5% of GFC and miscellaneous revenues. The B&O taxes for 2020 are projected to be approximately $38,000.

The water revenue requirement also accounts for and includes transfer payments which are typically intergovernmental transfers to either the general fund or another enterprise to compensate for services rendered. The City has transfer payments for the sustainability fund (which is eliminated after 2020), equipment fund, HR cost allocation, and other. For 2020, there is a total of $667,000 in transfer payments.

[4] In making these debt issuance assumptions, HDR is (a) not recommending an action to the City; (b.) is not acting as a municipal advisor to the City and does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to the City with respect to the information contained in this analysis and report. The City should discuss any information or material contained in this report with any and all internal and external advisors or experts it deems appropriate before acting on this information or material.

### 3.2.6 Projection of Debt Service

The next component of the City's revenue requirement is debt service. At the present time, there is only one outstanding water debt obligation, the 2011 Water Refunding Bond. The debt payment obligation for this outstanding debt averages $638,000, annually and it is scheduled to retire (i.e., be fully paid) in 2021. As was mentioned above, as a part of the capital funding plan, it was assumed the City will issue approximately $4.3 million in revenue bonds related to the SPAR Booster Pump Station project which will carry an annual payment of approximately $336,000 for 20 years. Additionally, the rate transition plan developed for the City aims to maintain the financial capability to issue additional long-term debt, should it be deemed necessary. This is accomplished by maintaining strong debt service coverage (DSC) ratios within the financial plan, which is a financial indicator (i.e., a financial ratio) used to measure the financial strength or ability of the utility to repay the current outstanding debt obligations.

### 3.2.7 Reserve Funding

This study has used "reserve funding" or transfer to, or from, reserve funds to smooth and mitigate the rate adjustments in any particular year. Reserve funding can also be used to help build or replenish reserves if they have been drawn down in prior years. In the water revenue requirement analysis, this category was primarily used to minimize the rate impacts to the water revenue requirement by utilizing the available reserve levels to fund deficiencies.

### 3.2.8 Summary of the Water Revenue Requirement

Given the above projections of revenues and expenses, a summary of the revenue requirement for the City's water utility can be developed. In developing the revenue requirement, consideration was given to the City's key financial planning considerations (e.g. minimum reserves, target DSC, etc.). In particular, emphasis was placed on attempting to minimize rate impacts while still adequately funding the utility's operational activities and capital projects throughout the projected time period. Presented below in Table 3 - 2 is a summary of the water revenue requirement analysis.

## Table 3 - 2
## Summary of the Water Revenue Requirements ($000s)

| | | Projected | | | | |
|---|---|---|---|---|---|---|
| | 2020* | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Revenues** | | | | | | |
| Rate Revenues | $10,295 | $10,398 | $10,502 | $10,607 | $10,713 | $10,820 |
| Other Revenues | 2,109 | 2,180 | 1,802 | 1,799 | 1,734 | 1,797 |
| **Total Revenues** | **$12,403** | **$12,578** | **$12,303** | **$12,406** | **$12,447** | **$12,617** |
| **Expenses** | | | | | | |
| O&M Expenses | $9,816 | $10,713 | $11,177 | $11,847 | $12,347 | $12,984 |
| Taxes & Transfers | 1,223 | 1,130 | 1,134 | 1,144 | 1,152 | 1,163 |
| Rate Funded Capital | 1,100 | 1,100 | 1,900 | 658 | 1,570 | 1,539 |
| Net Debt Service | 419 | 581 | 113 | 110 | 108 | 106 |
| Change in Working Capital | (154) | (947) | (1,270) | 218 | (259) | 280 |
| **Total Expenses** | **$12,403** | **$12,578** | **$13,053** | **$13,977** | **$14,918** | **$16,072** |
| Bal./(Defic.) of Funds | $0 | $0 | ($750) | ($1,572) | ($2,471) | ($3,456) |
| Plus: Additional Taxes | 0 | 0 | (38) | (79) | (124) | (174) |
| ***Total Bal./(Defic.) of Funds*** | $0 | $0 | ($788) | ($1,651) | ($2,596) | ($3,630) |
| Bal. / (Def.) as % of Rate Rev | 0.0% | 0.0% | 7.5% | 15.6% | 24.2% | 33.5% |
| **Proposed Rate Adjustments** | **0.0%** | **0.0%** | **7.5%** | **7.5%** | **7.5%** | **7.5%** |
| Add'l Revenue with Rate Adj. | $0 | $0 | $788 | $1,651 | $2,596 | $3,630 |
| Bal. / (Def.) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 |

* - Rate revenues include the adopted 2020 rate adjustment of 3.5%

In reviewing Table 3 - 2, it is important to note the annual deficiencies shown are cumulative and any rate adjustment in the initial years will reduce the deficiency in all subsequent years. In summary, the results of the water revenue requirement analysis indicate a deficiency of funds over the planning period (2021 - 2025). The deficiencies shown are primarily driven by increased operating expenses and capital funding plan. For O&M, there are impacts due to increased cost allocation to the water utility from the general fund and the ACH payment fees which start in 2020 and 2021, respectively. On the capital side, the revenue requirement is impacted by annual debt service payments, maintaining strong DSC ratios, and increasing rate funded capital to prudent renewal and replacement levels. The financial plan developed must meet the City's financial planning targets (e.g. debt service coverage, minimum reserve levels, etc.). Prior to any rate adjustments, the cumulative deficiency is approximately $788,000 in 2022 increasing to approximately $3.6 million by 2025. It is also important to note that the water utility uses a significant amount of reserves to help fund the revenue requirement over the review period. Although this approach can help to lower rate impacts in the short term, reliance on reserve funds for funding operations should be limited as large future rate adjustments may be needed to 'catch up' the utility should reserve funds be depleted to the minimums.

To meet the financial plan and the water revenue requirement, revenue adjustments have been proposed. The results of the analysis show the need to adjust the level of water rates by 0.0% in 2021 and then 7.5% annually from 2022 through 2025. The proposed adjustments are projected

to provide adequate funding for annual operating, debt service and capital needs during this time period.

### 3.2.9 Debt Service Coverage Ratios

Generally, when new long-term debt is issued, it contains rate covenants requiring rates to be set at an adequate level to assure meeting a specified minimum debt service coverage ratio (DSC). A DSC is a simple financial measure of the utility's ability to repay its debt serve payments on outstanding debt obligations. For the City, the DSC ratio is set at a level such that revenues minus operating expenses will be 50% greater than the maximum annual debt service on the outstanding debt (i.e. a DSC $\geq$ 1.50). However, each specific debt issuance may have its own debt covenants and target minimum coverage ratio. Given a minimum DSC, it is often prudent to plan or set rates at a level which exceeds this minimum. This helps to provide greater assurance of meeting the minimum DSC, and at the same time, provides a slight cushion for unexpected changes. This should also strengthen the City's ability to issue additional long-term debt in the future, if necessary, since bond rating agencies would review the past financial strength and ability to repay the bonds. It is especially important given the City's assumed future long-term debt contained within this revenue requirement analysis. In 2020, the DSC is estimated at 2.14, which is well above the minimum target of 1.50. However, over time and assuming no revenue adjustments, the DSC drops below 1.00 by 2021 which means the water utility would not be able to pay any of the proposed debt service. With the proposed revenue adjustments, the DSC remains above the targeted minimum level through 2025 which is also a result of the retirement of the existing issuance.

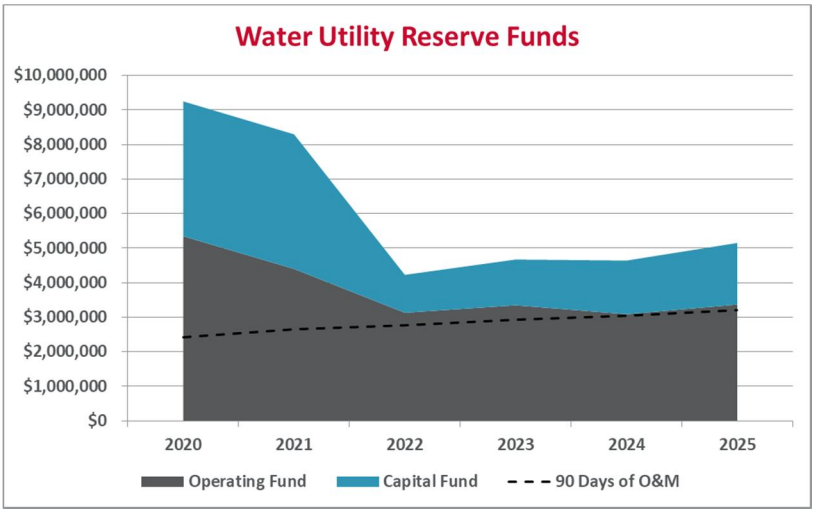
> ***"A debt service coverage ratio (DSC) is a simple financial measure of the utility's ability to repay its debt serve payments on outstanding debt obligations."***

### 3.2.10 Review of Water Reserve Levels

Reserves serve a variety of purposes and are an important part of a utility's financial picture. It is important to note that the City views all reserves as one fund. However, for rate setting purposes, it is useful to separate the total into different reserve funds.

Currently, the water operating fund has a minimum target balance of 90 days of O&M expenses or approximately $2.4 million for 2020. The City also has a capital reserve fund, which does not currently have a target minimum but a general financial guideline would be a year of average capital projects, which based on the current capital plan that is approximately $2.0 million. The final reserve is the bond reserve fund, which includes the final payment for the 2011 refunding revenue bond debt service payment. Each debt issuance may have slightly different requirement

for a bond reserve but the City currently has a policy of maintaining 125% of the outstanding debt in the reserve. After the addition of the new long-term debt issuances, the bond reserve target will be approximately $1.0 million. Taken together, the total minimum target reserve is approximately $5.2 million. As can be seen in the graphic, the reserve levels maintain or exceed this minimum target. The graphic does illustrate that the capital and operating reserve funds have, in general, a decreasing trend line as the total funds are transferred to the debt service reserve and funds are utilized for capital projects before the funds are able to begin building in a couple of years.




As noted reserves are available for many purposes. Over the last several years, the City has incurred unexpected expenses (e.g., PFOS/PFAS) and have used reserves to fund these expenses. As a result, there are not reserves available to offset additional capital costs, reduce long-term borrowing needs, or further minimize annual rate impacts while meeting minimum target ending reserve levels. Given the critical nature of sufficient reserves, the City will need to routinely monitor and analyze reserve funds to maintain adequate levels.

### 3.2.11 Consultant's Water Revenue Requirements Recommendations

Based upon the revenue requirement analysis developed herein, HDR recommends that the City adjust the overall rate levels of the water utility. Annual adjustments are necessary in future years of 7.5% in 2022 through 2025. These proposed rate adjustments are projected to provide sufficient funding for the City's water utility to fully fund its operations and planned capital improvements, as well as maintain and potentially strengthen its financial health going forward.

## 3.3 Development of the Water Rate Designs

The next step of the rate study process is the design of water rates to collect the targeted levels of rate revenue, as established in the revenue requirement analysis. In reviewing the water rate designs consideration is given to both the ***level*** of the rates and the ***structure*** of the rates. The "level" of the rates refers to the amount of funds to be collected while the "structure" of the rates is how the customers are billed to collect the targeted level of revenues.

### 3.3.1 Rate Design Goals and Objectives

Prudent rate administration dictates that several criteria must be considered when setting utility rates. Some of these rate design goals are listed below:

- Rates which are easy to understand from the customer's perspective
- Rates which are easy for the City to administer

- Consideration of the customer's ability to pay
- Continuity, over time, of the rate making philosophy
- Policy considerations (encourage conservation, economic development, etc.)
- Provide revenue stability from month-to-month and year-to-year
- Promote efficient allocation of the resource
- Legally defendable
- Equitable and non-discriminatory (cost-based)

Many contemporary rate economists and regulatory agencies feel the last consideration, cost-based rates, should be of paramount importance and provide the primary guidance to utilities on rate structure and policy. It is important that the City provides its customers with a proper price signal as to what their consumption is costing. This goal may be approached through rate level and structure. When developing the proposed rate designs, all the above listed criteria were taken into consideration. However, it should be noted that it is difficult, if not impossible, to design a rate that meets all the goals and objectives listed above. For example, it may be difficult to design a rate that takes into consideration the customer's ability to pay, and one which is cost-based. In designing rates, there are always trade-offs between the rate design goals and objectives and, as a result, a balance must be struck.

### 3.3.2 Review of the Overall Rate Adjustments

The results of the water revenue requirement analysis indicated the need to adjust rates over the next five years (2021 – 2025). As a result, the priority for the study was to develop proposed rates that meet the overall funding needs for operating and capital over the review period. Based on the discussion with City staff, water rates have been developed for the five-year period based on the previously proposed and discussed rate transition plan. The proposed revenue adjustments are recommended to be implemented 'across the board' meaning that all components of the rate structure will be increased equally by the overall proposed revenue adjustments.

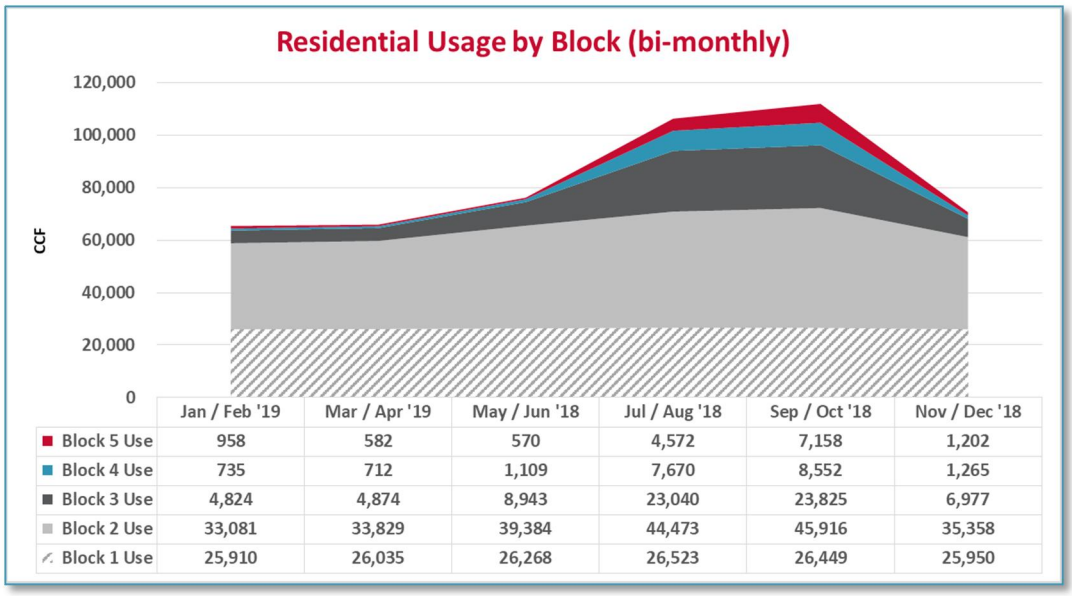
### 3.3.3 Residential Consumption Patterns

HDR reviewed the Single-Family Residential water consumption patterns to determine if the current water rate structure fairly and reasonably reflected residential water consumption. HDR reviewed the water consumption patterns for each individual water customer and developed a "typical" Single-Family Residential water customer based on monthly average use. The typical customer consumption pattern was then compared to the current water rate structure to determine if the rate structure appeared to be reasonable. Currently, the block sizes for Single Family Residential are:

- **Block 1:** 0 – 4 CCF[5]
- **Block 2:** 5 – 14 CCF
- **Block 3:** 15 – 30 CCF
- **Block 4:** 31 – 50 CCF
- **Block 5:** 50 + CCF

[5] One-hundred cubic feet of water = 1 CCF of water. 1 CCF = 748 gallons of water

Based on this review, it appears that, typically or on average, Single Family Residential customers consistently stay in the first two blocks year-round, which is assumed to be primarily indoor water use. During the summer months (i.e., May/June to Sept./Oct.) there is more outdoor usage and usage increases to the third and fourth blocks as well as a minimal amount in the fifth and final tier. From these current usage pattern, it was concluded that the current rate structure reasonably reflects residential customer consumption patterns.




| | Jan / Feb '19 | Mar / Apr '19 | May / Jun '18 | Jul / Aug '18 | Sep / Oct '18 | Nov / Dec '18 |
|---|---|---|---|---|---|---|
| Block 5 Use | 958 | 582 | 570 | 4,572 | 7,158 | 1,202 |
| Block 4 Use | 735 | 712 | 1,109 | 7,670 | 8,552 | 1,265 |
| Block 3 Use | 4,824 | 4,874 | 8,943 | 23,040 | 23,825 | 6,977 |
| Block 2 Use | 33,081 | 33,829 | 39,384 | 44,473 | 45,916 | 35,358 |
| Block 1 Use | 25,910 | 26,035 | 26,268 | 26,523 | 26,449 | 25,950 |

After comparing the rate structure, typical customer consumption, and total consumption for the residential class of service, HDR is of the opinion that the rate structure reasonably reflects the typical customer use and there does not appear to be a compelling reason to change the structure at this time. Furthermore, in discussion with the City staff, the current rate structure is meeting the City's rate structure goals and objectives of providing a conservation-based rate structure and revenue stability and sufficiency.

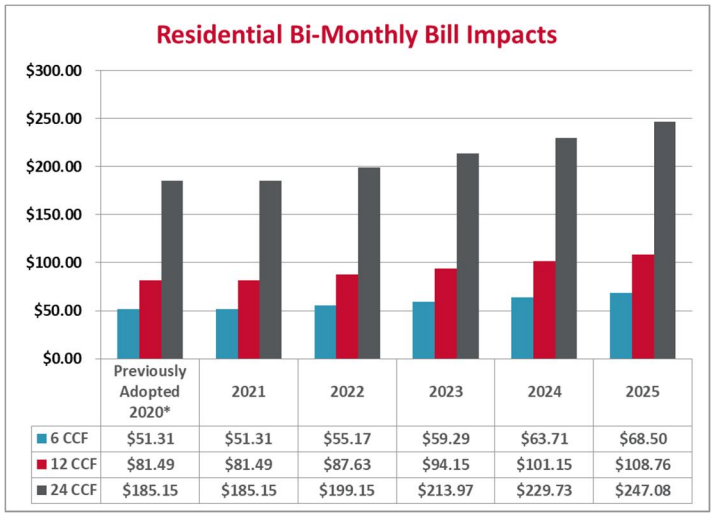
### 3.3.4 Present and Proposed Residential Water Rate Design

The Single Family Residential rate structure includes a bi-monthly fixed meter charge based on the size of the meter, along with a five-tier increasing block rate structure. Based on HDR's review of the single-family residential consumption patterns, the present rate structure continues to reflect the City's key rate design goals of conservation and revenue stability. In developing the proposed rates the current rate structure was maintained. Only the level of the rates was adjusted "across the board" to reflect the revenue target for the five-year rate setting period. The bi-monthly meter charges were adjusted to maintain the revenue stability goal and to maintain equity between customers. The consumption charges were also increased by the proposed rate adjustments in order to maintain the current structure and price relationships. The increasing block structure of the consumption charge portion of the rate attempts to fairly reflect the higher costs associated with meeting higher use customer demands.

Provided below in Table 3 - 3 is a summary of the present and proposed water rates for the Single-Family Residential customers.

| Table 3 – 3<br>Present and Proposed Single Family Residential Bi-Monthly Water Rates | | | | | | |
|---|---|---|---|---|---|---|
| | *Adopted* | Proposed | | | | |
| | *2020* | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Fixed Charge** | ***$ / Acct. / Bi-Mo*** | | | | | |
| 3/4" | $32.77 | $32.77 | $35.23 | $37.87 | $40.71 | $43.76 |
| 1" | 71.19 | 71.19 | 76.53 | 82.27 | 88.44 | 95.06 |
| 1-1/2" | 133.54 | 133.54 | 143.56 | 154.32 | 165.90 | 178.33 |
| 2" | 212.22 | 212.22 | 228.15 | 245.25 | 263.64 | 283.39 |
| 3" | 454.49 | 454.49 | 488.61 | 525.22 | 564.61 | 606.91 |
| 4" | 688.70 | 688.70 | 740.40 | 795.88 | 855.57 | 919.67 |
| 6" | 1,330.95 | 1,330.95 | 1,430.86 | 1,538.09 | 1,653.43 | 1,777.31 |
| **Volume Charge** | ***$ / CCF*** | | | | | |
| 0 - 4 CCF | $2.12 | $2.12 | $2.28 | $2.45 | $2.63 | $2.83 |
| 5 - 14 CCF | 5.03 | 5.03 | 5.41 | 5.81 | 6.24 | 6.71 |
| 15 - 30 CCF | 9.36 | 9.36 | 10.07 | 10.82 | 11.61 | 12.49 |
| 30 - 50 CCF | 15.25 | 15.25 | 16.40 | 17.62 | 18.92 | 20.36 |
| 50 + CCF | 21.91 | 21.91 | 23.56 | 25.32 | 27.18 | 29.25 |

At adopted 2020 rates, a typical customer with a 3/4" meter and 12 CCF of bi-monthly water use would pay $81.49 bi-monthly. Under the proposed rates for 2021, the same customer would pay $81.49, or no increase as outlined in the rate transition plan for 2021. More detailed single-family residential bill comparisons are included within Technical Appendix A which reviews the potential range of impacts to the residential customers at varying levels of consumption levels. It should be recalled that the majority of customers utilize consumption which stays within Tier 1 and 2 of the City's rates. Shown to the right is graphic bill comparison of the bill impacts to single-family residential customers at various consumption levels which reflect the proposed rate adjustments as outlined for 2022 through 2025.




### 3.3.5 Present and Proposed Duplex Water Rate Design

The Duplex customer class of service currently has a rate structure similar to the single-family residential rate structure. However, the duplex rate structure has a 4-tier increasing block consumption charge, as compared to the 5-tier structure of single-family residential. The fixed charge for the duplex rate is slightly greater than single-family residential, which is based on the

results of a previous cost of service analysis. Provided below in Table 3–4 is a summary of the present and proposed Duplex water rates.

**Table 3 - 4**
**Present and Proposed Duplex Water Rates**

| | *Adopted* | *Proposed* | | | | |
|---|---|---|---|---|---|---|
| | ***2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge**[1] | ***$ / Acct. / Bi-Mo*** | | | | | |
| 3/4" | $40.21 | $40.21 | $43.23 | $46.47 | $49.96 | $53.71 |
| 1" | 89.79 | 89.79 | 96.52 | 103.76 | 111.54 | 119.91 |
| 1-1/2" | 170.74 | 170.74 | 183.55 | 197.32 | 212.12 | 228.03 |
| 2" | 271.79 | 271.79 | 292.17 | 314.08 | 337.64 | 362.96 |
| **Volume Charge** | ***$ / CCF*** | | | | | |
| 0 - 8 CCF | $3.03 | $3.03 | $3.26 | $3.50 | $3.76 | $4.04 |
| 9 - 14 CCF | 5.14 | 5.14 | 5.53 | 5.94 | 6.38 | 6.85 |
| 15 - 40 CCF | 8.28 | 8.28 | 8.91 | 9.56 | 10.27 | 11.04 |
| 40 + CCF | 12.30 | 12.30 | 13.23 | 14.21 | 15.26 | 16.40 |

[1] – Fixed charges are per dwelling unit

### 3.3.6 Present and Proposed Commercial / Public Authority Water Rate Design

The present Commercial / Public Authority customers are charged a fixed bi-monthly meter charge based on the meter size and a 2-tier increasing block rate structure which varies based upon the service meter size. Table 3-5 provides the present and proposed Commercial / Public Authority water rates.

**Table 3 - 5**
**Present and Proposed Commercial / Public Authority Rates**

| | *Adopted* | *Proposed* | | | | |
|---|---|---|---|---|---|---|
| | ***2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | ***$ / Acct. / Bi-Mo*** | | | | | |
| 3/4" | $42.80 | $42.80 | $46.01 | $49.46 | $53.17 | $57.16 |
| 1" | 96.22 | 96.22 | 103.44 | 111.20 | 119.54 | 128.51 |
| 1-1/2" | 183.62 | 183.62 | 197.39 | 212.19 | 228.10 | 245.21 |
| 2" | 292.37 | 292.37 | 314.30 | 337.87 | 363.21 | 390.45 |
| 3" | 614.76 | 614.76 | 660.87 | 710.44 | 763.72 | 821.00 |
| 4" | 939.13 | 939.13 | 1,009.56 | 1,085.28 | 1,166.68 | 1,254.18 |
| 6" | 1,831.83 | 1,831.83 | 1,969.22 | 2,116.91 | 2,275.68 | 2,446.36 |
| **Volume Charge** | ***$ / CCF*** | | | | | |
| Block 1 [1] | $4.25 | $4.25 | $4.57 | $4.91 | $5.28 | $5.68 |
| Block 2 | 6.57 | 6.57 | 7.06 | 7.59 | 8.16 | 8.78 |

[1] – Tier sizes vary based upon meter size. See Table 3 - 6

The rate design for the Commercial / Public Authority customer class remains unchanged from the current structure. Shown below in Table 3 – 6 is a summary of the block sizes corresponding to the meter size for commercial/public authority customers.

**Table 3 - 6**
**Commercial / Public Authority Block Sizes by Meter**

| | 3/4" | 1" | 1-1/2" | 2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| **Block 1** | 0 - 8 CCF | 0 - 20 CCF | 0 - 40 CCF | 0 - 64 CCF | 0 - 128 CCF | 0 - 200 CCF | 0 - 400 CCF |
| **Block 2** | 8+ CCF | 20+ CCF | 40+ CCF | 64+ CCF | 128+ CCF | 200+ CCF | 400+ CCF |

### 3.3.7 Present and Proposed Apartments / Trailer Courts Water Rate Design

The City also has rates for Apartments / Trailer Courts. The structure is similar to Commercial / Public Authority in the way that the volume (consumptive) block sizes vary by the customer's meter size. Apartment / Trailer Courts are charged a bi-monthly fixed meter charge based on the size of service meter and a 2-tier increasing block rate structure with block sizes based on the meter size. Provided below in Table 3 - 7 are the present and proposed Apartments / Trailer Courts rates.

**Table 3 - 7**
**Present and Proposed Apartments / Trailer Courts Rates**

| | *Adopted* | *Proposed* | | | | |
|---|---|---|---|---|---|---|
| | *2020* | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Fixed Charge** | ***$ / Acct. / Bi-Mo*** | | | | | |
| 3/4" | $42.80 | $42.80 | $46.01 | $49.46 | $53.17 | $57.16 |
| 1" | 96.22 | 96.22 | 103.44 | 111.20 | 119.54 | 128.51 |
| 1-1/2" | 183.62 | 183.62 | 197.39 | 212.19 | 228.10 | 245.21 |
| 2" | 292.37 | 292.37 | 314.30 | 337.87 | 363.21 | 390.45 |
| 3" | 614.76 | 614.76 | 660.87 | 710.44 | 763.72 | 821.00 |
| 4" | 939.13 | 939.13 | 1,009.56 | 1,085.28 | 1,166.68 | 1,254.18 |
| 6" | 1,831.83 | 1,831.83 | 1,969.22 | 2,116.91 | 2,275.68 | 2,446.36 |
| **Volume Charge** | ***$ / CCF*** | | | | | |
| Block 1 [1] | $3.84 | $3.84 | $4.13 | $4.44 | $4.77 | $5.13 |
| Block 2 | 6.20 | 6.20 | 6.67 | 7.17 | 7.70 | 8.28 |

[1] – Tier sizes vary based upon meter size. See Table 3 - 6

As can be seen in Table 3 - 7, the current rate structure was maintained and only the level of the Apartments / Trailer Courts rates was adjusted to reflect the rate transition plan. The fixed charge is the same as Commercial / Public Authority; however, the volumetric charge is slightly less. The block sizes corresponding to the meter size is shown in Table 3 – 6 and is the same as for commercial/public authority customers.

### 3.3.8 Present and Proposed Parks Irrigation Water Rate Design

There is a separate rate schedule for the Parks Irrigation customers. In the same way that other non-residential customer classes are charged for volumetric use, the block sizes vary by the customer's meter size. Parks Irrigation customers are charged a bi-monthly fixed meter charge based on the size of service meter and a 2-tier increasing block rate structure with block sizes based on the meter size. Provided below in Table 3 - 8 are the present and proposed park irrigation rates.

**Table 3 - 8**
**Present and Proposed Parks Irrigation Rates**

| | *Adopted* | Proposed | | | | |
|---|---|---|---|---|---|---|
| | ***2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | ***$ / Acct. / Bi-Mo*** | | | | | |
| 3/4" | $22.00 | $22.00 | $23.65 | $25.42 | $27.33 | $29.38 |
| 1" | 44.26 | 44.26 | 47.58 | 51.15 | 54.99 | 59.11 |
| 1-1/2" | 79.67 | 79.67 | 85.65 | 92.07 | 98.98 | 106.40 |
| 2" | 126.06 | 126.06 | 135.51 | 145.67 | 156.60 | 168.35 |
| 3" | 282.16 | 282.16 | 303.32 | 326.07 | 350.53 | 376.82 |
| 4" | 419.46 | 419.46 | 450.92 | 484.74 | 521.10 | 560.18 |
| 6" | 792.48 | 792.48 | 851.92 | 915.81 | 984.50 | 1,058.34 |
| **Volume Charge** | ***$ / CCF*** | | | | | |
| Block 1[1] | $4.25 | $4.25 | $4.57 | $4.91 | $5.28 | $5.68 |
| Block 2 | 7.81 | 7.81 | 8.40 | 9.02 | 9.70 | 10.43 |

[1] – Tier sizes vary based upon meter size. See Table 3 - 6
* 2020 proposed rates are 5.5% increase over the adopted 2020 rates that were a 3.5% increase.

As shown, the rate structure has been maintained and only the level of the rates has been adjusted. The block sizes are the same as Commercial / Public Authority and Apartments / Trailer Courts and are shown in Table 3 – 6.

### 3.3.9 Present and Proposed Private Irrigation Water Rate Design

For customers with a separate irrigation meter, there is an applicable Private Irrigation rate schedule. It includes a fixed meter charge by size of service meter and a 2-tier inclining block rate structure with blocks varying based on the size of the meter, similar to the City's other water rate designs. Provided below in Table 3 - 9 are the present and proposed Private Irrigation rates.

**Table 3 - 9**
**Present and Proposed Private Irrigation Rates**

| | *Adopted* | Proposed | | | | |
|---|---|---|---|---|---|---|
| | ***2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | ***$ / Acct. / Bi-Mo*** | | | | | |
| 3/4" | $22.00 | $22.00 | $23.65 | $25.42 | $27.33 | $29.38 |
| 1" | 44.26 | 44.26 | 47.58 | 51.15 | 54.99 | 59.11 |
| 1 1/2" | 79.67 | 79.67 | 85.65 | 92.07 | 98.98 | 106.40 |
| 2" | 126.06 | 126.06 | 135.51 | 145.67 | 156.60 | 168.35 |
| 3" | 282.16 | 282.16 | 303.32 | 326.07 | 350.53 | 376.82 |
| 4" | 419.46 | 419.46 | 450.92 | 484.74 | 521.10 | 560.18 |
| 6" | 792.48 | 792.48 | 851.92 | 915.81 | 984.50 | 1,058.34 |
| **Volume Charge** | ***$ / CCF*** | | | | | |
| Block 1[1] | $6.21 | $6.21 | $6.68 | $7.18 | $7.72 | $8.30 |
| Block 2 | 12.48 | 12.48 | 13.42 | 14.43 | 15.51 | 16.67 |

[1] – Tier sizes vary based upon meter size. See Table 3 - 6
* 2020 proposed rates are 5.5% increase over the adopted 2020 rates that were a 3.5% increase.

Again, the rate structure is maintained and only the level of the rates was adjusted. The proposed rate adjustments from the rate transition plan are just applied "across the board" meaning that all the rate structure components are increased annually by the rate adjustment. The volumetric block sizes are variable based on the meter size and is shown above in Table 3 – 6.

This concludes the discussion of the development of the proposed water rates for the City for 2020 – 2024.

## 3.4 Summary of the Water Rate Study

This completes the rate study for the City's water utility. Based on the operating and capital needs, it is recommended that rates be increased 7.5% annually in 2022 through 2025. The City should continue to monitor the need for future adjustments and implement rates that reflect the costs incurred to provide water services. Full and complete technical appendices of the development of the comprehensive water rate study and the proposed water rate adjustments can be found in Technical Appendix A of this report.

# 4.0 Development of the Sewer Rate Study

## 4.1 Introduction

This section of the City's rate study report discusses the development of the sewer rate analyses and proposed sewer rates. Similar to the water rate study, the revenue requirement and rate design analyses were conducted for the City's sewer utility. For the sewer rate study, a concerted effort was made to minimize rate impacts over the five year review period. This was accomplished by using available reserve to fund the increased expenses of the utility, and slowly drawing down reserves. Another of the main objectives of the sewer rate study is to develop cost-based sewer rates while attempting to minimize the impacts to the utility's customers. As a point of reference, the City charges for sewer collection services. Sewer treatment services are provided by King County Metro. The charges from Metro are included on the City's customers' bills and any changes in Metro rates are passed through to the City's customers when they are implemented by King County. As a point of reference, Metro recently proposed a 4.5% increase in the treatment rates for 2021. Provided below is a detailed discussion of the technical analyses, along with our findings, conclusions and recommendations.

## 4.2 Determining the Sewer Utility Revenue Requirement

In developing the sewer revenue requirement, like the water utility, it was assumed that the sewer utility must financially "stand on its own" and be properly funded. As a result, the sewer revenue requirement, as developed herein, assumes the full and proper funding needed to operate and maintain the system on a financially prudent basis.

### 4.2.1 Determining the Time Period and Methodology

The first step in calculating the revenue requirement for the sewer utility was to establish a time frame for the revenue requirement analysis. For this study, the revenue requirement was developed for the projected time period of 2020 – 2025. This was the same time period reviewed for the City's water utility. For rate setting purposes, the focus was on 2021 – 2025.

The second step in determining the revenue requirement for the City was to decide on the basis of accumulating costs. As discussed in the previous section, the water utility's revenue requirement was established using a "cash basis" approach. This same methodology was also used to develop the sewer utility revenue requirement analysis which will provide and maintain consistency between the approaches for the City's three utilities. This same revenue requirement methodology has been used in the past to establish the City's sewer rates.

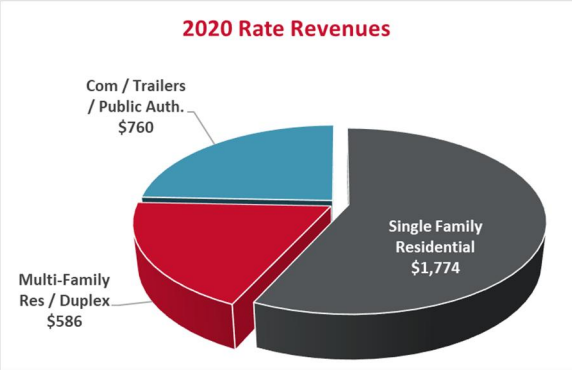
***"...the sewer utility must financially "stand on its own" and be properly funded. As a result, the sewer revenue requirement, as developed herein, assumes the full and proper funding needed to operate and maintain the system on a financially prudent basis.***

The primary financial inputs in the sewer rate analysis were the City's historical sewer customer and billing records, adopted 2019 sewer budget, and the sewer capital improvement plan from

2020 through 2025 which was recently updated to reflect the timing of planned improvements and delays to ease pressure on rates. Presented below is a discussion of the analytical steps and key assumptions contained in the development of the sewer revenue requirement analysis.

### 4.2.2 Projection of Sewer Revenues

The first step in developing the sewer revenue requirement was to develop a projection of rate revenues, at present (currently adopted) rate levels. In general, this process involved developing projected sewer billing units for each customer class of service. The billing units for each customer class were then multiplied by the applicable current sewer rates. This method of independently calculating sewer rate revenues helps to confirm that the projected revenues used within the analysis tie to the projected billing units. The projected billing units by class of service were based on historical billing records. It is important to note that for this review, King County Metro wastewater treatment related revenues and expenses were treated as a direct pass-through and only the City's local (i.e., collection-related) revenues and expenses were factored into the revenue requirement analysis.




Currently, there are three major sewer customer classes of service: single family residential, multi-family/duplex, and commercial / trailers / public authority. The majority of the City's sewer rate revenues are derived from single family residential customers. In total, at present sewer rates, the City is projected to receive approximately $3.1 million in local collection-related rate revenue in 2020. Over the planning horizon of this study, assuming moderate customer growth and the previously adopted revenue adjustment, the total sewer rate revenues are expected to increase to approximately $3.3 million by 2025.

In addition to rate revenues, the sewer utility also receives a minimal amount of non-rate or other revenues. This includes revenue such as fees, interest income, and other miscellaneous revenue. The utility is projected to receive approximately $55,000 in other revenues in 2020. Over the planning period, the sewer utility's other revenues are projected to increase to approximately $82,000 by 2025.

In total, including both sewer rate revenues and other revenues, the sewer utility's total projected revenues are expected to be approximately $3.2 million in 2020 and, with assumed growth, gradually increasing to $3.4 million by 2025. As a point of reference, the Metro revenues (pass-through) for wastewater treatment are approximately $7.3 million in 2020 and projected to increase to $8.8 million in 2025 based on estimated increases in Metro rates.

### 4.2.3 Projection of Sewer Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the utility to operate and maintain the existing collection system plant in service. The costs incurred in this area are expensed during the current year and are not capitalized or depreciated. To begin the process of projecting O&M

expenses over the planning horizon, escalation factors were developed. Escalation factors were developed for the basic types of expenses the City incurs: salaries, benefits, materials and supplies, utilities, and others. Consistent with the water utility, the escalation factors ranged from 2.5% to 6.0% per year.

Starting with the adopted 2019 budgeted O&M expenses, for the City's collection costs only, the O&M expenses were projected over the review period (2020 – 2025) based on the escalation factors described above. The escalation of costs using escalation factors assumes no changes in current levels of service and maintain the current high level of collection service for the City's customers. There are, however, additional operating expenses projected based on known changes in operations and increases in cost allocations to the sewer utility. One known change in operations is for the CCTV program. In 2020, the additional expenses for O&M is approximately $79,000. In 2020 additional cost allocations are projected for the sewer utility for human resources, communication, emergency management, and fuel. In addition, the equipment replacement funding allocation has increased over previously projected transfers. Additionally, there is also the impact to the sewer utility due to electronic payment processing which starts in 2021 and is anticipated to cost $374,000 which is calculated on both local (collection) and Metro revenues.

The total collection system operation and maintenance expenses are projected to be approximately $2.0 million in 2020. Over time, and based upon cost escalation and incurrence of additional costs associated with the CCTV program and electronic payment processing, the 2025 O&M expenses are projected to be approximately $2.6 million.

### 4.2.4 Projection of Sewer Capital Improvement Projects and Funding

The City's sewer utility has several capital improvement projects planned over the study's time horizon. Over the period of 2020 - 2025, there are approximately $6.40 million in projected collection system capital projects averaging $1.1 million, annually. The majority of the projects planned are part of the City's sewer line rehabilitation program. A summary of the capital funding plan developed for the sewer utility is shown below in Table 4 - 1.

**Table 4 - 1**
**Summary of the Sewer Capital Improvement Plan ($000s)**

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| **Total Capital Projects** | **$804** | **$398** | **$2,618** | **$953** | **$430** | **$1,188** |
| ***Less: Outside Funding Sources*** | | | | | | |
| Operating Fund Reserves | $0 | $0 | $0 | $0 | $0 | $0 |
| Capital Fund Reserves | 454 | 35 | 2,218 | 538 | 0 | 743 |
| Low Interest Loans | 0 | 0 | 0 | 0 | 0 | 0 |
| Assumed New Low Interest Loan | 0 | 0 | 0 | 0 | 0 | 0 |
| Additional Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Outside Funding Sources** | **$454** | **$35** | **$2,218** | **$538** | **$0** | **$743** |
| **Rate Funded Capital** | **$350** | **$363** | **$400** | **$415** | **$430** | **$445** |

Similar to the water capital funding plan, there are a numerous funding sources that can be used to fund the sewer collection system capital needs. Among the methods that may be used to finance these sewer capital improvement projects are long-term debt, grants, reserves, and rates. Historically the City has primarily funded capital improvements through annual rates and available reserves. This approach to cash fund the capital was achievable given the adequate level of reserves. Cash funding helps to minimize rates by avoiding the impact of capital funding through debt, the annual cash balances should be monitored so that ending balance do not end below minimum target levels. This could ultimately lead to larger rate increases in the future if the replacement of reserve funds is outpaced by uses of funds.

Based on the rate transition plan developed as part of the revenue requirement, the City is projected to have adequate resources to provide annual funding for the identified capital projects. Provided below is an overview of the funding sources the City has used, and will continue to use, to fund the planned improvements over the next five-year period.

***Rate Funding*** **-** A general financial guideline states that, at a minimum, a utility should annually fund from rates an amount equal to or greater than annual depreciation expense for renewal and replacement funding. In this case, annual depreciation expense reflects the City's current investment in sewer collection plant being depreciated or "losing" its useful life. Therefore, this portion of plant investment needs to be replaced to maintain the existing level of infrastructure. More importantly, for a sewer utility, a failure to maintain the collection system infrastructure could lead to infiltration and inflow (I&I) issues. With increased flows, the City's overall cost of wastewater treatment would, in turn, also increase. That being the case, it becomes very cost-effective to properly and adequately maintain the collection system in order to minimize I&I issues on the system. Additionally, with the annexation of the South Cove service area, the City is now responsible for renewal and replacement of a large service area which may drive the costs of those annual programs up.

***"Historically the City has primarily utilized rates and reserves to fund the capital improvements."***

While the general financial guidelines suggests annually funding an amount at least equal to annual depreciation expense, consideration should also be given to funding within rates some amount greater than annual depreciation expense to reflect the higher cost of replacement. Depreciation expense reflects the cost of infrastructure that was constructed, on average, 15 to 25 years ago. Funding for replacement cost is both prudent and minimizes costs/rates over time. With that in mind, for this review period, it is proposed that the City increase their level of rate funding for their renewal and replacement projects. The City has gradually increased the annual rate funding for capital projects from $350,000 in 2020 to $445,000 in 2025. As a point of reference, the City's current annual depreciation expense for the sewer collection system is approximately $735,000. Given that, this study has greatly improved the funding for renewal and replacement capital projects, but it is still not funding at a level equal to annual depreciation expense. The City will need to consider increasing the annual funding to meet annual depreciation levels in future years which will help to minimize the need for additional borrowing.

***Capital Reserve Funding*** **–** The capital reserve serves a couple different purposes but mainly reserves are a means to set aside funds for larger capital projects that may require funding greater than the annual rate funding component provides. Maintaining adequate capital reserves help to smooth out the fluctuations in the capital improvement spending, but it also provides the City with greater financial flexibility during the planning and construction of the projects. As part of the current capital funding plan, there will be approximately $4.0 million in capital reserves used as a funding source over the review period (2020 – 2025). Over the planning horizon, close attention should be given to the capital reserve balance as to not reduce fund balances below minimum targets. The target minimum capital reserve amount is typically set equal to one-year of capital projects.

***Long-Term Debt*** **–** Another potential funding source for capital projects is from the issuance of long-term debt (e.g., low-interest loans, revenue bonds). While there are certain advantages and disadvantages with the issuance of long-term debt, it is important to weigh them when deciding whether to issue new debt or fund a project by other methods. Debt is typically not - and should not be - issued to fund renewal and replacement projects similar to those being proposed during this time period. Rather, long-term debt is often issued for major capital projects which have an immediate impact on rates and long-term debt is a financing mechanism to smoothly finance / fund the major capital project. As part of the development of the revenue requirement analysis, no new long-term collection system debt is assumed over the planning period.

### 4.2.5 Projection of Taxes and Transfer Payments

The City's sewer utility also pays taxes and transfer payments related to providing sewer services. Taxes are the payments that the City makes for the sewer utility's business activities. There are two forms of taxes that the City currently incurs; the State utility tax and a B&O tax. The State utility tax is calculated at 3.852% of rate revenues and are paid to the Department of Revenue for the State of Washington. For 2020, the State utility tax was calculated to be approximately $120,000. The sewer utility also pays a Business and Occupation (B&O) tax of 1.5% on the connection fee and miscellaneous revenues. The B&O taxes for 2020 are projected to be approximately $159,000.

In addition to taxes, there are a number of transfer payments made for indirect costs or service rendered. Currently these transfers include those to sustainability fund (which ends in 2020) and equipment, but in 2020 there are additional transfers to HR, communications, emergency management, and fuel cost. For 2020, the total transfers for the sewer utility are $372,000 which decreases slightly due to the ending of the sustainability fund transfer to $277,000 in 2025.

In total, for 2020, the total taxes and transfer payments for the sewer utility are estimated at approximately $651,000. These payments change over time due to additional cost allocation and also the reduction in transfers due to the sustainability fund and are approximately $589,000 in 2025.

### 4.2.6 Projection of Debt Service

The final component of the sewer revenue requirement is debt service. At the present time, the City has no outstanding sewer collection system debt obligations. In addition, none were projected or anticipated within the funding of the sewer capital improvement plan.

### 4.2.7 Reserve Funding

This study has used reserve funding, or transfers to and from sewer reserve funds, to smooth and mitigate the rate adjustments in any particular year. Funds can be drawn down to mitigate the need for a rate adjustment, or increased to replenish reserves if they have been drawn down in prior years. In this analysis, change in working capital is primarily used to balance revenue requirements to the proposed rate adjustments. From year-to-year, the use of these reserves, or change in working capital, is very minimal.

### 4.2.8 Summary of the Sewer Revenue Requirement

Given the above projections of sewer collection system revenues and expenses, a summary of the revenue requirement for the sewer utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the City. In particular, emphasis was placed on attempting to minimize rates, yet still have adequate funds to support the operational and capital expenses throughout the projected time period. Presented below in Table 4 - 2 is a summary of the sewer revenue requirement. A detailed analysis of the sewer revenue requirement can be found in Technical Appendix B.

**Table 4 – 2**
**Summary of Sewer Utility Revenue Requirement ($000s)**

| | | Projected | | | | |
|---|---|---|---|---|---|---|
| | 2020* | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Revenues** | | | | | | |
| Rate Revenues | $3,120 | $3,151 | $3,183 | $3,215 | $3,247 | $3,279 |
| Other Revenues | 55 | 82 | 88 | 85 | 87 | 82 |
| **Total Revenues** | **$3,176** | **$3,233** | **$3,271** | **$3,300** | **$3,334** | **$3,362** |
| **Expenses** | | | | | | |
| O&M Expenses | $1,957 | $2,397 | $2,303 | $2,373 | $2,483 | $2,579 |
| Taxes & Transfers | 651 | 558 | 569 | 573 | 584 | 589 |
| Rate Funded Capital | 350 | 363 | 400 | 415 | 430 | 445 |
| Net Debt Service | 0 | 0 | 0 | 0 | 0 | 0 |
| Reserve Funding | 217 | (84) | 107 | 158 | 176 | 213 |
| **Total Expenses** | **$3,176** | **$3,234** | **$3,379** | **$3,520** | **$3,673** | **$3,826** |
| Bal. / (Def.) of Funds | $0 | $0 | ($106) | ($217) | ($335) | ($459) |
| Additional Taxes | 0 | 0 | (6) | (12) | (18) | (25) |
| *Total Bal. / (Def.) of Funds* | $0 | $0 | ($111) | ($229) | ($353) | ($484) |
| Balance as % of Rev from Rates | 0.0% | 0.0% | 3.5% | 7.1% | 10.9% | 14.8% |
| **Proposed Rate Adjustments** | **0.0%** | **0.0%** | **3.5%** | **3.5%** | **3.5%** | **3.5%** |
| Add'l Revenue with Rate Adj. | $0 | $0 | $111 | $229 | $353 | $484 |
| Bal. / (Def.) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 |

* - Rate revenues include the previously adopted 2020 rate adjustment of 5.5%

It is important to note the annual deficiencies shown in Table 4 - 2 are cumulative. Any rate adjustments in the initial years will reduce the overall deficiency in the remaining years. The results of the revenue requirement analysis indicate, absent any rate adjustments, a deficiency of funds over the planning period (2021 - 2025). The deficiency ranges from approximately $111,000 in 2021 to $484,000 in 2025. Over this time period, the overall deficiency in rates is approximately 14.8%.

The level of this overall deficiency in rates is being driven by a variety of factors including the changes in cost allocations, additional electronic payment costs, and general escalation of O&M expenses. Based on the City's sewer revenue requirement analysis, annual rate adjustments have been proposed over the five-year period. The proposed annual rate adjustments are 0.0% in 2021 and 3.5% annually in 2022 through 2025. This proposed rate transition plan is projected to adequately and fully fund the current and projected O&M levels, along with the planned capital improvement projects. At the same time, these proposed rate adjustments will strengthen the overall financial health of the sewer utility.

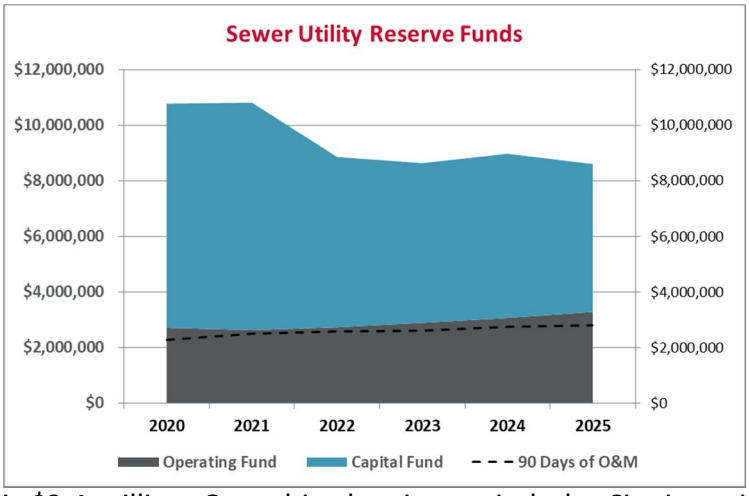
### 4.2.9 Debt Service Coverage Ratios

Generally, revenue bonds contain covenants requiring rates to be set at an adequate level to assure repayment of the annual principal and interest debt obligations. The financial measure of rate adequacy is typically determined using a debt service coverage ratio (DSC). The DSC ratio is

financial measure of the utility's ability to repay the debt. In general, the DSC ratio is set at a level such that revenues less operating expenses will be 1.50 times greater than the maximum annual debt service on the outstanding debt. That is, rates will be sufficient to pay projected O&M and have an additional 50% more than the annual debt service payment. Because the sewer utility currently does not have any outstanding debt obligations, or any projected annual debt service, there is no calculated DSC to review.

### 4.2.10 Review of the Sewer Reserve Levels

Reserves are an important part of a utility's financial picture. There can be many different purposes for reserves. They are also a good indicator of the long-term financial health of the utility. The City's sewer utility current has one reserve fund, however, for rate setting purposes it was split into three reserve funds: an operating reserve fund, capital reserve fund, and bond reserve fund. The operating fund reserve has a minimum ending fund balance target of 90 days of O&M expenses (including Metro expenses) which is approximately $2.3 million for 2020. Although the capital fund does not have a target minimum at this time, it is recommended to have approximately one year of annual capital improvement projects as a minimum reserve level. The average capital improvements over the five-year planning horizon is approximately $1.1 million. Taken together, the City's minimum reserve is $3.4 million. Over this planning period, the City is projected to maintain adequate operating and capital reserves and not fall below these recommended minimum reserve levels. It should also be noted that future capital needs related to growth and expansion of the sewer system will be needed and are primarily funded through the capital reserve which includes the annual GFC revenues.




The sewer utility is proposed to rely heavily on the reserve funds and draws approximately $4.0 million in order to fund capital projects. This was feasible given adequate current reserve levels. However, the annual cash flow and ending reserve balances should be scrutinized each year to make sure that the uses of funds does not place the reserve below the minimum level. Additionally, as the sewer reserves approach the minimums, the need for rate adjustments should be evaluated so as to avoid future, large rate adjustments for customers.

### 4.2.11 Consultant's Sewer Revenue Requirements Recommendations

Based on the City's revenue requirement analysis the proposed overall sewer rate adjustment should be annually adjusted by 0.0% in 2021 and 3.5% annually in 2022 through 2025. These proposed annual rate adjustments are needed to fully fund the projected collection system operating costs of the sewer utility and the annual capital improvement needs. As noted previously, wastewater treatment costs are not included within this analysis and those costs are

treated as a "pass-through" by the City. As noted, Metro has proposed a 4.5% increase in rates for 2021.

## 4.3 Development of the Sewer Rate Designs

The final step of the sewer rate study process is the design of sewer rates to collect the desired levels of revenues, based on the results of the revenue requirement analysis. In reviewing sewer rate designs, consideration is given to both the level of the rates and the structure of the rates.

### 4.3.1 Rate Design Goals and Objectives

Prudent rate administration dictates that several criteria must be considered when setting utility rates. These rate setting criteria were reviewed within the water rate design subsection of the report (Section 3.3.1). The sewer utility utilized these same rate design goals and objectives in reviewing the present and proposed sewer rates.

### 4.3.2 Review of the Overall Rate Adjustments

The results of the revenue requirement analysis form the basis for establishing cost-based sewer rates. Shown below, in Table 4 – 3, is the sewer rate transition plan previously discussed and proposed. These rate adjustments will be used in the designing of the final proposed sewer rates.

**Table 4 – 3**
**Summary of the Sewer Rate Transition Plan**

| | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|
| **Proposed Rate Adjustments** | 0.0% | 3.5% | 3.5% | 3.5% | 3.5% |

* - 2020 rates are based on the adopted rate adjustment of 5.5% from the 2015 rate study no additional rate adjustments are proposed in 2020 greater than the adopted levels

The proposed rate adjustments in Table 4 – 3 reflect the level of the sewer rates necessary to sufficiently fund the operating and capital needs of the sewer utility. In discussing the sewer rate structure with the City, it was determined that the rate structure would be adjusted equally or "across the board".

### 4.3.3 Present and Proposed Sewer Rates

The City's current sewer rate structure is composed of a fixed and volumetric rate and is the same for all customers. It is important to note that the rates shown in Table 4 – 4 are the local collection portion of the rate. The King County Metro wastewater treatment charges are a direct pass through to the customer. Presented below in Tables 4 - 4 is a summary of the present and proposed sewer rates for all customers.

**Table 4 - 4**
**Present and Proposed Sewer Rates – Local Collection Only**

| | Present Rate | Proposed | | | | |
|---|---|---|---|---|---|---|
| | | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Fixed Charge ($/Acct./Bi-Mo)** | | | | | | |
| All Customers | $9.04 | $9.04 | $9.36 | $9.69 | $10.03 | $10.38 |
| *Senior (25% discount)* | 6.78 | 6.78 | 7.02 | 7.27 | 7.52 | 7.79 |
| **Volume Charge ($/CCF)** | | | | | | |
| All Consumption | $2.17 | $2.17 | $2.25 | $2.33 | $2.41 | $2.49 |
| *Senior (25% discount)* | 1.63 | 1.63 | 1.69 | 1.75 | 1.81 | 1.87 |

* - Proposed 2020 rates are the proposed rates from the 2015 rate study and reflect an increase of 5.5% over 2019 rates

As can be seen in Table 4 - 4, the sewer collection rate is composed of a fixed bi-monthly charge and a volume charge. No changes to the structure of the rate has been proposed. Only the level of rates was adjusted to produce the targeted level of revenue based on the revenue requirement analysis for the sewer utility.

## 4.4 Summary of the Sewer Rate Study Update

This completes the analysis for the City's sewer rate study. The proposed sewer collection rates were developed using "generally accepted" rate making methods and principles. The proposed sewer rate adjustments for 2022 through 2025 are necessary to adequately support the operating and capital needs of the City's local sewer collection system. Adoption of the proposed sewer rates are projected to provide adequate funding for the sewer utility over the planning period, while financially positioning the utility for anticipated future capital and operation needs. Even with these proposed annual adjustments, it is prudent for the City to annually revisit the local sewer collection rates to confirm their ability to fund annual expenses and maintain the identified financial metrics (e.g., reserve targets, debt service coverage ratios).

# 5.0 Development of the Stormwater Rate Study

## 5.1 Introduction

This section describes the development of the revenue requirement and rate design analysis for the final utility reviewed under this rate study, the City's stormwater utility. The technical analysis undertaken in this section of the study is similar to that conducted for the City's water and sewer utilities. As with the other two utilities, the stormwater revenue requirement was greatly impacted by the additional, and increased, cost allocations from the general fund and the funding of ACH payment fees in 2021. Unique to stormwater – however – was the additions of the Creekside property acquisition and street sweeping expenses that were both added in 2020 and are a key driver of the overall revenue requirement results.

## 5.2 Determining the Stormwater Revenue Requirement

As with the water and sewer analyses, in developing the stormwater revenue requirement, it was assumed the stormwater utility must financially "stand on its own" and be properly funded. As a result, the revenue requirement, as developed herein, assumes the full and proper funding needed to operate and maintain the stormwater utility on a financially sound and prudent basis. This includes maintaining adequate reserve levels, prudently funding annual renewal and replacement needs (rate funded capital), and meeting other industry standard financial metrics (e.g., debt service coverage). The following discussion provides more detail regarding the development of the stormwater revenue requirement and rate design analysis.

> ***"...revenue requirement, as developed herein, assumes the full and proper funding needed to operate and maintain the stormwater utility on a financially sound and prudent basis."***

### 5.2.1 Determining the Time Period and Methodology

To begin calculating the revenue requirement for the stormwater utility, a time frame for the revenue requirement analysis must be established. For this study, the revenue requirement was developed for a 10-year projected time period, with a focus on and the rate transition plan for the next five years (2021 – 2025). This time period is identical to that used for the water and sewer analyses.

The second step in determining the revenue requirement was to decide on the basis of accumulating costs. As with the revenue requirement analyses for the water and sewer utilities, a "cash basis" methodology was utilized, which was also the method used in the prior rate study.

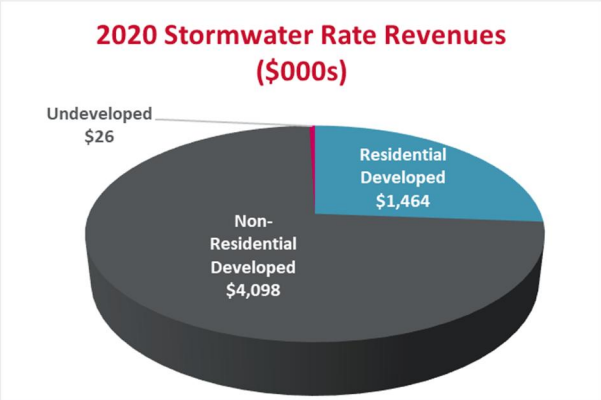
The primary financial inputs in this process were the City's historical stormwater billing records, adopted 2019 stormwater budget, and current stormwater capital improvement plan for 2020 – 2025 which was updated to reflect the timing of projects. As mentioned previously, in addition to the budgeted expenses, the stormwater utility was also impacted by the additional cost allocations, ACH payment fees, creekside property acquisition costs, and street sweeping

expenses. The following is a detailed discussion of the analytical steps and key assumptions contained in the development of the projections of the City's stormwater revenues and expenses.

### 5.2.2 Projection of Stormwater Revenues

The City receives revenue from two primary sources, stormwater rate revenue and other (miscellaneous) revenue. The projection of the stormwater rate revenues is based on the current rate structure and collected on a bi-monthly basis. Other revenue are primarily related to interest income from the City's stormwater reserve funds. The following will provide a brief overview of the stormwater revenues collected by the City.

The first step in developing the revenue requirement was to develop a projection of stormwater rate revenues, at present (currently adopted) rate levels. In general, this process involved developing projected consumption/billing units for each customer group (developed and undeveloped). The billing units were then multiplied by the applicable current stormwater rates. This method of independently calculating revenues assures the projected stormwater revenues used within the analysis tie to the projected billing units used in the rate design analysis.




There are three major stormwater customer classes: Residential Developed, Non-Residential Developed, and Undeveloped parcels. The vast majority of the City's rate revenues, as shown in the chart, are derived from Non-Residential Developed properties. In total, using the present stormwater rates, the City is projected to receive approximately $5.6 million in rate revenues in 2020. Over the planning horizon of this study, and based upon 1.0% annual customer growth and the previously adopted 3.0% 2020 revenue adjustment, the projected total stormwater rate revenues are projected to be approximately $5.9 million by 2025.

In addition to rate revenues, the City also receives a minor amount of other revenues. For 2020, the projected other revenues are approximately $40,000. Other revenues are projected to increase slightly over the review period and are estimated to be approximately $48,000 by 2025.

On a combined basis, taking into account the rate revenues along with other revenues, the City's total projected stormwater revenues are expected to be approximately $5.6 million in 2020, gradually increasing to $5.9 million by 2025.

### 5.2.3 Projection of Stormwater Operation and Maintenance Expenses

Stormwater operation and maintenance (O&M) expenses are incurred by the City to operate and maintain the stormwater system (plant in service). The costs incurred in this area are expensed during the current year and are not capitalized or depreciated. In general, operation and maintenance O&M expenses are grouped into functional categories.

To begin the process of projecting O&M expenses over the planning horizon, escalation factors were developed. Similar to the other utilities, escalation factors were developed for the basic types of expenses incurred: salaries, benefits, materials and supplies, utilities, etc. Escalation factors were projected based on recent inflationary trends and assumed to be approximately 2.5% - 6.0% per year. These escalation factors are consistent with those used in the water and sewer revenue requirement analyses and reflect the historical cost trends for the City's stormwater utility.

As was the case with the City's water and sewer utilities, the stormwater utility has incurred additional operating expenses since the last rate study, specifically, those related to the CCTV program which benefits both the sewer and stormwater utilities. In 2020, the additional expenses for O&M is approximately $82,000. Additionally, there is also the impact to the sewer utility due to electronic payment processing which starts in 2021 and is anticipated to costs $188,000 which is calculated on all rate revenues. Also like the water and sewer projections, in 2020 the stormwater utility will incur additional cost allocations related to HR, communications, emergency management, fuel, and EF&R. These are cost allocations are an additional $456,000 per year. As with the other utilities, the transfer to the sustainability fund is eliminated in 2021 and thereafter. In addition, previously budgeted cost allocations have increased substantially over the projections included in the 2015 study impacting overall funding needs for the last several years.

Given the budgeted 2019 O&M expenses and the additional O&M projections, HDR then escalated the stormwater O&M expenses based on the previously mentioned escalation factors. The total stormwater operation and maintenance expenses are projected to be approximately $4.3 million in 2020, and they are projected to increase to approximately $5.7 million by 2025.

### 5.2.4 Projection of Stormwater Capital Improvement Projects and Funding

The City developed a long-term stormwater capital improvement plan that was recently updated and incorporated into the stormwater rate study. The majority of the annual capital costs are driven by the drainage rehabilitation and improvement program. There are also a number of stream restoration projects that occur over the rate setting period.

The City's stormwater capital improvement plan totals approximately $9.2 million over the 2020 through 2025 review period. Provided in Table 5 - 1 is the annual stormwater capital improvement plan for the rate setting period of. The actual capital projects completed during the time period will depend on available funding sources and priority of the projects. The funding sources for these projects are assumed to be from grants, reserve funds, and rate funded capital.

***"The majority of the annual stormwater capital costs are driven by the drainage rehabilitation and improvement program. There are also a number of stream restoration projects that occur over the rate setting period."***

| Table 5 – 1<br>Summary of the Stormwater Capital Improvement Plan ($000s) | | | | | | |
|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Total Capital Projects** | **$667** | **$4,092** | **$425** | **$817** | **$1,211** | **$2,052** |
| ***Less: Outside Funding Sources*** | | | | | | |
| Operating Fund Reserves | $0 | $0 | $0 | $0 | $0 | $0 |
| Capital Fund Reserves | 0 | 2,272 | 0 | 317 | 241 | 82 |
| Grants | 0 | 130 | 0 | 0 | 0 | 500 |
| Developer Contributions | 40 | 1,490 | 0 | 0 | 220 | 620 |
| Assumed New Low Interest Loan | 0 | 0 | 0 | 0 | 0 | 0 |
| Additional Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Outside Funding** | **$40** | **$3,892** | **$0** | **$317** | **$461** | **$1,202** |
| **Total Rate Funded Capital** | **$627** | **$200** | **$425** | **$500** | **$750** | **$850** |

Similar to the water and sewer capital plan, there are a number of different funding sources which may be used to fund the capital improvement plan. Among the methods that may be used to finance these capital improvement projects are long-term debt, grants, reserve funds, developer contributions, and rate funded capital. A large portion of the projects in the capital plan are funded annually through rates (rate funded capital) or reserves, which is a sound practice. Although this is a prudent approach and one that minimizes rate impacts, given the amount of reserve funding of capital the City should be vigilant to observe the ending reserve balances to make sure it does not fall below the minimum level. The portion of the capital projects not funded from rates will be funded from a combination of grants, developer contributions, and long-term debt. Provided below is a discussion of the typical funding sources the City has used, and/or will use, to fund the planned improvements over the next five year period.

***Rate Funded Capital*** - A general financial guideline states that, at a minimum, a utility should annually fund an amount through rates which is equal to or greater than their annual depreciation expense. Annual depreciation expense reflects the current investment in stormwater plant being depreciated or "losing" its useful life. Therefore, adequately funding for renewal and replacement capital projects will help maintain the existing stormwater infrastructure. At the same time, consideration should be given to funding within rates some amount greater than annual depreciation expense for purposes of funding improvements at their cost of replacement (replacement cost funding). As a point of reference, the City's stormwater depreciation expense is approximately $1.7 million for 2017. Within this study, the City will be funding from rates approximately $627,000 in 2020 and increasing to $850,000 by 2025. While this is less than the annual depreciation expense, the funding is increasing and moving towards a more adequate level. However, as the renewal and replacement needs of the stormwater system continue to increase, the level of rate funded capital should also increase to levels much closer to annual depreciation expense.

***Reserve Funding*** - There will be approximately $2.9 million in reserves used as a funding source for capital improvement projects over the review period. The capital reserve fund is currently being replenished by GFC revenues and by surpluses in years where the actual capital projects may be less than rate funded capital received. This allows the City to set aside in the capital reserve funding for future projects. This also helps to mitigate future rate adjustments while smoothing rates over time. Close attention should be given to the reserve balances to maintain them at or above minimum targets.

***Long-Term Debt*** – Similar to the water and sewer utility, the City can issue long-term debt to fund stormwater capital projects and depending on the project, it may be prudent to do so. For this planning period, it is assumed that the City's stormwater utility will not need to issue long-term debt to help fund capital projects. However, if the need arises in the future, the stormwater utility will be in a strong financial position to handle the impact to rates.

### 5.2.5 Projection of Taxes and Transfer Payments

Unlike the taxes for the water and sewer utilities, the stormwater utility pays only a business and occupation (B&O) tax. The utility pays business and occupation (B&O) taxes on 1.5% of all revenues. The stormwater B&O taxes for 2020 are projected to be approximately $87,000. By 2025, the figure increases to $91,000 based on assumed customer growth.

The City currently has a transfer budgeted to the sustainability fund of $205,000 and a transfer of $260,000 to the equipment rental fund for 2020. The transfer to the sustainability fund, as mentioned in water and sewer, is discontinued in 2021 and so there will be cost savings due to that. However, there are also a number of transfer payments made for indirect costs or service rendered that are anticipated to start in 2020. The additional transfers are to HR, communications, emergency management, fuel cost, and street sweeping which in total are approximately $456,000 for 2020.

In total, taxes and transfers for the stormwater utility are estimated at approximately $645,000 for 2020. With the changes in cost allocation they will decrease to approximately $567,000 by 2025.

### 5.2.6 Projection of Debt Service

At the present time, there is no outstanding stormwater debt service obligations. As noted in the capital section above, no new or additional long-term debt issuances have been assumed for the City's stormwater utility to fund the updated capital projects.

### 5.2.7 Reserve Funding

This study has used reserve funding that is transfers to or from reserve funds to smooth and mitigate the rate adjustments in any particular year. Reserve funding can also be used to help build or replenish reserves if they have been drawn down in prior years. In the stormwater analysis, the reserve funding is slightly deficient and reserves are used to smooth the rate transition.

### 5.2.8 Summary of the Stormwater Revenue Requirement

Given the above projections of stormwater revenues and expenses, a summary of the revenue requirement for the City's stormwater utility can be developed. In developing the revenue requirement, consideration was given to the financial planning considerations. In particular, emphasis was placed on attempting to minimize rate impacts, yet still have adequately fund the stormwater operational activities and capital projects throughout the projected time period. Presented in Table 5 - 2 is a summary of the stormwater revenue requirement.

**Table 5 – 2**
**Summary of Stormwater Revenue Requirement ($000s)**

| | | Projected | | | | |
|---|---|---|---|---|---|---|
| | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Revenues** | | | | | | |
| Rate Revenues | $5,588 | $5,643 | $5,700 | $5,757 | $5,814 | $5,873 |
| Other Revenues | 40 | 48 | 38 | 45 | 48 | 48 |
| **Total Revenues** | **$5,628** | **$5,691** | **$5,738** | **$5,801** | **$5,863** | **$5,920** |
| **Expenses** | | | | | | |
| O&M Expenses | $4,324 | $4,923 | $5,073 | $5,318 | $5,515 | $5,735 |
| Taxes & Transfers | 645 | 548 | 554 | 560 | 567 | 573 |
| Rate Funded Capital | 627 | 200 | 425 | 500 | 750 | 850 |
| Net Debt Service | 0 | 0 | 0 | 0 | 0 | 0 |
| Change in Working Capital | 31 | 20 | (6) | 64 | 30 | 42 |
| **Total Expenses** | **$5,628** | **$5,691** | **$6,047** | **$6,442** | **$6,861** | **$7,200** |
| Bal./(Def.) of Funds | $0 | $0 | ($309) | ($641) | ($998) | ($1,280) |
| Additional Taxes | 0 | 0 | (5) | (10) | (15) | (19) |
| *Total Bal./(Def.) of Funds* | $0 | $0 | ($313) | ($651) | ($1,013) | ($1,299) |
| Bal./Def. as % of Rate Rev. | 0.0% | 0.0% | 5.4% | 11.1% | 17.2% | 21.8% |
| **Proposed Rate Adjustments** | **0.0%** | **0.0%** | **5.5%** | **5.5%** | **5.5%** | **4.0%** |
| Add'l Revenue with Rate Adj. | $0 | $0 | $313 | $651 | $1,013 | $1,299 |
| Bal. / (Defic.) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 |

* - Assumes adopted 2020 rate adjustment of 5.5%

In reviewing Table 5 - 2, it is important to note the annual deficiencies are cumulative and any rate adjustments in prior years will reduce the overall deficiency in the latter years. In summary, it appears that the overall stormwater utility deficiency is approximately 21.8%. The deficiency varies by year and is driven, in part, by the capital improvement funding plan, meeting financial targets, and annual operational expenses. The deficiency in 2022 is approximately $313,000. Over time, and by 2025, the deficiency is estimated to be approximately $1.3 million. The rate adjustments are primarily needed to fund additions in O&M expenses related to increased cost allocation and ACH payment fees; renewal and replacement capital improvement projects; maintain adequate reserve funds, and maintaining a strong debt service coverage ratio. As part of the capital funding plan, the stormwater utility will use approximately $2.9 million in reserve funds for capital from 2020 through 2025. This has been done as the reserve fund were sufficient

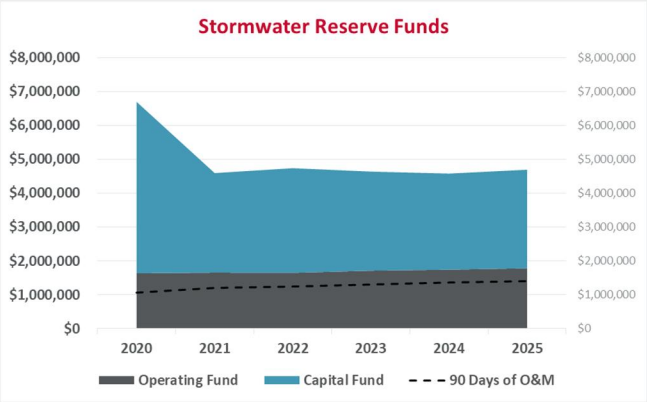
to minimize rate impacts. The use of cash funding is a prudent funding method but care should be given to the annual cash flow and ending reserve balances so as to not run the reserves below the minimum level. This may cause larger one-time rate adjustments in the future if the stormwater utility gets behind in maintaining and replenishing reserve funds. The proposed stormwater rate adjustments are intended to provide adequate funding for annual operating and capital needs of the stormwater utility. As a part of this financial plan, annual rate adjustments of 5.5% are recommended from 2022 to 2024 and 4.0% in 2025.

### 5.2.9 Debt Service Coverage Ratios

Debt service coverage ratios are a financial measure of a utility's ability to repay debt as noted in the discussion with the water and sewer utility. There currently is no outstanding debt for the stormwater utility. Additionally, no additional or new long-term debt issuances are assumed to fund capital improvement projects. The stormwater utility will, however, be in a strong financial position is the City identifies and issues long-term debt to fund appropriate capital projects in the future.

### 5.2.10 Review of the Stormwater Reserve Levels

Just as in water and sewer, the stormwater utility technically has one reserve fund but for rate setting purposes it was divided into three reserve funds: the operating reserve fund, the capital reserve fund, and the bond reserve fund. Currently, the stormwater operating reserve fund has a minimum target balance of $1.1 million for 2020 which is calculated as approximately 90 days of O&M expenses. The City also has a capital reserve fund, which does not currently have a target minimum, and a bond reserve fund. The graphic of the stormwater reserve funds illustrates that the reserve funds appear to be sufficient. The City should routinely analyze their reserve levels to confirm and maintain adequate levels.




### 5.2.11 Consultant's Stormwater Revenue Requirement Recommendations

Based upon the stormwater revenue requirement analysis developed herein, HDR has recommended a set of annual rate adjustments for the stormwater utility. HDR recommends annual rate adjustments of 5.5% from 2022 through 2024 and 4.0% in 2025. These proposed rate adjustments should allow the City to fully fund its operations and planned capital improvements.

## 5.3 Development of the Stormwater Rate Designs

The final step of the stormwater rate study process is the design of stormwater rates to collect the desired levels of revenues, based upon the results of the revenue requirement analysis. In reviewing the rate designs, consideration is given to the level of the rates and the structure of the rates.

### 5.3.1 Rate Design Goals and Objectives

Prudent rate administration dictates that several criteria must be considered when setting utility rates. The typical rate design goals and objectives for a stormwater utility are similar to those described for the water utility and referenced in the sewer analysis. The same rate design goals and objectives were considered during the review of the stormwater rates.

### 5.3.2 Review of the Overall Rate Adjustment

The results of the revenue requirement analysis indicated the need to adjust stormwater rate revenues over the next five years. As a result, the priority for the City was to implement rates that meet the overall funding needs for operating and capital over the review period. Based on a discussion with City staff, stormwater rates have been developed for the five-year period of 2021 to 2025 based on the rate transition plan.

### 5.3.3 Present and Proposed Stormwater Rate Designs

In developing the proposed rate designs, and as noted previously, the City's existing stormwater rate structure was examined and analyzed. Based on the proposed rate transition plan, rates were developed for 2021 through 2025 for each class of service. At the present time, the stormwater utility has rates for Residential Developed, Non-Residential Developed, and Undeveloped. All classes of service had their respective rate structures maintained.

Provided below in Table 5 - 3 is a summary of the present and proposed stormwater rates.

**Table 5 - 3**
**Present and Proposed Stormwater Rates**

| | Present | Proposed | | | | |
|---|---|---|---|---|---|---|
| | Rate | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Developed** [1] | | | | | | |
| Fixed Charge ($ / Parcel or ESU / Bi-Mo.) | $33.92 | $33.92 | $35.79 | $37.76 | $39.84 | $41.43 |
| **Undeveloped** | | | | | | |
| Fixed Charge ($ / Parcel / Bi-Mo.) | $16.98 | $16.96 | $17.90 | $18.88 | $19.92 | $20.72 |

[1] Residential Developed is charged on a $/Parcel/Bi-Month basis and Non-Residential Developed is charged on a $/ESU/Bi-Month basis.

The proposed rate design maintains a fixed bi-monthly parcel charge. At present rates, a typical "developed", either residential or non-residential, customer would pay $33.92/ESU bi-monthly. Under the proposed stormwater rates, the cumulative bi-monthly adjustment over the five-year period for a "developed" parcel would be $7.51/ESU through 2025.

## 5.4 Summary of the Stormwater Rate Study Update

This completes the analysis for the City's stormwater utility. The stormwater utility rate study has developed a financial plan for the full funding of operating and capital needs.

A full and complete technical appendix of the development of the comprehensive rate study and the proposed rate adjustments can be found in Technical Appendix C of this report.

# Technical Appendix A – Water Rate Analysis

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Summary of the Water Revenue Requirement**
**Exhibit 1**

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Revenues** | | | | | | | | | | | | |
| Total Rate Revenues | $9,941,716 | $10,294,584 * | $10,397,530 | $10,501,505 | $10,606,520 | $10,712,585 | $10,819,711 | $10,927,908 | $11,037,187 | $11,147,559 | $11,259,035 | $11,371,625 |
| Total Other Revenues | 2,197,552 | 2,108,745 | 2,180,174 | 1,801,993 | 1,799,149 | 1,734,288 | 1,796,809 | 1,835,712 | 1,881,016 | 1,938,825 | 2,028,577 | 2,145,663 |
| ***Total Revenues*** | **$12,139,268** | **$12,403,329** | **$12,577,704** | **$12,303,498** | **$12,405,669** | **$12,446,874** | **$12,616,521** | **$12,763,621** | **$12,918,204** | **$13,086,384** | **$13,287,612** | **$13,517,288** |
| **Expenses** | | | | | | | | | | | | |
| Total Operations & Maintenance | $9,741,117 | $9,816,084 | $10,712,759 | $11,176,643 | $11,847,143 | $12,347,162 | $12,984,486 | $13,455,960 | $14,062,544 | $14,676,006 | $15,412,753 | $15,966,160 |
| Taxes & Transfers | 739,444 | 1,222,731 | 1,130,478 | 1,134,132 | 1,143,569 | 1,152,233 | 1,162,968 | 1,173,511 | 1,184,317 | 1,195,480 | 1,207,295 | 1,219,697 |
| Rate Funded Capital | 1,100,000 | 1,100,000 | 1,100,000 | 1,900,000 | 658,290 | 1,570,030 | 1,538,700 | 2,600,000 | 2,700,000 | 2,800,000 | 2,900,000 | 3,000,000 |
| Net Debt Service | 423,756 | 418,786 | 581,154 | 112,700 | 110,464 | 108,206 | 105,924 | 103,620 | 382,142 | 660,641 | 658,267 | 862,495 |
| Total Reserve Funding | 134,952 | (154,271) | (946,688) | (1,270,077) | 217,807 | (259,416) | 280,325 | (36,897) | 147,729 | 260,905 | 372,677 | 531,477 |
| **Total Revenue Requirement** | **$12,139,268** | **$12,403,329** | **$12,577,704** | **$13,053,398** | **$13,977,273** | **$14,918,216** | **$16,072,404** | **$17,296,195** | **$18,476,733** | **$19,593,033** | **$20,550,993** | **$21,579,830** |
| Total Bal. / (Def.) of Funds | $0 | $0 | $0 | ($787,613) | ($1,650,640) | ($2,595,626) | ($3,629,679) | ($4,760,517) | ($5,838,068) | ($6,833,869) | ($7,628,657) | ($8,468,006) |
| Cumulative Balance as a % of Rate Adj. | 0.0% | 0.0% | 0.0% | 7.5% | 15.6% | 24.2% | 33.5% | 43.6% | 52.9% | 61.3% | 67.8% | 74.5% |
| **Proposed Rate Adjustment** | **0.0%** | **0.0%** | **0.0%** | **7.5%** | **7.5%** | **7.5%** | **7.5%** | **7.5%** | **6.5%** | **5.5%** | **4.0%** | **4.0%** |
| Add'l Revenue with Rate Adj. | $0 | $0 | $0 | $787,613 | $1,650,640 | $2,595,626 | $3,629,679 | $4,760,517 | $5,838,068 | $6,833,869 | $7,628,657 | $8,468,006 |
| Bal. / (Def.) After Rate Adjustment | $0 | $0 | $0 | $0 | ($0) | $0 | $0 | $0 | $0 | ($0) | $0 | $0 |
| **Additional Rate Adjustment Required** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Debt Service Coverage Ratio (all debt; target = 1.5)** | | | | | | | | | | | | |
| Before Rate Adjustment | 2.59 | 2.14 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| After Proposed Rate Adjustment | 2.59 | 2.14 | 0.92 | 2.32 | 3.17 | 4.59 | 6.24 | 8.61 | 5.69 | 4.51 | 4.78 | 4.34 |
| **Avg Residential Bi-Monthly Bill** | $78.74 | $81.49 | (Current rates; 3/4" Meter + 6 CCF / month) | | | | | | | | | |
| Customer Bill on Proposed Adj. | $78.74 | $81.49 | $81.49 | $87.60 | $94.17 | $101.23 | $108.83 | $116.99 | $124.59 | $131.45 | $136.70 | $142.17 |
| Bill Difference - Bi-Monthly | 0.00 | 2.75 | 0.00 | 6.11 | 6.57 | 7.06 | 7.59 | 8.16 | 7.60 | 6.85 | 5.26 | 5.47 |
| Cumulative Bi-Monthly Bill Dif. | 0.00 | 2.75 | 2.75 | 8.86 | 15.43 | 22.49 | 30.09 | 38.25 | 45.85 | 52.71 | 57.96 | 63.43 |
| **Total Ending Fund Balance** | **$12,204,457** | **$10,050,690** | **$9,301,528** | **$4,648,792** | **$5,092,456** | **$5,061,155** | **$5,571,877** | **$4,385,264** | **$5,860,740** | **$5,501,301** | **$6,360,618** | **$7,132,760** |

* - Previously adopeted rate adjustement of 3.5% for 2020 included

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Escalations**
**Exhibit 2**

| | *Budgeted* | *Projected* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | *Notes* |
| **Revenues** | | | | | | | | | | | | | |
| Rate Rev Growth | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| Electronic Payment Utilization | 0.0% | 0.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | |
| Misc Revenues | Budget | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| **Expenses** | | | | | | | | | | | | | |
| Salary | Budget | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | |
| Benefits | Budget | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | |
| Materials & Supplies | Budget | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | |
| Equipment | Budget | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | |
| Miscellaneous | Budget | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | |
| Utilities | Budget | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | |
| Purchased Water | Budget | 8.1% | 5.0% | -11.0% | 5.4% | 5.4% | 4.9% | 4.8% | 4.7% | 4.5% | 4.5% | 4.5% | *Exhibit 6* |
| Cost Allocation | Budget | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | *average of all other factors* |
| Flat | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Insurance | Budget | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | |
| **Interest** | 0.5% | 0.5% | 0.8% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| **New Long-Term Debt Assumptions** | | | | | | | | | | | | | |
| ***Low Interest Loans*** | | | | | | | | | | | | | |
| Term in Years | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Rate | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | |
| ***Revenue Bond*** | | | | | | | | | | | | | |
| Term in Years | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Rate | 4.5% | 4.6% | 4.7% | 4.8% | 4.9% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Revenue Requirement**
**Exhibit 3**



| | *Budgeted* | *Projected* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | *Notes* |
| **Revenues** | | | | | | | | | | | | | |
| Residential | $4,045,065 | $4,181,346 | $4,223,159 | $4,265,391 | $4,308,045 | $4,351,125 | $4,394,636 | $4,438,583 | $4,482,969 | $4,527,798 | $4,573,076 | $4,618,807 | As Rate Rev Growth |
| Duplex | 69,248 | 71,888 | 72,607 | 73,333 | 74,067 | 74,807 | 75,555 | 76,311 | 77,074 | 77,845 | 78,623 | 79,410 | As Rate Rev Growth |
| Commercial / Public Authority | 1,801,995 | 1,866,646 | 1,885,312 | 1,904,165 | 1,923,207 | 1,942,439 | 1,961,863 | 1,981,482 | 2,001,297 | 2,021,310 | 2,041,523 | 2,061,938 | As Rate Rev Growth |
| Apartments / Trailer Courts | 1,715,140 | 1,782,626 | 1,800,453 | 1,818,457 | 1,836,642 | 1,855,008 | 1,873,558 | 1,892,294 | 1,911,217 | 1,930,329 | 1,949,632 | 1,969,128 | As Rate Rev Growth |
| Parks Irrigation | 166,928 | 172,688 | 174,415 | 176,159 | 177,921 | 179,700 | 181,497 | 183,312 | 185,145 | 186,996 | 188,866 | 190,755 | As Rate Rev Growth |
| Private Irrigation | 1,691,568 | 1,751,397 | 1,768,911 | 1,786,600 | 1,804,466 | 1,822,510 | 1,840,735 | 1,859,143 | 1,877,734 | 1,896,512 | 1,915,477 | 1,934,631 | As Rate Rev Growth |
| Large User | 451,772 | 467,993 | 472,673 | 477,400 | 482,174 | 486,996 | 491,866 | 496,784 | 501,752 | 506,770 | 511,837 | 516,956 | As Rate Rev Growth |
| ***Total Rate Revenues*** | **$9,941,716** | **$10,294,584 *** | **$10,397,530** | **$10,501,505** | **$10,606,520** | **$10,712,585** | **$10,819,711** | **$10,927,908** | **$11,037,187** | **$11,147,559** | **$11,259,035** | **$11,371,625** | |
| ** - Previously adopeted rate adjustement of 3.5% for 2020 included* | | | | | | | | | | | | | |
| **Other Revenues** | | | | | | | | | | | | | |
| Charges For Svc-Hydrant | $20,000 | $20,200 | $20,402 | $20,606 | $20,812 | $21,020 | $21,230 | $21,443 | $21,657 | $21,874 | $22,092 | $22,313 | As Misc Revenues |
| Charges For Svc-Meter Install | 75,000 | 75,750 | 76,508 | 77,273 | 78,045 | 78,826 | 79,614 | 80,410 | 81,214 | 82,026 | 82,847 | 83,675 | As Misc Revenues |
| Charges For Svc-Backflow | 10,000 | 10,100 | 10,201 | 10,303 | 10,406 | 10,510 | 10,615 | 10,721 | 10,829 | 10,937 | 11,046 | 11,157 | As Misc Revenues |
| Charges For Svc-City Hydrant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Misc Revenues |
| Misc Rev | 65,000 | 65,650 | 66,307 | 66,970 | 67,639 | 68,316 | 68,999 | 69,689 | 70,386 | 71,090 | 71,800 | 72,518 | As Misc Revenues |
| Rents & Leases | 120,000 | 121,200 | 122,412 | 123,636 | 124,872 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Misc Revenues |
| Utility Licenses & Permits | 1,300 | 1,313 | 1,326 | 1,339 | 1,353 | 1,366 | 1,380 | 1,394 | 1,408 | 1,422 | 1,436 | 1,450 | As Misc Revenues |
| Cost Allocation | 434,000 | 434,000 | 434,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Flat |
| Interest Income | 72,252 | 59,132 | 71,944 | 90,369 | 48,979 | 51,283 | 53,819 | 56,169 | 54,994 | 56,485 | 54,770 | 61,240 | Calculated |
| Regional Connection Fees (RCFC) | 1,400,000 | 1,321,400 | 1,377,074 | 1,411,497 | 1,447,042 | 1,502,967 | 1,561,152 | 1,595,887 | 1,640,529 | 1,694,991 | 1,784,585 | 1,893,309 | CWA est. |
| ***Total Other Revenues*** | **$2,197,552** | **$2,108,745** | **$2,180,174** | **$1,801,993** | **$1,799,149** | **$1,734,288** | **$1,796,809** | **$1,835,712** | **$1,881,016** | **$1,938,825** | **$2,028,577** | **$2,145,663** | |
| **Total Revenues** | **$12,139,268** | **$12,403,329** | **$12,577,704** | **$12,303,498** | **$12,405,669** | **$12,446,874** | **$12,616,521** | **$12,763,621** | **$12,918,204** | **$13,086,384** | **$13,287,612** | **$13,517,288** | |
| **Water Administration** | | | | | | | | | | | | | |
| Salaries & Wages | $237,353 | $244,474 | $251,808 | $259,362 | $267,143 | $275,157 | $283,412 | $291,914 | $300,672 | $309,692 | $318,983 | $328,552 | As Salary |
| Benefits-Employer Taxes | 19,768 | 20,954 | 22,211 | 23,544 | 24,957 | 26,454 | 28,041 | 29,724 | 31,507 | 33,398 | 35,401 | 37,526 | As Benefits |
| Benefits-Retirement | 30,316 | 32,135 | 34,063 | 36,107 | 38,273 | 40,570 | 43,004 | 45,584 | 48,319 | 51,218 | 54,291 | 57,549 | As Benefits |
| Benefits-Deferred Comp | 7,929 | 8,405 | 8,909 | 9,444 | 10,010 | 10,611 | 11,247 | 11,922 | 12,638 | 13,396 | 14,200 | 15,052 | As Benefits |
| Benefits-Medical | 42,540 | 45,092 | 47,798 | 50,666 | 53,706 | 56,928 | 60,344 | 63,964 | 67,802 | 71,870 | 76,183 | 80,754 | As Benefits |
| Benefits-Other | 5,290 | 5,607 | 5,944 | 6,300 | 6,679 | 7,079 | 7,504 | 7,954 | 8,431 | 8,937 | 9,474 | 10,042 | As Benefits |
| Professional Services | 49,035 | 50,506 | 52,021 | 53,582 | 55,189 | 56,845 | 58,550 | 60,307 | 62,116 | 63,980 | 65,899 | 67,876 | As Salary |
| Travel | 500 | 515 | 530 | 546 | 563 | 580 | 597 | 615 | 633 | 652 | 672 | 692 | As Materials & Supplies |
| Insurance | 96,851 | 100,241 | 103,749 | 107,380 | 111,139 | 115,029 | 119,055 | 123,222 | 127,534 | 131,998 | 136,618 | 141,400 | As Insurance |
| Cost Allocation-Financial Serv | 213,700 | 221,485 | 229,553 | 237,915 | 246,582 | 255,565 | 264,875 | 274,524 | 284,524 | 294,889 | 305,632 | 316,765 | As Cost Allocation |
| Cost Allocation-Technology | 19,229 | 19,929 | 20,655 | 21,408 | 22,188 | 22,996 | 23,834 | 24,702 | 25,602 | 26,535 | 27,501 | 28,503 | As Cost Allocation |
| Cost Allocation-Fleet | 87,140 | 90,314 | 93,604 | 97,014 | 100,548 | 104,211 | 108,007 | 111,942 | 116,020 | 120,246 | 124,627 | 129,167 | As Cost Allocation |
| Miscellaneous (RCFC) | 1,400,000 | 1,321,400 | 1,377,074 | 1,411,497 | 1,447,042 | 1,502,967 | 1,561,152 | 1,595,887 | 1,640,529 | 1,694,991 | 1,784,585 | 1,893,309 | Est. From CWA |
| Scholarships & Grants | 120,000 | 123,000 | 126,075 | 129,227 | 132,458 | 135,769 | 139,163 | 142,642 | 146,208 | 149,864 | 153,610 | 157,450 | As Miscellaneous |
| Training & Registration | 1,500 | 1,538 | 1,576 | 1,615 | 1,656 | 1,697 | 1,740 | 1,783 | 1,828 | 1,873 | 1,920 | 1,968 | As Miscellaneous |
| Electronic Payment Fees | 0 | 0 | 345,718 | 375,363 | 407,551 | 442,498 | 480,442 | 521,640 | 561,102 | 597,882 | 628,016 | 659,668 | Calc'd @ 3.5% of revenue |
| ***Total Water Administration*** | **$2,331,151** | **$2,285,595** | **$2,721,290** | **$2,820,972** | **$2,925,683** | **$3,054,956** | **$3,190,968** | **$3,308,326** | **$3,435,467** | **$3,571,422** | **$3,737,611** | **$3,926,272** | |
| **Water Engineering** | | | | | | | | | | | | | |
| Salaries & Wages | $242,246 | $249,513 | $256,999 | $264,709 | $272,650 | $280,830 | $289,254 | $297,932 | $306,870 | $316,076 | $325,558 | $335,325 | As Salary |
| Overtime | 4,100 | 4,223 | 4,350 | 4,480 | 4,615 | 4,753 | 4,896 | 5,042 | 5,194 | 5,350 | 5,510 | 5,675 | As Salary |
| Benefits-Employer Taxes | 19,582 | 20,757 | 22,002 | 23,322 | 24,722 | 26,205 | 27,777 | 29,444 | 31,211 | 33,083 | 35,068 | 37,172 | As Benefits |
| Benefits-Retirement | 30,977 | 32,836 | 34,806 | 36,894 | 39,108 | 41,454 | 43,941 | 46,578 | 49,373 | 52,335 | 55,475 | 58,804 | As Benefits |
| Benefits-Deferred Comp | 6,877 | 7,290 | 7,727 | 8,191 | 8,682 | 9,203 | 9,755 | 10,340 | 10,961 | 11,619 | 12,316 | 13,055 | As Benefits |
| Benefits-Medical | 41,205 | 43,677 | 46,298 | 49,076 | 52,020 | 55,142 | 58,450 | 61,957 | 65,675 | 69,615 | 73,792 | 78,219 | As Benefits |
| Benefits-Other | 4,010 | 4,251 | 4,506 | 4,776 | 5,063 | 5,366 | 5,688 | 6,030 | 6,391 | 6,775 | 7,181 | 7,612 | As Benefits |
| Office & Operating Supplies | 2,764 | 2,847 | 2,932 | 3,020 | 3,111 | 3,204 | 3,300 | 3,399 | 3,501 | 3,606 | 3,715 | 3,826 | As Materials & Supplies |
| Small Tools & Equipment | 1,751 | 1,812 | 1,876 | 1,941 | 2,009 | 2,080 | 2,152 | 2,228 | 2,306 | 2,386 | 2,470 | 2,556 | As Equipment |
| Professional Services | 259,213 | 166,989 | 171,999 | 177,159 | 182,474 | 187,948 | 293,586 | 202,394 | 208,466 | 214,720 | 321,161 | 230,796 | As Salary |
| Communication | 2,304 | 2,373 | 2,444 | 2,518 | 2,593 | 2,671 | 2,751 | 2,834 | 2,919 | 3,006 | 3,096 | 3,189 | As Materials & Supplies |
| Travel | 1,891 | 1,948 | 2,006 | 2,066 | 2,128 | 2,192 | 2,258 | 2,326 | 2,395 | 2,467 | 2,541 | 2,618 | As Materials & Supplies |
| Operating Rentals & Leases | 3,686 | 3,797 | 3,910 | 4,028 | 4,149 | 4,273 | 4,401 | 4,533 | 4,669 | 4,809 | 4,954 | 5,102 | As Materials & Supplies |
| Cost Allocation-Technology | 164,533 | 170,527 | 176,739 | 183,177 | 189,850 | 196,766 | 203,934 | 211,363 | 219,062 | 227,043 | 235,313 | 243,886 | As Cost Allocation |
| Repairs & Maintenance | 8,295 | 8,544 | 8,800 | 9,064 | 9,336 | 9,616 | 9,905 | 10,202 | 10,508 | 10,823 | 11,148 | 11,482 | As Materials & Supplies |
| Miscellaneous | 2,493 | 2,555 | 2,619 | 2,685 | 2,752 | 2,821 | 2,891 | 2,963 | 3,037 | 3,113 | 3,191 | 3,271 | As Miscellaneous |
| Training & Registration | 6,573 | 6,737 | 6,906 | 7,078 | 7,255 | 7,437 | 7,623 | 7,813 | 8,009 | 8,209 | 8,414 | 8,624 | As Miscellaneous |
| Dues & Subscriptions | 3,150 | 3,229 | 3,309 | 3,392 | 3,477 | 3,564 | 3,653 | 3,744 | 3,838 | 3,934 | 4,032 | 4,133 | As Miscellaneous |
| Transfer-Out (Art Fund) | 20,810 | 21,330 | 21,864 | 22,410 | 22,970 | 23,545 | 24,133 | 24,737 | 25,355 | 25,989 | 26,639 | 27,305 | As Miscellaneous |
| ***Total Water Engineering*** | **$826,460** | **$755,235** | **$782,092** | **$809,987** | **$838,964** | **$869,069** | **$1,000,351** | **$935,860** | **$969,740** | **$1,004,959** | **$1,141,575** | **$1,082,651** | |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Revenue Requirement**
**Exhibit 3**



| | *Budgeted* | *Projected* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | *Notes* |
| **Water Maint & Operations** | | | | | | | | | | | | | |
| Salaries & Wages | $1,218,044 | $1,254,585 | $1,292,223 | $1,330,990 | $1,370,919 | $1,412,047 | $1,454,408 | $1,498,040 | $1,542,982 | $1,589,271 | $1,636,949 | $1,686,058 | As Salary |
| Overtime | 122,000 | 125,660 | 129,430 | 133,313 | 137,312 | 141,431 | 145,674 | 150,045 | 154,546 | 159,182 | 163,958 | 168,877 | As Salary |
| Benefits-Employer Taxes | 101,688 | 107,789 | 114,257 | 121,112 | 128,379 | 136,081 | 144,246 | 152,901 | 162,075 | 171,800 | 182,108 | 193,034 | As Benefits |
| Benefits-Retirement | 180,896 | 191,750 | 203,255 | 215,450 | 228,377 | 242,080 | 256,604 | 272,001 | 288,321 | 305,620 | 323,957 | 343,395 | As Benefits |
| Benefits-Deferred Comp | 29,063 | 30,807 | 32,655 | 34,614 | 36,691 | 38,893 | 41,226 | 43,700 | 46,322 | 49,101 | 52,047 | 55,170 | As Benefits |
| Benefits-Medical | 282,129 | 299,057 | 317,000 | 336,020 | 356,181 | 377,552 | 400,205 | 424,218 | 449,671 | 476,651 | 505,250 | 535,565 | As Benefits |
| Benefits-Other | 56,214 | 59,587 | 63,162 | 66,952 | 70,969 | 75,227 | 79,741 | 84,525 | 89,597 | 94,972 | 100,671 | 106,711 | As Benefits |
| Office & Operating Supplies | 282,132 | 290,596 | 299,314 | 308,293 | 317,542 | 327,068 | 336,880 | 346,987 | 357,396 | 368,118 | 379,162 | 390,537 | As Materials & Supplies |
| Water Purchased For Resale | 1,834,083 | 2,111,457 | 2,000,000 | 2,167,000 | 2,511,065 | 2,634,710 | 2,758,549 | 2,912,739 | 3,073,926 | 3,242,417 | 3,418,529 | 3,602,596 | Est. From CWA |
| Small Tools & Equipment | 311,600 | 77,625 | 80,342 | 83,154 | 86,064 | 89,076 | 92,194 | 95,421 | 98,761 | 102,217 | 105,795 | 109,498 | As Equipment |
| Water Meter Equipment | 249,222 | 256,699 | 264,400 | 272,332 | 280,502 | 288,917 | 297,584 | 306,512 | 315,707 | 325,178 | 334,934 | 344,982 | As Materials & Supplies |
| Professional Services | 271,591 | 279,739 | 288,131 | 296,775 | 305,678 | 314,848 | 324,294 | 334,023 | 344,043 | 354,365 | 364,996 | 375,945 | As Materials & Supplies |
| Communication | 26,586 | 27,384 | 28,205 | 29,051 | 29,923 | 30,820 | 31,745 | 32,697 | 33,678 | 34,689 | 35,729 | 36,801 | As Materials & Supplies |
| Travel | 5,400 | 5,597 | 5,801 | 6,012 | 6,231 | 6,458 | 6,693 | 6,937 | 7,190 | 7,452 | 7,723 | 8,004 | As Cost Allocation |
| Taxes & Operating Assessments | 270,127 | 278,231 | 286,578 | 295,175 | 304,030 | 313,151 | 322,546 | 332,222 | 342,189 | 352,454 | 363,028 | 373,919 | As Materials & Supplies |
| Operating Rentals & Leases | 59,938 | 61,436 | 62,972 | 64,547 | 66,160 | 67,814 | 69,510 | 71,247 | 73,029 | 74,854 | 76,726 | 78,644 | As Miscellaneous |
| Cost Allocation-Technology | 105,762 | 108,406 | 111,116 | 113,894 | 116,741 | 119,660 | 122,651 | 125,718 | 128,861 | 132,082 | 135,384 | 138,769 | As Miscellaneous |
| Utilities | 289,902 | 297,150 | 304,578 | 312,193 | 319,998 | 327,998 | 336,197 | 344,602 | 353,217 | 362,048 | 371,099 | 380,377 | As Miscellaneous |
| Repairs & Maintenance | 429,579 | 442,466 | 455,740 | 469,413 | 483,495 | 498,000 | 512,940 | 528,328 | 544,178 | 560,503 | 577,318 | 594,638 | As Materials & Supplies |
| Miscellaneous | 38,476 | 39,630 | 40,819 | 42,044 | 43,305 | 44,604 | 45,942 | 47,321 | 48,740 | 50,202 | 51,709 | 53,260 | As Materials & Supplies |
| Training & Registration | 10,700 | 11,021 | 11,352 | 11,692 | 12,043 | 12,404 | 12,776 | 13,160 | 13,554 | 13,961 | 14,380 | 14,811 | As Materials & Supplies |
| Dues & Subscriptions | 361,707 | 370,750 | 380,018 | 389,519 | 399,257 | 409,238 | 419,469 | 429,956 | 440,705 | 451,722 | 463,016 | 474,591 | As Miscellaneous |
| Intergovernmental Services | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Capital-Machinery & Equipment | 46,667 | 47,834 | 49,030 | 50,255 | 51,512 | 52,799 | 54,119 | 55,472 | 56,859 | 58,281 | 59,738 | 61,231 | As Miscellaneous |
| ***Total Water Maint & Operations*** | **$6,583,506** | **$6,775,254** | **$6,820,377** | **$7,149,799** | **$7,662,374** | **$7,960,879** | **$8,266,197** | **$8,608,771** | **$8,965,546** | **$9,337,142** | **$9,724,205** | **$10,127,411** | |
| **Additional O&M** | | | | | | | | | | | | | |
| WTP - Operations | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | As Cost Allocation |
| WTP - FTE (1.5) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Salary |
| Wells 1 & 2 - Fluoride & pH | 0 | 0 | 184,000 | 190,703 | 197,650 | 204,850 | 212,312 | 220,047 | 228,063 | 236,371 | 244,981 | 253,906 | As Cost Allocation |
| Wells 4 - Fluoride | 0 | 0 | 5,000 | 5,182 | 5,371 | 5,567 | 5,769 | 5,980 | 6,197 | 6,423 | 6,657 | 6,900 | As Cost Allocation |
| Additional RCFC | 0 | 0 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | |
| Change in current Water Demand Shares | 0 | 0 | 0 | 0 | 17,101 | 51,842 | 108,888 | 176,977 | 257,531 | 319,690 | 357,723 | 369,021 | |
| Incremental Water Demand Shares | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Additional O&M*** | **$0** | **$0** | **$389,000** | **$395,885** | **$420,122** | **$462,258** | **$526,970** | **$603,003** | **$691,791** | **$762,484** | **$809,362** | **$829,826** | |
| **Total Operations & Maintenance** | **$9,741,117** | **$9,816,084** | **$10,712,759** | **$11,176,643** | **$11,847,143** | **$12,347,162** | **$12,984,486** | **$13,455,960** | **$14,062,544** | **$14,676,006** | **$15,412,753** | **$15,966,160** | |
| **Taxes & Transfers** | | | | | | | | | | | | | |
| Sales Tax Estimate | $499,969 | $517,715 | $522,892 | $528,121 | $533,402 | $538,736 | $544,123 | $549,565 | $555,060 | $560,611 | $566,217 | $571,879 | Calc @ 5.029% of Rate Rev |
| B&O Tax Estimate | 39,475 | 38,208 | 39,345 | 33,739 | 33,763 | 32,858 | 33,864 | 34,517 | 35,266 | 36,204 | 37,621 | 39,449 | Calc @ 1.5% of Misc Rev + GFCs |
| Transfer Out - Sustainability Fund | 200,000 | 102,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Transfer Out - City Shop Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Transfer Out - EF&R Fund | 0 | 407,000 | 407,000 | 407,000 | 407,000 | 407,000 | 407,000 | 407,000 | 407,000 | 407,000 | 407,000 | 407,000 | Per City Presentation (12-yr avg) |
| Transfer Out - Muni Art Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Transfer Out - Muni Fac Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| HR Cost Allocation | 0 | 53,513 | 54,851 | 56,222 | 57,628 | 59,068 | 60,545 | 62,059 | 63,610 | 65,200 | 66,830 | 68,501 | As Miscellaneous |
| Communications Cost Allocation | 0 | 49,228 | 50,459 | 51,720 | 53,013 | 54,339 | 55,697 | 57,089 | 58,517 | 59,980 | 61,479 | 63,016 | As Miscellaneous |
| Emergency Management Cost Allocation | 0 | 15,634 | 16,025 | 16,425 | 16,836 | 17,257 | 17,688 | 18,131 | 18,584 | 19,049 | 19,525 | 20,013 | As Miscellaneous |
| Fuel Cost Allocation | 0 | 38,934 | 39,907 | 40,905 | 41,928 | 42,976 | 44,050 | 45,152 | 46,280 | 47,437 | 48,623 | 49,839 | As Miscellaneous |
| ***Total Taxes & Transfers*** | **$739,444** | **$1,222,731** | **$1,130,478** | **$1,134,132** | **$1,143,569** | **$1,152,233** | **$1,162,968** | **$1,173,511** | **$1,184,317** | **$1,195,480** | **$1,207,295** | **$1,219,697** | |
| **Rate Funded Capital** | **$1,100,000** | **$1,100,000** | **$1,100,000** | **$1,900,000** | **$658,290** | **$1,570,030** | **$1,538,700** | **$2,600,000** | **$2,700,000** | **$2,800,000** | **$2,900,000** | **$3,000,000** | 2017 Depr Exp = $1.8 million |
| **Debt Service** | | | | | | | | | | | | | |
| 2011 Water Refunding Bond | $640,800 | $638,000 | $634,400 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | From Debt Schedule |
| Assumed Future Revenue Bond | 0 | 0 | 168,160 | 336,321 | 336,321 | 336,321 | 336,321 | 336,321 | 617,170 | 898,019 | 898,019 | 1,104,644 | See Exhibit 5.2 |
| Assumed Future Low Interest Loan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | See Exhibit 5.3 |
| Additional Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Calculated @ 4.75% for 20 yrs |
| *Total Debt Service* | $640,800 | $638,000 | $802,560 | $336,321 | $336,321 | $336,321 | $336,321 | $336,321 | $617,170 | $898,019 | $898,019 | $1,104,644 | |
| *LESS: Other Funding* | | | | | | | | | | | | | |
| *Capital Fund* | $217,044 | $219,214 | $221,407 | $223,621 | $225,857 | $228,115 | $230,397 | $232,701 | $235,028 | $237,378 | $239,752 | $242,149 | 50% of GFCs |
| ***Net Debt Service*** | **$423,756** | **$418,786** | **$581,154** | **$112,700** | **$110,464** | **$108,206** | **$105,924** | **$103,620** | **$382,142** | **$660,641** | **$658,267** | **$862,495** | |
| **Reserve Funding** | | | | | | | | | | | | | |
| Operating Fund | $134,952 | ($154,271) | ($946,688) | ($1,270,077) | $217,807 | ($259,416) | $280,325 | ($36,897) | $147,729 | $210,905 | $122,677 | $156,477 | |
| Capital Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50,000 | 250,000 | 375,000 | |
| Bond Reserve Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Reserve Funding*** | **$134,952** | **($154,271)** | **($946,688)** | **($1,270,077)** | **$217,807** | **($259,416)** | **$280,325** | **($36,897)** | **$147,729** | **$260,905** | **$372,677** | **$531,477** | |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Revenue Requirement**
**Exhibit 3**



| | *Budgeted* | *Projected* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | *Notes* |
| **Total Revenue Requirement** | **$12,139,268** | **$12,403,329** | **$12,577,704** | **$13,053,398** | **$13,977,273** | **$14,918,216** | **$16,072,404** | **$17,296,195** | **$18,476,733** | **$19,593,033** | **$20,550,993** | **$21,579,830** | |
| Bal. / (Def.) of Funds | $0 | $0 | $0 | ($749,900) | ($1,571,604) | ($2,471,342) | ($3,455,883) | ($4,532,574) | ($5,558,529) | ($6,506,649) | ($7,263,382) | ($8,062,541) | |
| Plus: Additional Taxes | 0 | 0 | 0 | (37,712) | (79,036) | (124,284) | (173,796) | (227,943) | (279,538) | (327,219) | (365,275) | (405,465) | |
| *Total Bal. / (Def.) of Funds* | $0 | $0 | $0 | ($787,613) | ($1,650,640) | ($2,595,626) | ($3,629,679) | ($4,760,517) | ($5,838,068) | ($6,833,869) | ($7,628,657) | ($8,468,006) | |
| Cumulative Balance as a % of Rate Adj. | 0.0% | 0.0% | 0.0% | 7.5% | 15.6% | 24.2% | 33.5% | 43.6% | 52.9% | 61.3% | 67.8% | 74.5% | |
| **Proposed Rate Adjustment** | **0.0%** | **0.0%** | **0.0%** | **7.5%** | **7.5%** | **7.5%** | **7.5%** | **7.5%** | **6.5%** | **5.5%** | **4.0%** | **4.0%** | |
| *Months of Adjustment* | *12* | *12* | *12* | *12* | *12* | *12* | *12* | *12* | *12* | *12* | *12* | *12* | |
| Add'l Revenue with Rate Adj. | $0 | $0 | $0 | $787,613 | $1,650,640 | $2,595,626 | $3,629,679 | $4,760,517 | $5,838,068 | $6,833,869 | $7,628,657 | $8,468,006 | |
| Bal. / (Def.) After Rate Adjustment | $0 | $0 | $0 | $0 | ($0) | $0 | $0 | $0 | $0 | ($0) | $0 | $0 | |
| **Additional Rate Adjustment Required** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | |
| **Avg Residential Bi-Monthly Bill** | **$78.74** | **$81.49** | *(Current rates; 3/4" Meter + 6 CCF / month)* | | | | | | | | | | |
| Customer Bill on Proposed Adj. | $78.74 | $81.49 | $81.49 | $87.60 | $94.17 | $101.23 | $108.83 | $116.99 | $124.59 | $131.45 | $136.70 | $142.17 | |
| Bill Difference - Bi-Monthly | | $2.75 | $0.00 | $6.11 | $6.57 | $7.06 | $7.59 | $8.16 | $7.60 | $6.85 | $5.26 | $5.47 | |
| Cumulative Bi-Monthly Bill Dif. | | $2.75 | $2.75 | $8.86 | $15.43 | $22.49 | $30.09 | $38.25 | $45.85 | $52.71 | $57.96 | $63.43 | |
| **Debt Service Coverage Ratio** *(all debt; target = 1.5)* | | | | | | | | | | | | | |
| Before Rate Adjustment | 2.59 | 2.14 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| After Proposed Rate Adjustment | 2.59 | 2.14 | 0.92 | 2.32 | 3.17 | 4.59 | 6.24 | 8.61 | 5.69 | 4.51 | 4.78 | 4.34 | |
| **Reserve Funds** | | | | | | | | | | | | | |
| **Total Beginning Fund Balance** | **$14,715,795** | **$12,204,457** | **$10,050,690** | **$9,301,528** | **$4,648,792** | **$5,092,456** | **$5,061,155** | **$5,571,877** | **$4,385,264** | **$5,860,740** | **$5,501,301** | **$6,360,618** | |
| ***Operating Fund*** | | | | | | | | | | | | | |
| **Beginning Balance** | **$4,000,000** | **$5,500,000** | **$5,345,729** | **$4,399,041** | **$3,128,964** | **$3,346,771** | **$3,087,355** | **$3,367,681** | **$3,330,783** | **$3,478,512** | **$3,689,418** | **$3,812,095** | |
| Plus: Additions | 134,952 | 0 | 0 | 0 | 217,807 | 0 | 280,325 | 0 | 147,729 | 210,905 | 122,677 | 156,477 | |
| Less: Uses of Funds | 0 | (154,271) | (946,688) | (1,270,077) | 0 | (259,416) | 0 | (36,897) | 0 | 0 | 0 | 0 | |
| **Ending Balance** | **$4,134,952** | **$5,345,729** | **$4,399,041** | **$3,128,964** | **$3,346,771** | **$3,087,355** | **$3,367,681** | **$3,330,783** | **$3,478,512** | **$3,689,418** | **$3,812,095** | **$3,968,572** | |
| *Minimum Fund Balance - 90 days O&M* | *$2,401,919* | *$2,420,404* | *$2,641,502* | *$2,755,884* | *$2,921,213* | *$3,044,506* | *$3,201,654* | *$3,317,908* | *$3,467,477* | *$3,618,741* | *$3,800,405* | *$3,936,861* | |
| ***Capital Fund*** | | | | | | | | | | | | | |
| **Beginning Balance** | **$9,881,383** | **$5,870,045** | **$3,906,549** | **$3,899,075** | **$1,099,416** | **$1,325,273** | **$1,553,388** | **$1,783,785** | **$634,069** | **$1,609,816** | **$688,471** | **$1,425,111** | |
| Plus: Additions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,092,719 | 50,000 | 496,888 | 375,000 | |
| Plus: GFCs | 434,088 | 438,429 | 442,813 | 447,241 | 451,714 | 456,231 | 460,793 | 465,401 | 470,055 | 474,756 | 479,503 | 484,298 | Exhibit 4.2 |
| Plus: Bond Proceeds | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| To / (From) Bond Reserve | 0 | 36,000 | (205,000) | 583,000 | 0 | 0 | 0 | 0 | (352,000) | (351,000) | 0 | (258,000) | |
| Less: Capital Project Funding | (1,117,044) | (2,437,924) | (245,288) | (3,829,901) | (225,857) | (228,115) | (230,397) | (1,615,117) | (235,028) | (1,095,100) | (239,752) | (243,633) | |
| **Ending Balance** | **$9,198,427** | **$3,906,549** | **$3,899,075** | **$1,099,416** | **$1,325,273** | **$1,553,388** | **$1,783,785** | **$634,069** | **$1,609,816** | **$688,471** | **$1,425,111** | **$1,782,776** | |
| ***Bond Reserve Fund*** | | | | | | | | | | | | | |
| **Beginning Balance** | **$834,412** | **$834,412** | **$798,412** | **$1,003,412** | **$420,412** | **$420,412** | **$420,412** | **$420,412** | **$420,412** | **$772,412** | **$1,123,412** | **$1,123,412** | |
| Plus: Additions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| To / (From) Capital Fund | 0 | (36,000) | 205,000 | (583,000) | 0 | 0 | 0 | 0 | 352,000 | 351,000 | 0 | 258,000 | |
| Less: Uses of Funds | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Ending Balance** | **$834,412** | **$798,412** | **$1,003,412** | **$420,412** | **$420,412** | **$420,412** | **$420,412** | **$420,412** | **$772,412** | **$1,123,412** | **$1,123,412** | **$1,381,412** | |
| *Minimum Fund Balance - 125% of DS* | *$801,000* | *$797,500* | *$1,003,201* | *$420,401* | *$420,401* | *$420,401* | *$420,401* | *$420,401* | *$771,462* | *$1,122,524* | *$1,122,524* | *$1,380,805* | |
| **Total Ending Fund Balance** | **$12,204,457** | **$10,050,690** | **$9,301,528** | **$4,648,792** | **$5,092,456** | **$5,061,155** | **$5,571,877** | **$4,385,264** | **$5,860,740** | **$5,501,301** | **$6,360,618** | **$7,132,760** | |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Capital Improvement Plan**
**Exhibit 4.1**

**Inflation [1][2] = 2.7%**

| | *Project Number* | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | *Notes* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital Improvement Projects** | | | | | | | | | | | | | | |
| Redundant Water feed to Squak Mountain | *WT 006* | $0 | $80,000 | $20,000 | $1,136,553 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| SE Newport Way PRV & Master Meter (CWA to 297 Zone) | *WT 009* | 0 | 50,000 | 51,150 | 523,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| SPAR Reservoir | *WT 012* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 851,400 | 4,824,600 | 0 | 0 | 0 | *Est. timing* |
| SPAR Booster Pump Station | *WT 013* | 0 | 1,000,000 | 3,000,000 | 1,761,075 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Water Main Replacement Program | *WT 015* | 0 | 895,840 | 943,886 | 993,137 | 0 | 947,800 | 965,400 | 991,466 | 1,018,235 | 1,045,728 | 1,073,962 | 1,102,959 | |
| Water Treatment Plant | *WT 016* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,048,524 | |
| Forest Rim Reservoirs Retrofit | *WT 017* | 0 | 302,500 | 0 | 308,825 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Highwood Reservoirs Retrofit | *WT 018* | 0 | 330,000 | 0 | 336,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Vacuum Excavator - Trailer-Mounted | *WT 019* | 0 | 125,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Terra II Booster Station Retrofit | *WT 020* | 0 | 0 | 0 | 102,300 | 515,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Cemetery Reservoirs Retrofit | *WT 022* | 0 | 0 | 0 | 0 | 78,450 | 467,600 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Summit Reservoirs Retrofit | *WT 024* | 0 | 0 | 0 | 0 | 0 | 106,900 | 357,300 | 363,900 | 0 | 0 | 0 | 0 | |
| Central Park Reservoir Retrofit | *WT 025* | 0 | 0 | 0 | 0 | 0 | 0 | 109,100 | 445,200 | 0 | 0 | 0 | 0 | |
| Talus 1&2 Booster Station Retrofit | *WT 026* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53,450 | 416,850 | 0 | 0 | 0 | |
| Newport and SR900 Inter-tie | *WT 027* | 0 | 0 | 25,575 | 171,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| SE Newport Way Water Main | *WT 028* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,169,000 | 0 | 0 | 0 | 0 | |
| Westside Reservoirs Retrofit | *WT 029* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53,450 | 714,600 | 0 | |
| Holly 1 Booster Station Retrofit | *WT 030* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53,450 | 416,850 | 0 | 0 | 0 | |
| Shangri-la Reservoir Retrofit | *WT 031* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 111,245 | 571,245 | 0 | 0 | |
| Holly 2 Booster Station Retrofit | *WT 032* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54,550 | 424,550 | 0 | |
| Gilman Wellhouse Replacement | *WT 033* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,811,450 | 0 | 0 | *Est. timing* |
| Risdon Wellhouse Replacement | *WT 034* | 0 | 0 | 0 | 0 | 0 | 0 | 106,900 | 54,550 | 1,819,500 | 0 | 0 | 0 | |
| Central Park Booster Station Retrofit | *WT 035* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 121,300 | 440,000 | 0 | *Est. timing* |
| Cougar Ridge Reservoir Retrofit | *WT 043* | 0 | 81,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Maint. Facility Phase 2 | *FC 013* | 0 | 0 | 0 | 62,760 | 64,140 | 47,730 | 0 | 0 | 0 | 0 | 0 | 0 | *Addition to CIP* |
| Issaquah Highlands Storage Site | *FC 018* | 0 | 0 | 0 | 47,070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Addition to CIP* |
| Maintenance Facility Improvements | *FC 019* | 0 | 0 | 252,170 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Addition to CIP* |
| Parking Building Expansion | *FC 020* | 0 | 0 | 0 | 62,760 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Addition to CIP* |
| PWO - MMS Upgrade | *TC 006* | 0 | 22,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Addition to CIP* |
| Maint. Managmnt Software Replacement | *TC 009* | 0 | 9,207 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Addition to CIP* |
| MUNIS - Optimization | *TC 010* | 0 | 78,263 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Addition to CIP* |
| Capital-Improvements - Water M | | 1,300,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Budgeted* |
| Capital-Improvements - Pump St | | 400,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Budgeted* |
| Capital-Improvements - Supply | | 300,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Budgeted* |
| ***Total Capital Improvement Projects*** | | **$2,000,000** | **$2,974,810** | **$4,292,781** | **$5,506,280** | **$658,290** | **$1,570,030** | **$1,538,700** | **$3,982,416** | **$8,607,281** | **$3,657,722** | **$2,653,112** | **$8,151,484** | |
| **Additional Capital** | | | | | | | | | | | | | | |
| Wells 1 & 2 - Fluoride & pH | | $0 | $303,900 | $709,100 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | *30% / 70%* |
| Well 4 Improvements | | 0 | 40,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Distribution System Upgrades | | 0 | 0 | 422,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Additional Capital*** | | **$0** | **$343,900** | **$1,131,100** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| **Future Unidentified Capital Projects** | | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| **Transfer to Cash Reserve** | | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$1,092,719** | **$0** | **$246,888** | **$0** | |
| **Total Capital Improvement Projects** | | **$2,000,000** | **$3,318,710** | **$5,423,881** | **$5,506,280** | **$658,290** | **$1,570,030** | **$1,538,700** | **$3,982,416** | **$9,700,000** | **$3,657,722** | **$2,900,000** | **$8,151,484** | |
| ***Less: Outside Funding Sources*** | | | | | | | | | | | | | | |
| Operating Fund Reserves | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| Capital Fund Reserves | | 900,000 | 2,218,710 | 23,881 | 3,606,280 | 0 | 0 | 0 | 1,382,416 | 0 | 857,722 | 0 | 1,484 | 39.0% |
| Grants | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Developer Contributed | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Assumed Revenue Bond | | 0 | 0 | 4,300,000 | 0 | 0 | 0 | 0 | 0 | 7,000,000 | 0 | 0 | 5,150,000 | |
| Additional Low Interest Loan | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Additional Revenue Bonds | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Funding Sources*** | | **$900,000** | **$2,218,710** | **$4,323,881** | **$3,606,280** | **$0** | **$0** | **$0** | **$1,382,416** | **$7,000,000** | **$857,722** | **$0** | **$5,151,484** | |
| **Rate Funded Capital** | | **$1,100,000** | **$1,100,000** | **$1,100,000** | **$1,900,000** | **$658,290** | **$1,570,030** | **$1,538,700** | **$2,600,000** | **$2,700,000** | **$2,800,000** | **$2,900,000** | **$3,000,000** | |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Residential Rates (Bi-Monthly)**

| | ***Previously*** | *Proposed Rates* | | | | |
|---|---|---|---|---|---|---|
| | ***Adopted 2020**** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | *$ / Bi-Mo* | | | | | |
| 3/4" | $32.77 | $32.77 | $35.23 | $37.87 | $40.71 | $43.76 |
| 1" | 71.19 | 71.19 | 76.53 | 82.27 | 88.44 | 95.06 |
| 1 1/2" | 133.54 | 133.54 | 143.56 | 154.32 | 165.90 | 178.33 |
| 2" | 212.22 | 212.22 | 228.15 | 245.25 | 263.64 | 283.39 |
| 3" | 454.49 | 454.49 | 488.61 | 525.22 | 564.61 | 606.91 |
| 4" | 688.70 | 688.70 | 740.40 | 795.88 | 855.57 | 919.67 |
| 6" | 1,330.95 | 1,330.95 | 1,430.86 | 1,538.09 | 1,653.43 | 1,777.31 |
| **Consumption Charge** | *$ / CCF* | | | | | |
| 0 - 4 | $2.12 | $2.12 | $2.28 | $2.45 | $2.63 | $2.83 |
| 5 - 14 | 5.03 | 5.03 | 5.41 | 5.81 | 6.24 | 6.71 |
| 15 - 30 | 9.36 | 9.36 | 10.07 | 10.82 | 11.61 | 12.49 |
| 30 - 50 | 15.25 | 15.25 | 16.40 | 17.62 | 18.92 | 20.36 |
| 50+ | 21.91 | 21.91 | 23.56 | 25.32 | 27.18 | 29.25 |

** 3.5% adjustment adopted under prior rate study*

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Duplex Rates (Bi-Monthly)**

| | *Previously* | *Proposed Rates* | | | | |
|---|---|---|---|---|---|---|
| | ***Adopted 2020**** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | *$ / Bi-Mo* | | | | | |
| 3/4" | $40.21 | $40.21 | $43.23 | $46.47 | $49.96 | $53.71 |
| 1" | 89.79 | 89.79 | 96.52 | 103.76 | 111.54 | 119.91 |
| 1 1/2" | 170.74 | 170.74 | 183.55 | 197.32 | 212.12 | 228.03 |
| 2" | 271.79 | 271.79 | 292.17 | 314.08 | 337.64 | 362.96 |
| **Consumption Charge** | *$ / CCF* | | | | | |
| 0-8 CCF | $3.03 | $3.03 | $3.26 | $3.50 | $3.76 | $4.04 |
| 9-14 CCF | 5.14 | 5.14 | 5.53 | 5.94 | 6.38 | 6.85 |
| 15-40 CCF | 8.28 | 8.28 | 8.91 | 9.56 | 10.27 | 11.04 |
| 40+ CCF | 12.30 | 12.30 | 13.23 | 14.21 | 15.26 | 16.40 |

** 3.5% adjustment adopted under prior rate study*
*** Fixed Charges are per dwelling unit*

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Com / PA Rates (Bi-Monthly)**

| | *Previously* | *Proposed Rates* | | | | |
|---|---|---|---|---|---|---|
| | ***Adopted 2020**** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | *$ / Bi-Mo* | | | | | |
| 3/4" | $42.80 | $42.80 | $46.01 | $49.46 | $53.17 | $57.16 |
| 1" | 96.22 | 96.22 | 103.44 | 111.20 | 119.54 | 128.51 |
| 1 1/2" | 183.62 | 183.62 | 197.39 | 212.19 | 228.10 | 245.21 |
| 2" | 292.37 | 292.37 | 314.30 | 337.87 | 363.21 | 390.45 |
| 3" | 614.76 | 614.76 | 660.87 | 710.44 | 763.72 | 821.00 |
| 4" | 939.13 | 939.13 | 1,009.56 | 1,085.28 | 1,166.68 | 1,254.18 |
| 6" | 1,831.83 | 1,831.83 | 1,969.22 | 2,116.91 | 2,275.68 | 2,446.36 |
| **Consumption Charge** | *$ / CCF* | | | | | |
| Block 1** | $4.25 | $4.25 | $4.57 | $4.91 | $5.28 | $5.68 |
| Block 2** | 6.57 | 6.57 | 7.06 | 7.59 | 8.16 | 8.78 |

** 3.5% adjustment adopted under prior rate study*
*** Varies by meter size*

**Meter Size**

| | **3/4"** | **1"** | **2"** | **3"** | **4"** | **6"** |
|---|---|---|---|---|---|---|
| ***Block 1*** | | | | | | |
| | *0-8 CCF* | *0-20 CCF* | *0-64 CCF* | *0-128 CCF* | *0-200 CCF* | *0-400 CCF* |
| ***Block 2*** | | | | | | |
| | *8+ CCF* | *20+ CCF* | *64+ CCF* | *128+ CCF* | *200+ CCF* | *400+ CCF* |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Apart. / Trailer Courts (Bi-Monthly)**

| | *Previously* | *Proposed Rates* | | | | |
|---|---|---|---|---|---|---|
| | ***Adopted 2020**** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | *$ / Bi-Mo* | | | | | |
| 3/4" | $42.80 | $42.80 | $46.01 | $49.46 | $53.17 | $57.16 |
| 1" | 96.22 | 96.22 | 103.44 | 111.20 | 119.54 | 128.51 |
| 1 1/2" | 183.62 | 183.62 | 197.39 | 212.19 | 228.10 | 245.21 |
| 2" | 292.37 | 292.37 | 314.30 | 337.87 | 363.21 | 390.45 |
| 3" | 614.76 | 614.76 | 660.87 | 710.44 | 763.72 | 821.00 |
| 4" | 939.13 | 939.13 | 1,009.56 | 1,085.28 | 1,166.68 | 1,254.18 |
| 6" | 1,831.83 | 1,831.83 | 1,969.22 | 2,116.91 | 2,275.68 | 2,446.36 |
| **Consumption Charge** | *$ / CCF* | | | | | |
| Block 1** | $3.84 | $3.84 | $4.13 | $4.44 | $4.77 | $5.13 |
| Block 2** | 6.20 | 6.20 | 6.67 | 7.17 | 7.70 | 8.28 |

** 3.5% adjustment adopted under prior rate study*
*** Varies by meter size*

**Meter Size**

| **3/4"** | **1"** | **2"** | **3"** | **4"** | **6"** |
|---|---|---|---|---|---|
| ***Block 1*** | | | | | |
| *0-8 CCF* | *0-20 CCF* | *0-64 CCF* | *0-128 CCF* | *0-200 CCF* | *0-400 CCF* |
| ***Block 2*** | | | | | |
| *8+ CCF* | *20+ CCF* | *64+ CCF* | *128+ CCF* | *200+ CCF* | *400+ CCF* |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Parks Irrigation (Bi-Monthly)**

| | *Previously Adopted 2020** | *Proposed Rates* | | | | |
|---|---|---|---|---|---|---|
| | | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | *$ / Bi-Mo* | | | | | |
| 3/4" | $22.00 | $22.00 | $23.65 | $25.42 | $27.33 | $29.38 |
| 1" | 44.26 | 44.26 | 47.58 | 51.15 | 54.99 | 59.11 |
| 1 1/2" | 79.67 | 79.67 | 85.65 | 92.07 | 98.98 | 106.40 |
| 2" | 126.06 | 126.06 | 135.51 | 145.67 | 156.60 | 168.35 |
| 3" | 282.16 | 282.16 | 303.32 | 326.07 | 350.53 | 376.82 |
| 4" | 419.46 | 419.46 | 450.92 | 484.74 | 521.10 | 560.18 |
| 6" | 792.48 | 792.48 | 851.92 | 915.81 | 984.50 | 1,058.34 |
| **Consumption Charge** | *$ / CCF* | | | | | |
| Block 1** | $4.25 | $4.25 | $4.57 | $4.91 | $5.28 | $5.68 |
| Block 2** | 7.81 | 7.81 | 8.40 | 9.02 | 9.70 | 10.43 |

** 3.5% adjustment adopted under prior rate study*
*** Varies by meter size*

**Meter Size**

| | **3/4"** | **1"** | **2"** | **3"** | **4"** | **6"** |
|---|---|---|---|---|---|---|
| ***Block 1*** | | | | | | |
| | *0-8 CCF* | *0-20 CCF* | *0-64 CCF* | *0-128 CCF* | *0-200 CCF* | *0-400 CCF* |
| ***Block 2*** | | | | | | |
| | *8+ CCF* | *20+ CCF* | *64+ CCF* | *128+ CCF* | *200+ CCF* | *400+ CCF* |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Private Irrigation (Bi-Monthly)**

| | *Previously* | *Proposed Rates* | | | | |
|---|---|---|---|---|---|---|
| | ***Adopted 2020**** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | *$ / Bi-Mo* | | | | | |
| 3/4" | $22.00 | $22.00 | $23.65 | $25.42 | $27.33 | $29.38 |
| 1" | 44.26 | 44.26 | 47.58 | 51.15 | 54.99 | 59.11 |
| 1 1/2" | 79.67 | 79.67 | 85.65 | 92.07 | 98.98 | 106.40 |
| 2" | 126.06 | 126.06 | 135.51 | 145.67 | 156.60 | 168.35 |
| 3" | 282.16 | 282.16 | 303.32 | 326.07 | 350.53 | 376.82 |
| 4" | 419.46 | 419.46 | 450.92 | 484.74 | 521.10 | 560.18 |
| 6" | 792.48 | 792.48 | 851.92 | 915.81 | 984.50 | 1,058.34 |
| **Consumption Charge** | *$ / CCF* | | | | | |
| Block 1** | $6.21 | $6.21 | $6.68 | $7.18 | $7.72 | $8.30 |
| Block 2** | 12.48 | 12.48 | 13.42 | 14.43 | 15.51 | 16.67 |

** 3.5% adjustment adopted under prior rate study*
*** Varies by meter size*

**Meter Size**

| | **3/4"** | **1"** | **2"** | **3"** | **4"** | **6"** |
|---|---|---|---|---|---|---|
| ***Block 1*** | | | | | | |
| | *0-8 CCF* | *0-20 CCF* | *0-64 CCF* | *0-128 CCF* | *0-200 CCF* | *0-400 CCF* |
| ***Block 2*** | | | | | | |
| | *8+ CCF* | *20+ CCF* | *64+ CCF* | *128+ CCF* | *200+ CCF* | *400+ CCF* |

**City of Issaquah**
**Water Rate Study - Discounted CWA**
**Large User (Bi-Monthly)**

| | *Previously* | *Proposed Rates* | | | | |
|---|---|---|---|---|---|---|
| | ***Adopted 2020**** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Fixed Charge** | *$ / Bi-Mo* | | | | | |
| 4" | $907.37 | $939.13 | $1,009.56 | $1,085.28 | $1,166.68 | $1,254.18 |
| **Consumption Charge** | *$ / CCF* | | | | | |
| All Consumption | $5.29 | $5.29 | $5.69 | $6.12 | $6.58 | $7.07 |

** 3.5% adjustment adopted under prior rate study*

# Technical Appendix B – Sewer Rate Analysis

**City of Issaquah**
**Sewer Utility Rate Study**
**Summary of the Sewer Revenue Requirement**
**Exhibit 1a**

| | *Budgeted* | *Projected* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020 *** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| **Revenues** | | | | | | | | | | | |
| City Rate Revenues | $2,940,889 | $3,120,178 | $3,151,380 | $3,182,894 | $3,214,723 | $3,246,870 | $3,279,339 | $3,312,132 | $3,345,253 | $3,378,706 | $3,412,493 |
| Metro Rate Revenues | 7,037,224 | 7,293,359 | 7,694,494 | 8,156,164 | 8,237,725 | 8,731,989 | 8,819,309 | 9,348,467 | 9,441,952 | 10,008,469 | 10,108,554 |
| Other Revenues | 55,784 | 55,388 | 82,617 | 90,124 | 87,928 | 91,312 | 87,646 | 71,051 | 66,864 | 70,916 | 70,149 |
| ***Total Revenues*** | **$10,033,897** | **$10,468,926** | **$10,928,491** | **$11,429,181** | **$11,540,376** | **$12,070,171** | **$12,186,294** | **$12,731,650** | **$12,854,069** | **$13,458,091** | **$13,591,195** |
| **Expenses** | | | | | | | | | | | |
| Total Metro Expenses | $7,037,224 | $7,293,359 | $7,694,494 | $8,156,164 | $8,237,725 | $8,731,989 | $8,819,309 | $9,348,467 | $9,441,952 | $10,008,469 | $10,108,554 |
| Total Sewer Administration | 434,960 | 451,110 | 842,124 | 882,131 | 895,318 | 950,007 | 964,430 | 1,022,670 | 1,037,105 | 1,099,042 | 1,114,744 |
| Total Sewer Engineering | 401,836 | 283,526 | 294,062 | 305,040 | 316,456 | 328,369 | 366,511 | 360,220 | 373,878 | 388,138 | 428,733 |
| Total Sewer Maint. & Operations | 1,229,653 | 1,143,695 | 1,178,986 | 1,030,812 | 1,068,824 | 1,108,697 | 1,149,870 | 1,193,071 | 1,237,696 | 1,284,532 | 1,332,932 |
| Total Additions / (Deletions) to O&M | 0 | 79,000 | 81,500 | 85,330 | 92,900 | 95,700 | 98,600 | 102,055 | 105,630 | 109,330 | 113,161 |
| **Total Operations & Maintenance** | **$9,103,673** | **$9,250,690** | **$10,091,166** | **$10,459,477** | **$10,611,224** | **$11,214,763** | **$11,398,720** | **$12,026,483** | **$12,196,261** | **$12,889,512** | **$13,098,123** |
| Taxes & Transfers | $570,977 | $651,134 | $558,355 | $568,745 | $573,346 | $584,281 | $589,066 | $600,347 | $605,342 | $617,620 | $622,896 |
| Rate Funded Capital | 362,000 | 350,000 | 362,533 | 400,000 | 415,000 | 430,000 | 445,000 | 460,000 | 475,000 | 490,000 | 505,000 |
| Net Debt Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Reserve Funding | (2,754) | 217,102 | (83,562) | 106,702 | 158,142 | 176,188 | 212,709 | 216,844 | 249,036 | 236,378 | 248,908 |
| **Total Revenue Requirement** | **$10,033,897** | **$10,468,926** | **$10,928,491** | **$11,534,923** | **$11,757,712** | **$12,405,232** | **$12,645,495** | **$13,303,673** | **$13,525,639** | **$14,233,510** | **$14,474,927** |
| Total Bal/(Def) of Funds | $0 | $0 | $0 | ($105,742) | ($217,337) | ($335,060) | ($459,201) | ($572,023) | ($671,570) | ($775,419) | ($883,731) |
| Additional Taxes | $0 | $0 | $0 | ($4,073) | ($8,372) | ($12,907) | ($17,688) | ($22,034) | ($25,869) | ($29,869) | ($34,041) |
| Total Bal/(Def) of Funds | $0 | $0 | $0 | ($109,815) | ($225,709) | ($347,967) | ($476,890) | ($594,058) | ($697,439) | ($805,289) | ($917,773) |
| **Average Residential Bi-Monthly Bill w/Metro** | (Current rates; Fixed Charges + 5 CCF) | | | | | | | | | | |
| Customer Bill on Proposed Adjustment | $127.30 | $127.30 | $133.03 | $139.68 | $139.68 | $146.66 | $146.66 | $154.00 | $154.00 | $161.70 | $161.70 |
| Bill Difference - Monthly | | 0.00 | 5.73 | 6.65 | 0.00 | 6.98 | 0.00 | 7.33 | 0.00 | 7.70 | 0.00 |
| Cumulative Bill Difference | | 0.00 | 5.73 | 12.38 | 12.38 | 19.36 | 19.36 | 26.70 | 26.70 | 34.40 | 34.40 |
| **Average Residential Bi-Monthly Bill w/o Metro** | (Current rates; Fixed Charge + 5 CCF) | | | | | | | | | | |
| Customer Bill on Proposed Adjustment | $36.64 | $39.78 | $39.78 | $41.17 | $42.61 | $44.10 | $45.65 | $47.02 | $48.19 | $49.40 | $50.63 |
| Bill Difference - Monthly | | 3.14 | 0.00 | 1.39 | 1.44 | 1.49 | 1.54 | 1.37 | 1.18 | 1.20 | 1.23 |
| Cumulative Bill Difference | | 3.14 | 3.14 | 4.53 | 5.97 | 7.46 | 9.01 | 10.38 | 11.55 | 12.76 | 13.99 |
| **Ending Reserve Balance** | **$10,856,703** | **$10,774,674** | **$10,811,618** | **$8,857,847** | **$8,636,677** | **$8,973,594** | **$8,605,406** | **$6,944,261** | **$6,523,931** | **$6,927,564** | **$6,849,192** |

* - Includes the prevously adopted 2020 rate adjustment of 5.5%

**City of Issaquah**
**Sewer Utility Rate Study**
**Summary of the Sewer Project Rate Impacts**
**Exhibit 1b**

| | *Budgeted* | *Projected* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020 *** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| **City Portion** | | | | | | | | | | | |
| City Rate Revenues | $2,940,889 | $3,120,178 | $3,151,380 | $3,182,894 | $3,214,723 | $3,246,870 | $3,279,339 | $3,312,132 | $3,345,253 | $3,378,706 | $3,412,493 |
| Total Other Revenues | 55,784 | 55,388 | 82,617 | 90,124 | 87,928 | 91,312 | 87,646 | 71,051 | 66,864 | 70,916 | 70,149 |
| Total City Expenses | 2,996,672 | 3,175,566 | 3,233,997 | 3,378,760 | 3,519,987 | 3,673,243 | 3,826,186 | 3,955,206 | 4,083,687 | 4,225,041 | 4,366,373 |
| *Bal/(Def) of City Portion* | $0 | $0 | $0 | ($105,742) | ($217,337) | ($335,060) | ($459,201) | ($572,023) | ($671,570) | ($775,419) | ($883,731) |
| Additional Taxes | $0 | $0 | $0 | ($5,659) | ($11,632) | ($17,932) | ($24,576) | ($30,615) | ($35,942) | ($41,500) | ($47,297) |
| Total Bal/(Def) of City Portion | $0 | $0 | $0 | ($111,401) | ($228,969) | ($352,993) | ($483,778) | ($602,638) | ($707,512) | ($816,920) | ($931,029) |
| **Proposed Rate Adjustment** | **0.0%** | **0.0%** | **0.0%** | **3.5%** | **3.5%** | **3.5%** | **3.5%** | **3.0%** | **2.5%** | **2.5%** | **2.5%** |
| Additional Revenue from Rate Adj. | $0 | $0 | $0 | $111,401 | $228,969 | $352,993 | $483,778 | $602,638 | $707,512 | $816,920 | $931,029 |
| Bal/(Def) After Rate Adjustment | $0 | $0 | $0 | $0 | ($0) | $0 | $0 | $0 | ($0) | $0 | $0 |
| **Average Residential Bi-Monthly Bill w/o Metro** | *(Current rates; Fixed Charge + 5 CCF/mo)* | | | | | | | | | | |
| Customer Bill on Proposed Adjustment | $36.64 | $39.78 | $39.78 | $41.17 | $42.61 | $44.10 | $45.65 | $47.02 | $48.19 | $49.40 | $50.63 |
| Bill Difference - Bi-Monthly | | 3.14 | 0.00 | 1.39 | 1.44 | 1.49 | 1.54 | 1.37 | 1.18 | 1.20 | 1.23 |
| Cumulative Bill Difference | | 3.14 | 3.14 | 4.53 | 5.97 | 7.46 | 9.01 | 10.38 | 11.55 | 12.76 | 13.99 |
| **Metro Portion** | | | | | | | | | | | |
| Metro Rate Revenues | $7,037,224 | $7,293,359 | $7,694,494 | $8,156,164 | $8,237,725 | $8,731,989 | $8,819,309 | $9,348,467 | $9,441,952 | $10,008,469 | $10,108,554 |
| Metro Expenses | 7,037,224 | 7,293,359 | 7,694,494 | 8,156,164 | 8,237,725 | 8,731,989 | 8,819,309 | 9,348,467 | 9,441,952 | 10,008,469 | 10,108,554 |
| ***Bal. / (Def.) of Metro Portion*** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |
| **Assumed Rate Adjustment (Metro)** | **0.0%** | **0.0%** | **4.5%** | **5.0%** | **0.0%** | **5.0%** | **0.0%** | **5.0%** | **0.0%** | **5.0%** | **0.0%** |
| Additional Revenue from Rate Adj. | | $256,135 | $401,135 | $461,670 | $81,562 | $494,264 | $87,320 | $529,159 | $93,485 | $566,517 | $100,085 |
| Bal/(Def) After Rate Adjustment | $0 | $256,135 | $401,135 | $461,670 | $81,562 | $494,264 | $87,320 | $529,159 | $93,485 | $566,517 | $100,085 |
| **Average Residential Bi-Monthly Bill w/Metro** | *(Current rates; Fixed Charges + 5 CCF)* | | | | | | | | | | |
| Customer Bill on Proposed Adjustment | $127.30 | $127.30 | $133.03 | $139.68 | $139.68 | $146.66 | $146.66 | $154.00 | $154.00 | $161.70 | $161.70 |
| Bill Difference - Monthly | | 0.00 | 5.73 | 6.65 | 0.00 | 6.98 | 0.00 | 7.33 | 0.00 | 7.70 | 0.00 |
| Cumulative Bill Difference | | 0.00 | 5.73 | 12.38 | 12.38 | 19.36 | 19.36 | 26.70 | 26.70 | 34.40 | 34.40 |
| **Total Sewer Ending Fund Balance** | **$0** | **$256,135** | **$401,135** | **$461,670** | **$81,562** | **$494,264** | **$87,320** | **$529,159** | **$93,485** | **$566,517** | **$100,085** |

* - Includes the prevously adopted 2020 rate adjustment of 5.5%

**City of Issaquah**
**Sewer Utility Rate Study**
**Escalations**
**Exhibit 2**

| | Budgeted | Projected | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | *Notes* |
| **Revenues** | | | | | | | | | | | | |
| Customer Growth | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| Electronic Payment Utilization | 0.0% | 0.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | |
| Misc Revenues | Budget | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| **Expenses** | | | | | | | | | | | | |
| Salary | Budget | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | |
| Benefits | Budget | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | |
| Materials & Supplies | Budget | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | |
| Equipment | Budget | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | |
| Miscellaneous | Budget | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | |
| Utilities | Budget | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | |
| Metro | 0.0% | 0.0% | 4.5% | 5.0% | 0.0% | 5.0% | 0.0% | 5.0% | 0.0% | 5.0% | 0.0% | |
| Flat | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Insurance | Budget | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | |
| Cost Allocation | Budget | 3.6% | 3.8% | 3.8% | 3.6% | 3.8% | 3.6% | 3.8% | 3.6% | 3.8% | 3.6% | *average of all other factors* |
| **Interest** | 0.5% | 0.5% | 0.8% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| **New Long-Term Debt Assumptions** | | | | | | | | | | | | |
| ***Low Interest Loans*** | | | | | | | | | | | | |
| Term in Years | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Rate | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | |
| ***Revenue Bond*** | | | | | | | | | | | | |
| Term in Years | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Rate | 4.5% | 4.6% | 4.7% | 4.8% | 4.9% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | |

**City of Issaquah**
**Sewer Utility Rate Study**
**Revenue Requirement**
**Exhibit 3**

| | Budgeted | Projected | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | *Notes* |
| **Revenues** | | | | | | | | | | | | |
| ***City Rate Revenues*** | | | | | | | | | | | | |
| Single Family Residential | $1,629,397 | $1,773,908 | $1,791,647 | $1,809,563 | $1,827,659 | $1,845,935 | $1,864,395 | $1,883,039 | $1,901,869 | $1,920,888 | $1,940,097 | As Customer Growth |
| Multi-Family Res / Duplex | 568,134 | 585,873 | 591,732 | 597,649 | 603,626 | 609,662 | 615,759 | 621,916 | 628,135 | 634,417 | 640,761 | As Customer Growth |
| Com / Trailers / Public Auth. | 743,357 | 760,397 | 768,001 | 775,681 | 783,438 | 791,272 | 799,185 | 807,177 | 815,249 | 823,401 | 831,635 | As Customer Growth |
| ***Total City Rate Revenues*** | **$2,940,889** | **$3,120,178** | **$3,151,380** | **$3,182,894** | **$3,214,723** | **$3,246,870** | **$3,279,339** | **$3,312,132** | **$3,345,253** | **$3,378,706** | **$3,412,493** | |
| ***Metro Rate Revenues*** | | | | | | | | | | | | |
| Single Family Residential | $3,665,293 | $3,701,946 | $3,905,553 | $4,139,886 | $4,181,285 | $4,432,162 | $4,476,484 | $4,745,073 | $4,792,524 | $5,080,075 | $5,130,876 | As Metro + Customer Growth |
| Multi-Family Res / Duplex | 1,425,604 | 1,518,398 | 1,601,910 | 1,698,024 | 1,715,004 | 1,817,905 | 1,836,084 | 1,946,249 | 1,965,711 | 2,083,654 | 2,104,490 | As Metro + Customer Growth |
| Com / Trailers / Public Auth. | 1,946,327 | 2,073,016 | 2,187,031 | 2,318,253 | 2,341,436 | 2,481,922 | 2,506,741 | 2,657,146 | 2,683,717 | 2,844,740 | 2,873,188 | As Metro + Customer Growth |
| ***Total Metro Rate Revenues*** | **$7,037,224** | **$7,293,359** | **$7,694,494** | **$8,156,164** | **$8,237,725** | **$8,731,989** | **$8,819,309** | **$9,348,467** | **$9,441,952** | **$10,008,469** | **$10,108,554** | |
| **Total Rate Revenues** | **$9,978,113** | **$10,413,537** | **$10,845,874** | **$11,339,057** | **$11,452,448** | **$11,978,859** | **$12,098,647** | **$12,660,599** | **$12,787,205** | **$13,387,175** | **$13,521,047** | |
| ***Other Revenues*** | | | | | | | | | | | | |
| Licenses & Permits | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | As Misc Revenues |
| Protective Inspection Fees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Misc Revenues |
| Charges for Srvcs - M&O | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Misc Revenues |
| Plan Checking - Inspection and Review | 1,500 | 1,515 | 1,530 | 1,545 | 1,561 | 1,577 | 1,592 | 1,608 | 1,624 | 1,641 | 1,657 | As Misc Revenues |
| Interest Income | 54,284 | 53,873 | 81,087 | 88,578 | 86,367 | 89,736 | 86,054 | 69,443 | 65,239 | 69,276 | 68,492 | Calculated |
| ***Total Other Revenues*** | **$55,784** | **$55,388** | **$82,617** | **$90,124** | **$87,928** | **$91,312** | **$87,646** | **$71,051** | **$66,864** | **$70,916** | **$70,149** | |
| **Total Revenues** | **$10,033,897** | **$10,468,926** | **$10,928,491** | **$11,429,181** | **$11,540,376** | **$12,070,171** | **$12,186,294** | **$12,731,650** | **$12,854,069** | **$13,458,091** | **$13,591,195** | |
| **Expenses** | | | | | | | | | | | | |
| ***Metro Expenses*** | | | | | | | | | | | | |
| Intergovernmental Services | $7,037,224 | $7,293,359 | $7,694,494 | $8,156,164 | $8,237,725 | $8,731,989 | $8,819,309 | $9,348,467 | $9,441,952 | $10,008,469 | $10,108,554 | |
| ***Total Metro Expenses*** | **$7,037,224** | **$7,293,359** | **$7,694,494** | **$8,156,164** | **$8,237,725** | **$8,731,989** | **$8,819,309** | **$9,348,467** | **$9,441,952** | **$10,008,469** | **$10,108,554** | |

* - Includes the prevously adopted 2020 rate adjustment of 5.5%

| | Budgeted | Projected | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | *Notes* |
| **City Expenses** | | | | | | | | | | | | |
| ***Sewer Administration*** | | | | | | | | | | | | |
| Salaries & Wages | $101,645 | $104,694 | $107,835 | $111,070 | $114,402 | $117,834 | $121,369 | $125,011 | $128,761 | $132,624 | $136,602 | As Salary |
| Benefits-Employer Taxes | 8,444 | 8,951 | 9,488 | 10,057 | 10,660 | 11,300 | 11,978 | 12,697 | 13,458 | 14,266 | 15,122 | As Benefits |
| Benefits-Retirement | 12,989 | 13,768 | 14,594 | 15,470 | 16,398 | 17,382 | 18,425 | 19,531 | 20,702 | 21,945 | 23,261 | As Benefits |
| Benefits-Deferred Comp | 3,520 | 3,731 | 3,955 | 4,192 | 4,444 | 4,711 | 4,993 | 5,293 | 5,610 | 5,947 | 6,304 | As Benefits |
| Benefits-Medical | 19,780 | 20,967 | 22,225 | 23,558 | 24,972 | 26,470 | 28,058 | 29,742 | 31,526 | 33,418 | 35,423 | As Benefits |
| Benefits-Other | 2,142 | 2,271 | 2,407 | 2,551 | 2,704 | 2,866 | 3,038 | 3,221 | 3,414 | 3,619 | 3,836 | As Benefits |
| Professional Services | 15,000 | 15,450 | 15,914 | 16,391 | 16,883 | 17,389 | 17,911 | 18,448 | 19,002 | 19,572 | 20,159 | As Salary |
| Travel | 700 | 721 | 743 | 765 | 788 | 811 | 836 | 861 | 887 | 913 | 941 | As Materials & Supplies |
| Insurance | 24,997 | 25,872 | 26,777 | 27,715 | 28,685 | 29,689 | 30,728 | 31,803 | 32,916 | 34,068 | 35,261 | As Insurance |
| Cost Allocation-Financial Serv | 242,200 | 251,023 | 260,436 | 270,365 | 280,215 | 290,898 | 301,495 | 312,989 | 324,391 | 336,758 | 349,026 | As Cost Allocation |
| Training & Registration | 1,600 | 1,648 | 1,697 | 1,748 | 1,801 | 1,855 | 1,910 | 1,968 | 2,027 | 2,088 | 2,150 | As Materials & Supplies |
| Transfer-Out (Art Fund) | 1,943 | 2,014 | 2,089 | 2,169 | 2,248 | 2,334 | 2,419 | 2,511 | 2,602 | 2,702 | 2,800 | As Cost Allocation |
| Electronic Payment Fees | 0 | 0 | 373,963 | 396,078 | 391,119 | 426,468 | 421,269 | 458,597 | 451,808 | 491,123 | 483,859 | Calc'd @ 3.5% of Rev |
| ***Total Sewer Administration*** | **$434,960** | **$451,110** | **$842,124** | **$882,131** | **$895,318** | **$950,007** | **$964,430** | **$1,022,670** | **$1,037,105** | **$1,099,042** | **$1,114,744** | |
| ***Sewer Engineering*** | | | | | | | | | | | | |
| Salaries & Wages | $134,989 | $139,039 | $143,210 | $147,506 | $151,931 | $156,489 | $161,184 | $166,019 | $171,000 | $176,130 | $181,414 | As Salary |
| Overtime | 4,100 | 4,223 | 4,350 | 4,480 | 4,615 | 4,753 | 4,896 | 5,042 | 5,194 | 5,350 | 5,510 | As Salary |
| Benefits-Employer Taxes | 11,060 | 11,724 | 12,427 | 13,173 | 13,963 | 14,801 | 15,689 | 16,630 | 17,628 | 18,686 | 19,807 | As Benefits |
| Benefits-Retirement | 17,255 | 18,290 | 19,388 | 20,551 | 21,784 | 23,091 | 24,477 | 25,945 | 27,502 | 29,152 | 30,901 | As Benefits |
| Benefits-Deferred Comp | 3,852 | 4,083 | 4,328 | 4,588 | 4,863 | 5,155 | 5,464 | 5,792 | 6,140 | 6,508 | 6,898 | As Benefits |
| Benefits-Medical | 26,704 | 28,306 | 30,005 | 31,805 | 33,713 | 35,736 | 37,880 | 40,153 | 42,562 | 45,116 | 47,823 | As Benefits |
| Benefits-Other | 2,445 | 2,592 | 2,747 | 2,912 | 3,087 | 3,272 | 3,468 | 3,676 | 3,897 | 4,131 | 4,379 | As Benefits |
| Office & Operating Supplies | 1,026 | 1,057 | 1,088 | 1,121 | 1,155 | 1,189 | 1,225 | 1,262 | 1,300 | 1,339 | 1,379 | As Materials & Supplies |
| Small Tools & Equipment | 650 | 673 | 696 | 721 | 746 | 772 | 799 | 827 | 856 | 886 | 917 | As Equipment |
| Professional Services | 178,418 | 51,500 | 53,045 | 54,636 | 56,275 | 57,964 | 85,453 | 68,016 | 70,057 | 72,158 | 100,073 | As Salary |
| Communication | 855 | 881 | 907 | 934 | 962 | 991 | 1,021 | 1,052 | 1,083 | 1,116 | 1,149 | As Materials & Supplies |
| Travel | 1,257 | 1,295 | 1,334 | 1,374 | 1,415 | 1,457 | 1,501 | 1,546 | 1,592 | 1,640 | 1,689 | As Materials & Supplies |
| Operating Rentals & Leases | 1,368 | 1,409 | 1,451 | 1,495 | 1,540 | 1,586 | 1,633 | 1,682 | 1,733 | 1,785 | 1,838 | As Materials & Supplies |
| Cost Allocation-Technology | 9,615 | 9,965 | 10,339 | 10,733 | 11,124 | 11,548 | 11,969 | 12,425 | 12,878 | 13,369 | 13,856 | As Cost Allocation |
| Repairs & Maintenance | 3,621 | 3,730 | 3,842 | 3,957 | 4,075 | 4,198 | 4,324 | 4,453 | 4,587 | 4,725 | 4,866 | As Materials & Supplies |
| Miscellaneous | 480 | 492 | 504 | 517 | 530 | 543 | 557 | 571 | 585 | 599 | 614 | As Miscellaneous |
| Training & Registration | 3,470 | 3,574 | 3,681 | 3,792 | 3,906 | 4,023 | 4,143 | 4,268 | 4,396 | 4,528 | 4,663 | As Materials & Supplies |
| Dues & Subscriptions | 120 | 124 | 127 | 131 | 135 | 139 | 143 | 148 | 152 | 157 | 161 | As Materials & Supplies |
| Transfer-Out | 551 | 571 | 592 | 615 | 637 | 662 | 686 | 712 | 738 | 766 | 794 | As Cost Allocation |
| ***Total Sewer Engineering*** | **$401,836** | **$283,526** | **$294,062** | **$305,040** | **$316,456** | **$328,369** | **$366,511** | **$360,220** | **$373,878** | **$388,138** | **$428,733** | |

| | Budgeted | Projected | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | ***Notes*** |
| ***Sewer Maint. & Operations*** | | | | | | | | | | | | |
| Salaries & Wages | $286,411 | $295,003 | $303,853 | $312,969 | $322,358 | $332,029 | $341,990 | $352,249 | $362,817 | $373,701 | $384,912 | As Salary |
| Overtime | 45,500 | 46,865 | 48,271 | 49,719 | 51,211 | 52,747 | 54,329 | 55,959 | 57,638 | 59,367 | 61,148 | As Salary |
| Benefits-Employer Taxes | 23,335 | 24,735 | 26,219 | 27,792 | 29,460 | 31,227 | 33,101 | 35,087 | 37,192 | 39,424 | 41,789 | As Benefits |
| Benefits-Retirement | 41,700 | 44,202 | 46,854 | 49,665 | 52,645 | 55,804 | 59,152 | 62,701 | 66,463 | 70,451 | 74,678 | As Benefits |
| Benefits-Deferred Comp | 6,927 | 7,343 | 7,783 | 8,250 | 8,745 | 9,270 | 9,826 | 10,416 | 11,041 | 11,703 | 12,405 | As Benefits |
| Benefits-Medical | 75,925 | 80,481 | 85,309 | 90,428 | 95,854 | 101,605 | 107,701 | 114,163 | 121,013 | 128,274 | 135,970 | As Benefits |
| Benefits-Other | 13,300 | 14,098 | 14,944 | 15,841 | 16,791 | 17,798 | 18,866 | 19,998 | 21,198 | 22,470 | 23,818 | As Benefits |
| Office & Operating Supplies | 32,148 | 33,112 | 34,106 | 35,129 | 36,183 | 37,268 | 38,386 | 39,538 | 40,724 | 41,946 | 43,204 | As Materials & Supplies |
| Small Tools & Equipment | 10,015 | 10,366 | 10,728 | 11,104 | 11,492 | 11,895 | 12,311 | 12,742 | 13,188 | 13,649 | 14,127 | As Equipment |
| Professional Services | 8,460 | 8,714 | 8,975 | 9,244 | 9,522 | 9,807 | 10,102 | 10,405 | 10,717 | 11,038 | 11,370 | As Salary |
| Communication | 1,078 | 1,110 | 1,144 | 1,178 | 1,213 | 1,250 | 1,287 | 1,326 | 1,366 | 1,407 | 1,449 | As Materials & Supplies |
| Travel | 2,050 | 2,112 | 2,175 | 2,240 | 2,307 | 2,377 | 2,448 | 2,521 | 2,597 | 2,675 | 2,755 | As Materials & Supplies |
| Taxes & Operating Assessments | 57,800 | 59,245 | 60,726 | 62,244 | 63,800 | 65,395 | 67,030 | 68,706 | 70,424 | 72,184 | 73,989 | As Miscellaneous |
| Operating Rentals & Leases | 2,824 | 2,909 | 2,996 | 3,086 | 3,178 | 3,274 | 3,372 | 3,473 | 3,577 | 3,685 | 3,795 | As Materials & Supplies |
| Cost Allocation-Technology | 103,950 | 107,737 | 111,777 | 116,038 | 120,265 | 124,851 | 129,399 | 134,332 | 139,226 | 144,534 | 149,799 | As Cost Allocation |
| Cost Allocation-Facilities | 185,000 | 185,000 | 185,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Flat |
| Cost Allocation-Fleet | 59,734 | 61,910 | 64,232 | 66,680 | 69,110 | 71,744 | 74,358 | 77,193 | 80,005 | 83,055 | 86,081 | As Cost Allocation |
| Utilities | 26,040 | 27,082 | 28,165 | 29,291 | 30,463 | 31,682 | 32,949 | 34,267 | 35,638 | 37,063 | 38,546 | As Utilities |
| Repairs & Maintenance | 169,717 | 51,500 | 53,045 | 54,636 | 56,275 | 57,964 | 59,703 | 61,494 | 63,339 | 65,239 | 67,196 | As Materials & Supplies |
| Miscellaneous | 26,412 | 27,072 | 27,749 | 28,443 | 29,154 | 29,883 | 30,630 | 31,396 | 32,180 | 32,985 | 33,810 | As Miscellaneous |
| Training & Registration | 4,600 | 4,738 | 4,880 | 5,027 | 5,177 | 5,333 | 5,493 | 5,657 | 5,827 | 6,002 | 6,182 | As Materials & Supplies |
| Dues & Subscriptions | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74 | 76 | 78 | 81 | As Materials & Supplies |
| Capital-Machinery & Equipment | 46,667 | 48,300 | 49,991 | 51,741 | 53,551 | 55,426 | 57,366 | 59,373 | 61,452 | 63,602 | 65,828 | As Equipment |
| ***Total Sewer Maint. & Operations*** | **$1,229,653** | **$1,143,695** | **$1,178,986** | **$1,030,812** | **$1,068,824** | **$1,108,697** | **$1,149,870** | **$1,193,071** | **$1,237,696** | **$1,284,532** | **$1,332,932** | |
| **Additions / (Deletions) to O&M** | | | | | | | | | | | | |
| O&M Impact from Capital Projects | $0 | ($6,000) | ($6,000) | ($4,920) | ($100) | ($100) | ($100) | (100) | (100) | (100) | (100) | As Flat |
| Sewer & Stormwater Pipe CCTV Inspect Van & Equip | 0 | 85,000 | 87,500 | 90,250 | 93,000 | 95,800 | 98,700 | 102,155 | 105,730 | 109,430 | 113,261 | As Equipment |
| ***Total Additions / (Deletions) to O&M*** | **$0** | **$79,000** | **$81,500** | **$85,330** | **$92,900** | **$95,700** | **$98,600** | **$102,055** | **$105,630** | **$109,330** | **$113,161** | |
| **Total Operations & Maintenance** | **$9,103,673** | **$9,250,690** | **$10,091,166** | **$10,459,477** | **$10,611,224** | **$11,214,763** | **$11,398,720** | **$12,026,483** | **$12,196,261** | **$12,889,512** | **$13,098,123** | |

**City of Issaquah**
**Sewer Utility Rate Study**
**Revenue Requirement**
**Exhibit 3**

| | Budgeted | Projected | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | ***Notes*** |
| **Taxes & Transfers** | | | | | | | | | | | | |
| Utility Tax @ 3.852% of City Rev | $113,283 | $120,189 | $121,391 | $122,605 | $123,831 | $125,069 | $126,320 | $127,583 | $128,859 | $130,148 | $131,449 | 3.852% |
| B&O Tax @ 1.5% of All Revs + GFCs | 152,694 | 159,351 | 166,267 | 173,801 | 175,493 | 183,464 | 185,229 | 193,434 | 195,295 | 204,380 | 206,402 | 1.5% |
| Transfer Out - Sustainability Fund | 100,000 | 102,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Transfer Out - City Shop Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Transfer Out - EF&R Fund | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 205,000 | 12-year Average |
| HR Cost Allocation | 0 | 14,470 | 14,832 | 15,203 | 15,583 | 15,972 | 16,371 | 16,781 | 17,200 | 17,630 | 18,071 | As Miscellaneous |
| Communications Cost Allocation | 0 | 13,311 | 13,644 | 13,985 | 14,334 | 14,693 | 15,060 | 15,437 | 15,823 | 16,218 | 16,624 | As Miscellaneous |
| Emergency Management Cost Allocation | 0 | 15,634 | 16,025 | 16,425 | 16,836 | 17,257 | 17,688 | 18,131 | 18,584 | 19,049 | 19,525 | As Miscellaneous |
| Fuel Cost Allocation | 0 | 20,679 | 21,196 | 21,726 | 22,269 | 22,826 | 23,396 | 23,981 | 24,581 | 25,195 | 25,825 | As Miscellaneous |
| ***Total Taxes & Transfers*** | **$570,977** | **$651,134** | **$558,355** | **$568,745** | **$573,346** | **$584,281** | **$589,066** | **$600,347** | **$605,342** | **$617,620** | **$622,896** | |
| **Rate Funded Capital** | **$362,000** | **$350,000** | **$362,533** | **$400,000** | **$415,000** | **$430,000** | **$445,000** | **$460,000** | **$475,000** | **$490,000** | **$505,000** | 2017 Dep Exp = $735,000 |
| **Debt Service** | | | | | | | | | | | | |
| Existing Debt | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | From Debt Schedule |
| Additional Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Calculated @ 4.75% for 20 yrs |
| *Total Debt Service* | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| *LESS: Other Funding* | | | | | | | | | | | | |
| *Capital Fund* | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| ***Net Debt Service*** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| **Reserve Funding** | | | | | | | | | | | | |
| To / (From) Operating Reserve | ($2,754) | $217,102 | ($83,562) | $106,702 | $158,142 | $176,188 | $212,709 | $216,844 | $249,036 | $236,378 | $248,908 | |
| To / (From) Capital Reserve | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| To / (From) Bond Reserve | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Reserve Funding*** | **($2,754)** | **$217,102** | **($83,562)** | **$106,702** | **$158,142** | **$176,188** | **$212,709** | **$216,844** | **$249,036** | **$236,378** | **$248,908** | |
| **Total Revenue Requirement** | **$10,033,897** | **$10,468,926** | **$10,928,491** | **$11,534,923** | **$11,757,712** | **$12,405,232** | **$12,645,495** | **$13,303,673** | **$13,525,639** | **$14,233,510** | **$14,474,927** | |
| Bal/(Def) of Funds | $0 | $0 | $0 | ($105,742) | ($217,337) | ($335,060) | ($459,201) | ($572,023) | ($671,570) | ($775,419) | ($883,731) | |
| Additional Taxes | 0 | 0 | 0 | (4,073) | (8,372) | (12,907) | (17,688) | (22,034) | (25,869) | (29,869) | (34,041) | |
| ***Total Bal/(Def) of Funds*** | **$0** | **$0** | **$0** | **($109,815)** | **($225,709)** | **($347,967)** | **($476,890)** | **($594,058)** | **($697,439)** | **($805,289)** | **($917,773)** | |

**City of Issaquah**
**Sewer Utility Rate Study**
**Revenue Requirement**
**Exhibit 3**

| | Budgeted | Projected | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | *Notes* |
| **Average Residential Bi-Monthly Bill w/Metro** | *(Current rates; Fixed Charges + 5 CCF)* | | | | | | | | | | | |
| Customer Bill on Proposed Adjustment | $127.30 | $127.30 | $133.03 | $139.68 | $139.68 | $146.66 | $146.66 | $154.00 | $154.00 | $161.70 | $161.70 | |
| Bill Difference - Monthly | | 0.00 | 5.73 | 6.65 | 0.00 | 6.98 | 0.00 | 7.33 | 0.00 | 7.70 | 0.00 | |
| Cumulative Bill Difference | | 0.00 | 5.73 | 12.38 | 12.38 | 19.36 | 19.36 | 26.70 | 26.70 | 34.40 | 34.40 | |
| **Average Residential Bi-Monthly Bill w/o Metro** | *(Current rates; Fixed Charge + 5 CCF)* | | | | | | | | | | | |
| Customer Bill on Proposed Adjustment | $36.64 | $39.78 | $39.78 | $41.17 | $42.61 | $44.10 | $45.65 | $47.02 | $48.19 | $49.40 | $50.63 | |
| Bill Difference - Monthly | | 3.14 | 0.00 | 1.39 | 1.44 | 1.49 | 1.54 | 1.37 | 1.18 | 1.20 | 1.23 | |
| Cumulative Bill Difference | | 3.14 | 3.14 | 4.53 | 5.97 | 7.46 | 9.01 | 10.38 | 11.55 | 12.76 | 13.99 | |
| **Debt Service Coverage Ratio (all debt)** | | | | | | | | | | | | |
| Before Rate Adjustment | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| After Needed Rate Adjustment | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| After Proposed Rate Adjustment | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| **Reserve Funds** | | | | | | | | | | | | |
| **Beginning Reserve Balance** | **$11,712,312** | **$10,856,703** | **$10,774,674** | **$10,811,618** | **$8,857,847** | **$8,636,677** | **$8,973,594** | **$8,605,406** | **$6,944,261** | **$6,523,931** | **$6,927,564** | |
| ***Operating Fund*** | | | | | | | | | | | | |
| **Beginning Balance** | **$2,500,000** | **$2,497,246** | **$2,714,348** | **$2,630,786** | **$2,737,487** | **$2,895,630** | **$3,071,818** | **$3,284,527** | **$3,501,370** | **$3,750,406** | **$3,986,784** | |
| Plus: Additions | 0 | 217,102 | 0 | 106,702 | 158,142 | 176,188 | 212,709 | 216,844 | 249,036 | 236,378 | 248,908 | |
| Less: Uses of Funds | (2,754) | 0 | (83,562) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Ending Balance** | **$2,497,246** | **$2,714,348** | **$2,630,786** | **$2,737,487** | **$2,895,630** | **$3,071,818** | **$3,284,527** | **$3,501,370** | **$3,750,406** | **$3,986,784** | **$4,235,692** | |
| *Minimum Fund Balance - 90 days O&M* | *$2,244,741* | *$2,280,992* | *$2,488,233* | *$2,579,049* | *$2,616,466* | *$2,765,284* | *$2,810,643* | *$2,965,434* | *$3,007,297* | *$3,178,236* | *$3,229,674* | |
| ***Capital Fund*** | | | | | | | | | | | | |
| **Beginning Balance** | **$9,212,312** | **$8,359,457** | **$8,060,326** | **$8,180,832** | **$6,120,360** | **$5,741,047** | **$5,901,776** | **$5,320,880** | **$3,442,891** | **$2,773,525** | **$2,940,780** | |
| Plus: Additions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Plus: GFCs | 145,728 | 154,457 | 156,002 | 157,562 | 159,137 | 160,729 | 162,336 | 163,960 | 165,599 | 167,255 | 168,928 | Exhibit 3 |
| Less: Capital Project Funding | (998,583) | (453,588) | (35,496) | (2,218,034) | (538,450) | 0 | (743,233) | (2,041,948) | (834,965) | 0 | (496,208) | |
| **Ending Balance** | **$8,359,457** | **$8,060,326** | **$8,180,832** | **$6,120,360** | **$5,741,047** | **$5,901,776** | **$5,320,880** | **$3,442,891** | **$2,773,525** | **$2,940,780** | **$2,613,500** | |
| ***Bond Reserve Fund*** | | | | | | | | | | | | |
| **Beginning Balance** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| Plus: Additions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Less: Capital Project Funding | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Ending Balance** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| **Ending Reserve Balance** | **$10,856,703** | **$10,774,674** | **$10,811,618** | **$8,857,847** | **$8,636,677** | **$8,973,594** | **$8,605,406** | **$6,944,261** | **$6,523,931** | **$6,927,564** | **$6,849,192** | |

**City of Issaquah**
**Sewer Utility Rate Study**
**Capital Improvement Plan**
**Exhibit 4**

**Inflation [1][2] = 2.7%**



| | *Project Number* | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | Total | *Notes* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital Projects** | | | | | | | | | | | | | | |
| Manhole Rehabilitiation Program | *SW 004* | $100,000 | $0 | $0 | $305,144 | $0 | $332,495 | $0 | $350,692 | $0 | $369,885 | $0 | 1,458,216 | |
| Sewer Main Rehabilitation program | *SW 007* | 460,583 | 650,000 | 0 | 0 | 900,000 | 0 | 900,000 | 0 | 949,256 | 0 | 1,001,208 | 4,861,047 | |
| Upper Sycamore Extension | *SW 009* | 0 | 0 | 0 | 0 | 0 | 0 | 288,233 | 2,151,256 | 0 | 0 | 0 | 2,439,489 | |
| Highlands Sewer Energy Dissipater | *SW 010* | 0 | 0 | 360,709 | 0 | 0 | 0 | 0 | 0 | 360,709 | 0 | 0 | 721,418 | *Est. timing* |
| Maintenance Facility Phase 2 - Design | *FC 013* | 0 | 0 | 0 | 20,920 | 21,380 | 15,910 | 0 | 0 | 0 | 0 | 0 | 58,210 | *Addition to CIP* |
| Issaquah Highlands Storage Site | *FC 018* | 0 | 0 | 0 | 15,690 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,690 | *Addition to CIP* |
| Parking Building Expansion | *FC 020* | 0 | 0 | 20,920 | 2,244,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,265,820 | *Addition to CIP* |
| PWO - MMS Upgrade | *TC 006* | 0 | 7,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,500 | *Addition to CIP* |
| Maint. Managmnt Software Replacement | *TC 009* | 0 | 0 | 3,069 | 31,380 | 32,070 | 6,219 | 0 | 0 | 0 | 0 | 0 | 72,738 | *Addition to CIP* |
| MUNIS - Optimization | *TC 010* | 0 | 26,088 | 13,331 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39,419 | *Addition to CIP* |
| Sewer Easement Machine | *EU 015* | 0 | 85,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85,000 | *Addition to CIP* |
| Stormwater Dri-Prime Pump | *EU 016* | 0 | 35,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35,000 | *Addition to CIP* |
| Holiday Inn / CHNW Lift Stations | | 800,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 800,000 | *Budgeted* |
| ***Total Capital Projects*** | | **$1,360,583** | **$803,588** | **$398,029** | **$2,618,034** | **$953,450** | **$354,624** | **$1,188,233** | **$2,501,948** | **$1,309,965** | **$369,885** | **$1,001,208** | **$12,859,547** | |
| Unidentified Future Capital Projects | | $0 | $0 | $0 | $0 | $0 | $75,376 | $0 | $0 | $0 | $120,115 | $0 | $195,491 | |
| Transfer to Cash Reserve | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| **Total Capital Improvement Projects** | | **$1,360,583** | **$803,588** | **$398,029** | **$2,618,034** | **$953,450** | **$430,000** | **$1,188,233** | **$2,501,948** | **$1,309,965** | **$490,000** | **$1,001,208** | **$13,055,038** | |
| ***Less: Outside Funding Sources*** | | | | | | | | | | | | | | |
| Operating Fund Reserves | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| Capital Fund Reserves | | 998,583 | 453,588 | 35,496 | 2,218,034 | 538,450 | 0 | 743,233 | 2,041,948 | 834,965 | 0 | 496,208 | 8,360,505 | |
| Low Interest Loans | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Assumed New Low Interest Loan | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Additional Revenue Bonds | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Funding Sources*** | | **$998,583** | **$453,588** | **$35,496** | **$2,218,034** | **$538,450** | **$0** | **$743,233** | **$2,041,948** | **$834,965** | **$0** | **$496,208** | **$8,360,505** | |
| **Rate Funded Capital** | | **$362,000** | **$350,000** | **$362,533** | **$400,000** | **$415,000** | **$430,000** | **$445,000** | **$460,000** | **$475,000** | **$490,000** | **$505,000** | **$4,694,533** | |

[1] - Capital projects identified in the adopted CIP are assumed to included inflation costs in future years
[2] - Certain capital projects are assumed to continue beyond the identified CIP and are inflated

| **SDC Projections** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| # of RCEs | 72 | 73 | 73 | 74 | 75 | 76 | 76 | 77 | 78 | 79 | 80 | | As Customer Grow |
| Cost ($ / RCE) | $2,024 | $2,124 | $2,124 | $2,124 | $2,124 | $2,124 | $2,124 | $2,124 | $2,124 | $2,124 | $2,124 | | |
| ***Total Revenues*** | **$145,728** | **$154,457** | **$156,002** | **$157,562** | **$159,137** | **$160,729** | **$162,336** | **$163,960** | **$165,599** | **$167,255** | **$168,928** | | |

**2019 Budget** **$450,000**

| | Present Rates | Proposed Rates | | | | |
|---|---|---|---|---|---|---|
| | | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Fixed Charge** | *$ / Acct. / Mo* | | | | | |
| All Customers | $9.04 | $9.04 | $9.36 | $9.69 | $10.03 | $10.38 |
| *Senior (25% discount)* | 6.78 | 6.78 | 7.02 | 7.27 | 7.52 | 7.79 |
| **Volume Charge** | *$ / CCF* | | | | | |
| All Consumption | $2.17 | $2.17 | $2.25 | $2.33 | $2.41 | $2.49 |
| *Senior (25% discount)* | 1.63 | 1.63 | 1.69 | 1.75 | 1.81 | 1.87 |

# Technical Appendix C – Stormwater Rate Analysis

**City of Issaquah**
**Storm Water Utility Rate Study**
**Summary of the Water Revenue Requirement**
**Exhibit 1**

| | *Budgeted* | *Projected* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| **Revenues** | | | | | | | | | | | |
| Rate Revenues | $5,372,349 | $5,587,535 | $5,643,410 | $5,699,844 | $5,756,843 | $5,814,411 | $5,872,555 | $5,931,281 | $5,990,594 | $6,050,499 | $6,111,004 |
| Miscellaneous Revenues | 37,226 | 40,191 | 48,069 | 37,964 | 44,599 | 48,212 | 47,766 | 49,205 | 52,125 | 53,718 | 53,822 |
| ***Total Revenues*** | **$5,409,576** | **$5,627,726** | **$5,691,479** | **$5,737,808** | **$5,801,442** | **$5,862,623** | **$5,920,322** | **$5,980,485** | **$6,042,718** | **$6,104,218** | **$6,164,827** |
| **Expenses** | | | | | | | | | | | |
| Total Administration | $426,531 | $442,391 | $646,521 | $675,961 | $706,887 | $739,382 | $770,094 | $800,950 | $833,102 | $865,291 | $898,779 |
| Total Engineering | 1,975,775 | 1,524,098 | 1,579,416 | 1,636,970 | 1,696,862 | 1,759,199 | 1,844,694 | 1,892,881 | 1,963,286 | 2,551,620 | 2,164,072 |
| Total Maintenance & Operations | 2,292,500 | 2,375,912 | 2,462,764 | 2,489,212 | 2,583,422 | 2,681,567 | 2,783,830 | 2,890,403 | 3,001,485 | 3,117,289 | 3,238,038 |
| Creekside Property Acquisition | 0 | 0 | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 |
| O&M from Capital Projects | 0 | 81,900 | 84,400 | 121,270 | 180,630 | 184,540 | 186,550 | 190,005 | 193,580 | 197,280 | 201,111 |
| O&M Adjustment | 0 | (100,000) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Operations & Maintenance** | **$4,694,806** | **$4,324,302** | **$4,923,101** | **$5,073,413** | **$5,317,801** | **$5,514,689** | **$5,735,168** | **$5,924,238** | **$6,141,452** | **$6,881,481** | **$6,651,999** |
| Taxes & Transfers | $543,028 | $645,111 | $548,489 | $554,229 | $560,354 | $566,570 | $572,867 | $579,336 | $585,976 | $592,746 | $599,649 |
| Rate Funded Capital | 105,000 | 627,003 | 200,000 | 425,000 | 500,000 | 750,000 | 850,000 | 950,000 | 1,000,000 | 1,000,000 | 1,100,000 |
| Net Debt Service | 61,291 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Total Reserve Funding* | 5,451 | 31,309 | 19,889 | (5,975) | 64,338 | 29,502 | 42,162 | 69,356 | 134,258 | (298,904) | 148,369 |
| **Total Revenue Requirement** | **$5,409,576** | **$5,627,726** | **$5,691,479** | **$6,046,667** | **$6,442,493** | **$6,860,762** | **$7,200,197** | **$7,522,930** | **$7,861,686** | **$8,175,322** | **$8,500,017** |
| Bal. / (Def.) of Funds | $0 | $0 | $0 | ($308,859) | ($641,051) | ($998,139) | ($1,279,876) | ($1,542,445) | ($1,818,967) | ($2,071,104) | ($2,335,190) |
| Bal. a % of Rate Adj. Required | 0.0% | 0.0% | 0.0% | 5.4% | 11.1% | 17.2% | 21.8% | 26.0% | 30.4% | 34.2% | 38.2% |
| **Proposed Rate Adjustment** | **0.0%** | **0.0%** | **0.0%** | **5.5%** | **5.5%** | **5.5%** | **4.0%** | **3.5%** | **3.5%** | **3.0%** | **3.0%** |
| Add'l Revenue with Rate Adj. | $0 | $0 | $0 | $313,491 | $650,667 | $1,013,111 | $1,299,074 | $1,565,582 | $1,846,252 | $2,102,171 | $2,370,218 |
| Bal. / (Def.) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| **Additional Rate Adjustment Required** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **Debt Service Coverage Ratio (all debt)** | | | | | | | | | | | |
| Before Rate Adjustment | 2.80 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| After Proposed Rate Adjustment | 2.80 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Residential Bi-Mo Customer Bill** | **$32.94** | *(Current rates, Residential Developed)* | | | | | | | | | |
| Customer Bill on Proposed Adj. | $32.94 | $33.92 | $33.92 | $35.79 | $37.75 | $39.83 | $41.42 | $42.87 | $44.37 | $45.71 | $47.08 |
| Bill Difference - Monthly | 0.00 | 0.98 | 0.00 | 1.87 | 1.97 | 2.08 | 1.59 | 1.45 | 1.50 | 1.33 | 1.37 |
| Cumulative Bill Difference | 0.00 | 0.98 | 0.98 | 2.85 | 4.81 | 6.89 | 8.48 | 9.93 | 11.43 | 12.77 | 14.14 |
| **Ending Fund Balance** | **$6,519,995** | **$6,698,461** | **$4,595,369** | **$4,739,509** | **$4,638,545** | **$4,579,812** | **$4,694,889** | **$4,920,455** | **$5,212,485** | **$5,072,930** | **$5,382,243** |

* - Includes the prevously adopted 2020 rate adjustment of 3.0%

**City of Issaquah**
**Storm Water Utility Rate Study**
**Escalations**
**Exhibit 2**

| | *Budgeted* | *Projected* | *Projected* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | *Notes* |
| **Revenues** | | | | | | | | | | | | |
| Customer Growth | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| Electronic Payment Utilization | 0.0% | 0.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | |
| Misc Revenues | Budget | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| **Expenses** | | | | | | | | | | | | |
| Salary | Budget | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | |
| Benefits | Budget | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | |
| Materials & Supplies | Budget | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | |
| Equipment | Budget | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | |
| Miscellaneous | Budget | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | |
| Utilities | Budget | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | |
| Cost Allocation | Budget | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% | |
| Flat | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Insurance | Budget | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | |
| **Interest** | 0.5% | 0.6% | 0.7% | 0.8% | 0.9% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | |
| **New Long-Term Debt Assumptions** | | | | | | | | | | | | |
| ***Low Interest Loans*** | | | | | | | | | | | | |
| Term in Years | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Rate | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% | |
| ***Revenue Bond*** | | | | | | | | | | | | |
| Term in Years | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Rate | 4.5% | 4.6% | 4.7% | 4.8% | 4.9% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | |

**City of Issaquah**
**Storm Water Utility Rate Study**
**Revenue Requirement**
**Exhibit 3**



| | *Budgeted* | *Projected* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | *Notes* |
| **Revenues** | | | | | | | | | | | | |
| ***Rate Revenues*** | | | | | | | | | | | | |
| Residential Developed | $1,407,197 | $1,463,553 | $1,478,189 | $1,492,970 | $1,507,900 | $1,522,979 | $1,538,209 | $1,553,591 | $1,569,127 | $1,584,818 | $1,600,666 | As Customer Growth |
| Non-Residential Developed | 3,940,250 | 4,098,051 | 4,139,032 | 4,180,422 | 4,222,226 | 4,264,449 | 4,307,093 | 4,350,164 | 4,393,666 | 4,437,602 | 4,481,978 | As Customer Growth |
| Undeveloped | 24,903 | 25,930 | 26,190 | 26,452 | 26,716 | 26,983 | 27,253 | 27,526 | 27,801 | 28,079 | 28,360 | As Customer Growth |
| ***Total Rate Revenues*** | **$5,372,349** | **$5,587,535** | **$5,643,410** | **$5,699,844** | **$5,756,843** | **$5,814,411** | **$5,872,555** | **$5,931,281** | **$5,990,594** | **$6,050,499** | **$6,111,004** | |
| ***Other Revenues*** | | | | | | | | | | | | |
| Misc Revenue | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | As Misc Revenues |
| Interest Income | 37,226 | 40,191 | 48,069 | 37,964 | 44,599 | 48,212 | 47,766 | 49,205 | 52,125 | 53,718 | 53,822 | Calculated |
| ***Total Other Revenues*** | **$37,226** | **$40,191** | **$48,069** | **$37,964** | **$44,599** | **$48,212** | **$47,766** | **$49,205** | **$52,125** | **$53,718** | **$53,822** | |
| **Total Revenues** | **$5,409,576** | **$5,627,726** | **$5,691,479** | **$5,737,808** | **$5,801,442** | **$5,862,623** | **$5,920,322** | **$5,980,485** | **$6,042,718** | **$6,104,218** | **$6,164,827** | |
| **Administration** | | | | | | | | | | | | |
| Salaries & Wages | $125,219 | $128,976 | $132,845 | $136,830 | $140,935 | $145,163 | $149,518 | $154,004 | $158,624 | $163,382 | $168,284 | As Salary |
| Benefits-Employer Taxes | 10,443 | 11,070 | 11,734 | 12,438 | 13,184 | 13,975 | 14,814 | 15,702 | 16,645 | 17,643 | 18,702 | As Benefits |
| Benefits-Retirement | 15,998 | 16,958 | 17,975 | 19,054 | 20,197 | 21,409 | 22,693 | 24,055 | 25,498 | 27,028 | 28,650 | As Benefits |
| Benefits-Deferred Comp | 4,420 | 4,685 | 4,966 | 5,264 | 5,580 | 5,915 | 6,270 | 6,646 | 7,045 | 7,467 | 7,916 | As Benefits |
| Benefits-Medical | 21,948 | 23,265 | 24,661 | 26,140 | 27,709 | 29,371 | 31,134 | 33,002 | 34,982 | 37,081 | 39,306 | As Benefits |
| Benefits-Other | 2,452 | 2,599 | 2,755 | 2,920 | 3,096 | 3,281 | 3,478 | 3,687 | 3,908 | 4,143 | 4,391 | As Benefits |
| Professional Services | 15,000 | 15,450 | 15,914 | 16,391 | 16,883 | 17,389 | 17,911 | 18,448 | 19,002 | 19,572 | 20,159 | As Salary |
| Travel | 1,000 | 1,030 | 1,061 | 1,093 | 1,126 | 1,159 | 1,194 | 1,230 | 1,267 | 1,305 | 1,344 | As Materials & Supplies |
| Insurance | 46,051 | 47,663 | 49,331 | 51,058 | 52,845 | 54,694 | 56,608 | 58,590 | 60,640 | 62,763 | 64,959 | As Insurance |
| Cost Allocation-Financial Serv | 183,000 | 189,666 | 196,576 | 203,737 | 211,159 | 218,851 | 226,823 | 235,086 | 243,650 | 252,526 | 261,725 | As Cost Allocation |
| Training & Registration | 1,000 | 1,030 | 1,061 | 1,093 | 1,126 | 1,159 | 1,194 | 1,230 | 1,267 | 1,305 | 1,344 | As Materials & Supplies |
| Electronic Payment Fees | 0 | 0 | 187,643 | 199,943 | 213,050 | 227,015 | 238,457 | 249,271 | 260,575 | 271,076 | 282,001 | Calc'd @ 3.5% of City rev |
| ***Total Administration*** | **$426,531** | **$442,391** | **$646,521** | **$675,961** | **$706,887** | **$739,382** | **$770,094** | **$800,950** | **$833,102** | **$865,291** | **$898,779** | |

* - Includes the prevously adopted 2020 rate adjustment of 3.0%

| | *Budgeted* | *Projected* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | *Notes* |
| **Engineering** | | | | | | | | | | | | |
| Salaries & Wages | $590,825 | $608,550 | $626,806 | $645,610 | $664,979 | $684,928 | $705,476 | $726,640 | $748,439 | $770,893 | $794,019 | As Salary |
| Overtime | 5,100 | 5,253 | 5,411 | 5,573 | 5,740 | 5,912 | 6,090 | 6,272 | 6,461 | 6,654 | 6,854 | As Salary |
| Benefits-Employer Taxes | 48,669 | 51,589 | 54,684 | 57,966 | 61,443 | 65,130 | 69,038 | 73,180 | 77,571 | 82,225 | 87,159 | As Benefits |
| Benefits-Retirement | 75,514 | 80,045 | 84,848 | 89,938 | 95,335 | 101,055 | 107,118 | 113,545 | 120,358 | 127,579 | 135,234 | As Benefits |
| Benefits-Deferred Comp | 20,111 | 21,318 | 22,597 | 23,953 | 25,390 | 26,913 | 28,528 | 30,240 | 32,054 | 33,977 | 36,016 | As Benefits |
| Benefits-Medical | 142,139 | 150,667 | 159,707 | 169,290 | 179,447 | 190,214 | 201,627 | 213,725 | 226,548 | 240,141 | 254,549 | As Benefits |
| Benefits-Other | 12,090 | 12,815 | 13,584 | 14,399 | 15,263 | 16,179 | 17,150 | 18,179 | 19,270 | 20,426 | 21,651 | As Benefits |
| Office & Operating Supplies | 3,074 | 3,166 | 3,261 | 3,359 | 3,460 | 3,564 | 3,671 | 3,781 | 3,894 | 4,011 | 4,131 | As Materials & Supplies |
| Small Tools & Equipment | 1,947 | 2,015 | 2,086 | 2,159 | 2,234 | 2,312 | 2,393 | 2,477 | 2,564 | 2,654 | 2,746 | As Equipment |
| Professional Services | 923,244 | 430,941 | 443,870 | 457,186 | 470,901 | 485,028 | 520,179 | 515,784 | 531,258 | 1,062,196 | 614,662 | As Salary |
| Communication | 2,561 | 2,638 | 2,717 | 2,798 | 2,882 | 2,969 | 3,058 | 3,150 | 3,244 | 3,342 | 3,442 | As Materials & Supplies |
| Travel | 1,769 | 1,822 | 1,877 | 1,933 | 1,991 | 2,051 | 2,112 | 2,176 | 2,241 | 2,308 | 2,377 | As Materials & Supplies |
| Operating Rentals & Leases | 4,098 | 4,221 | 4,348 | 4,478 | 4,612 | 4,751 | 4,893 | 5,040 | 5,191 | 5,347 | 5,507 | As Materials & Supplies |
| Cost Allocation-Technology | 48,074 | 49,825 | 51,640 | 53,522 | 55,471 | 57,492 | 59,586 | 61,757 | 64,007 | 66,338 | 68,755 | As Cost Allocation |
| Repairs & Maintenance | 7,555 | 7,782 | 8,015 | 8,256 | 8,503 | 8,758 | 9,021 | 9,292 | 9,570 | 9,858 | 10,153 | As Materials & Supplies |
| Miscellaneous | 64,686 | 66,303 | 67,961 | 69,660 | 71,401 | 73,186 | 75,016 | 76,891 | 78,814 | 80,784 | 82,804 | As Miscellaneous |
| Training & Registration | 8,555 | 8,812 | 9,076 | 9,348 | 9,629 | 9,918 | 10,215 | 10,522 | 10,837 | 11,162 | 11,497 | As Materials & Supplies |
| Dues & Subscriptions | 360 | 371 | 382 | 393 | 405 | 417 | 430 | 443 | 456 | 470 | 484 | As Materials & Supplies |
| Intergovernmental Services | 8,000 | 8,291 | 8,593 | 8,907 | 9,231 | 9,567 | 9,916 | 10,277 | 10,651 | 11,039 | 11,442 | As Cost Allocation |
| Transfer-Out | 7,404 | 7,674 | 7,953 | 8,243 | 8,543 | 8,854 | 9,177 | 9,511 | 9,858 | 10,217 | 10,589 | As Cost Allocation |
| ***Total Engineering*** | **$1,975,775** | **$1,524,098** | **$1,579,416** | **$1,636,970** | **$1,696,862** | **$1,759,199** | **$1,844,694** | **$1,892,881** | **$1,963,286** | **$2,551,620** | **$2,164,072** | |
| **Maintenance & Operations** | | | | | | | | | | | | |
| Salaries & Wages | $817,505 | $842,030 | $867,291 | $893,310 | $920,109 | $947,712 | $976,144 | $1,005,428 | $1,035,591 | $1,066,659 | $1,098,658 | As Salary |
| Overtime | 128,900 | 132,767 | 136,750 | 140,853 | 145,078 | 149,430 | 153,913 | 158,531 | 163,287 | 168,185 | 173,231 | As Salary |
| Benefits-Employer Taxes | 67,879 | 71,952 | 76,269 | 80,845 | 85,696 | 90,837 | 96,288 | 102,065 | 108,189 | 114,680 | 121,561 | As Benefits |
| Benefits-Retirement | 122,396 | 129,740 | 137,524 | 145,776 | 154,522 | 163,793 | 173,621 | 184,038 | 195,081 | 206,785 | 219,193 | As Benefits |
| Benefits-Deferred Comp | 21,781 | 23,088 | 24,473 | 25,942 | 27,498 | 29,148 | 30,897 | 32,751 | 34,716 | 36,799 | 39,006 | As Benefits |
| Benefits-Medical | 215,789 | 228,736 | 242,461 | 257,008 | 272,429 | 288,774 | 306,101 | 324,467 | 343,935 | 364,571 | 386,445 | As Benefits |
| Benefits-Other | 41,998 | 44,518 | 47,189 | 50,020 | 53,022 | 56,203 | 59,575 | 63,149 | 66,938 | 70,955 | 75,212 | As Benefits |
| Office & Operating Supplies | 97,598 | 100,526 | 103,542 | 106,648 | 109,847 | 113,143 | 116,537 | 120,033 | 123,634 | 127,343 | 131,164 | As Materials & Supplies |
| Small Tools & Equipment | 19,695 | 20,384 | 21,098 | 21,836 | 22,600 | 23,391 | 24,210 | 25,058 | 25,935 | 26,842 | 27,782 | As Equipment |
| Professional Services | 45,410 | 46,772 | 48,175 | 49,621 | 51,109 | 52,643 | 54,222 | 55,849 | 57,524 | 59,250 | 61,027 | As Salary |
| Communication | 1,740 | 1,792 | 1,846 | 1,901 | 1,958 | 2,017 | 2,078 | 2,140 | 2,204 | 2,270 | 2,338 | As Materials & Supplies |
| Travel | 4,750 | 4,893 | 5,039 | 5,190 | 5,346 | 5,507 | 5,672 | 5,842 | 6,017 | 6,198 | 6,384 | As Materials & Supplies |
| Taxes & Operating Assessments | 78,250 | 80,598 | 83,015 | 85,506 | 88,071 | 90,713 | 93,435 | 96,238 | 99,125 | 102,099 | 105,161 | As Materials & Supplies |
| Operating Rentals & Leases | 17,088 | 17,601 | 18,129 | 18,673 | 19,233 | 19,810 | 20,404 | 21,016 | 21,647 | 22,296 | 22,965 | As Materials & Supplies |
| Cost Allocation-Technology | 227,239 | 235,517 | 244,097 | 252,989 | 262,205 | 271,756 | 281,656 | 291,916 | 302,551 | 313,572 | 324,995 | As Cost Allocation |
| Cost Allocation-Facilities | 64,000 | 64,000 | 64,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Flat |
| Cost Allocation-Fleet | 111,005 | 115,049 | 119,240 | 123,584 | 128,086 | 132,751 | 137,587 | 142,600 | 147,794 | 153,178 | 158,758 | As Cost Allocation |
| Utilities | 25,926 | 26,963 | 28,042 | 29,163 | 30,330 | 31,543 | 32,805 | 34,117 | 35,482 | 36,901 | 38,377 | As Utilities |
| Repairs & Maintenance | 159,000 | 163,770 | 168,683 | 173,744 | 178,956 | 184,325 | 189,854 | 195,550 | 201,416 | 207,459 | 213,683 | As Materials & Supplies |
| Miscellaneous | 14,051 | 14,402 | 14,762 | 15,131 | 15,510 | 15,897 | 16,295 | 16,702 | 17,120 | 17,548 | 17,986 | As Miscellaneous |
| Training & Registration | 10,200 | 10,506 | 10,821 | 11,146 | 11,480 | 11,825 | 12,179 | 12,545 | 12,921 | 13,309 | 13,708 | As Materials & Supplies |
| Dues & Subscriptions | 300 | 309 | 318 | 328 | 338 | 348 | 358 | 369 | 380 | 391 | 403 | As Materials & Supplies |
| ***Total Maintenance & Operations*** | **$2,292,500** | **$2,375,912** | **$2,462,764** | **$2,489,212** | **$2,583,422** | **$2,681,567** | **$2,783,830** | **$2,890,403** | **$3,001,485** | **$3,117,289** | **$3,238,038** | |

| | *Budgeted* | *Projected* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | *Notes* |
| **Creekside Property Acquisition** | **$0** | **$0** | **$150,000** | **$150,000** | **$150,000** | **$150,000** | **$150,000** | **$150,000** | **$150,000** | **$150,000** | **$150,000** | As Flat |
| **O&M from Capital Projects** | | | | | | | | | | | | |
| O&M from Capital Projects | $0 | ($3,100) | ($3,100) | $31,020 | $87,630 | $88,740 | $87,850 | $87,850 | $87,850 | $87,850 | $87,850 | As Flat |
| Sewer & Storm CCTV Inspect Van & Equip | 0 | 85,000 | 87,500 | 90,250 | 93,000 | 95,800 | 98,700 | 102,155 | 105,730 | 109,430 | 113,261 | As Equipment |
| ***Total O&M from Capital Projects*** | **$0** | **$81,900** | **$84,400** | **$121,270** | **$180,630** | **$184,540** | **$186,550** | **$190,005** | **$193,580** | **$197,280** | **$201,111** | |
| **O&M Adjustment** | **$0** | **($100,000)** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| **Total Operations & Maintenance** | **$4,694,806** | **$4,324,302** | **$4,923,101** | **$5,073,413** | **$5,317,801** | **$5,514,689** | **$5,735,168** | **$5,924,238** | **$6,141,452** | **$6,881,481** | **$6,651,999** | |
| **Taxes & Transfers** | | | | | | | | | | | | |
| B&O Tax Estimate | $83,028 | $86,623 | $87,602 | $88,319 | $89,296 | $90,236 | $91,125 | $92,050 | $93,007 | $93,954 | $94,887 | Calc @ 1.5% of Rev + GFC |
| Transfer Out - Sustainability Fund | 200,000 | 102,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Transfer Out - City Shop Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | As Miscellaneous |
| Transfer Out - EF&R Fund | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | 260,000 | Per City Presentation (12-yr avg) |
| HR Cost Allocation | 0 | 48,705 | 49,923 | 51,171 | 52,450 | 53,761 | 55,105 | 56,483 | 57,895 | 59,342 | 60,826 | As Miscellaneous |
| Communications Cost Allocation | 0 | 44,804 | 45,924 | 47,072 | 48,249 | 49,455 | 50,692 | 51,959 | 53,258 | 54,589 | 55,954 | As Miscellaneous |
| Emergency Management Cost Allocation | 0 | 31,268 | 32,050 | 32,851 | 33,672 | 34,514 | 35,377 | 36,261 | 37,168 | 38,097 | 39,049 | As Miscellaneous |
| Fuel Cost Allocation | 0 | 21,211 | 21,741 | 22,285 | 22,842 | 23,413 | 23,998 | 24,598 | 25,213 | 25,844 | 26,490 | As Miscellaneous |
| Street Sweeping Cost Allocation | 0 | 50,000 | 51,250 | 52,531 | 53,845 | 55,191 | 56,570 | 57,985 | 59,434 | 60,920 | 62,443 | As Miscellaneous |
| ***Total Taxes & Transfers*** | **$543,028** | **$645,111** | **$548,489** | **$554,229** | **$560,354** | **$566,570** | **$572,867** | **$579,336** | **$585,976** | **$592,746** | **$599,649** | |
| **Rate Funded Capital** | **$105,000** | **$627,003** | **$200,000** | **$425,000** | **$500,000** | **$750,000** | **$850,000** | **$950,000** | **$1,000,000** | **$1,000,000** | **$1,100,000** | 2017 Depr Exp = $1.7 million |
| **Debt Service** | | | | | | | | | | | | |
| Interfund Loan | $61,291 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | From Debt Schedule |
| Additional Revenue Bonds | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Calculated @ 4.75% for 20 yrs |
| ***Total Debt Service*** | $61,291 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| ***LESS: Other Funding*** | | | | | | | | | | | | |
| *Capital Fund* | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| ***Net Debt Service*** | **$61,291** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| **Reserve Funding** | | | | | | | | | | | | |
| To / (From) Operating Reserve | $5,451 | $31,309 | $19,889 | ($5,975) | $64,338 | $29,502 | $42,162 | $69,356 | $134,258 | ($298,904) | $148,369 | |
| To / (From) Capital Reserve | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| To / (From) Bond Reserve | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Reserve Funding*** | **$5,451** | **$31,309** | **$19,889** | **($5,975)** | **$64,338** | **$29,502** | **$42,162** | **$69,356** | **$134,258** | **($298,904)** | **$148,369** | |
| **Total Revenue Requirement** | **$5,409,576** | **$5,627,726** | **$5,691,479** | **$6,046,667** | **$6,442,493** | **$6,860,762** | **$7,200,197** | **$7,522,930** | **$7,861,686** | **$8,175,322** | **$8,500,017** | |
| Bal. / (Def.) of Funds | $0 | $0 | $0 | ($308,859) | ($641,051) | ($998,139) | ($1,279,876) | ($1,542,445) | ($1,818,967) | ($2,071,104) | ($2,335,190) | |
| Plus: Additional Taxes | 0 | 0 | 0 | (4,633) | (9,616) | (14,972) | (19,198) | (23,137) | (27,285) | (31,067) | (35,028) | |
| Total Bal. / (Def.) of Funds | $0 | $0 | $0 | ($313,491) | ($650,667) | ($1,013,111) | ($1,299,074) | ($1,565,582) | ($1,846,252) | ($2,102,171) | ($2,370,218) | |
| Bal. a % of Rate Adj. Required | 0.0% | 0.0% | 0.0% | 5.4% | 11.1% | 17.2% | 21.8% | 26.0% | 30.4% | 34.2% | 38.2% | |
| **Proposed Rate Adjustment** | **0.0%** | **0.0%** | **0.0%** | **5.5%** | **5.5%** | **5.5%** | **4.0%** | **3.5%** | **3.5%** | **3.0%** | **3.0%** | |
| Add'l Revenue with Rate Adj. | $0 | $0 | $0 | $313,491 | $650,667 | $1,013,111 | $1,299,074 | $1,565,582 | $1,846,252 | $2,102,171 | $2,370,218 | |
| Bal. / (Def.) After Rate Adj. | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| **Additional Rate Adjustment Required** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | |

| | *Budgeted* | *Projected* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2019** | **2020*** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | *Notes* |
| **Residential Bi-Mo Customer Bill** | $32.94 | $33.92 | (Current rates, Residential Developed) | | | | | | | | | |
| Customer Bill on Proposed Adj. | $32.94 | $33.92 | $33.92 | $35.79 | $37.75 | $39.83 | $41.42 | $42.87 | $44.37 | $45.71 | $47.08 | |
| Bill Difference - Monthly | | $0.98 | $0.00 | $1.87 | $1.97 | $2.08 | $1.59 | $1.45 | $1.50 | $1.33 | $1.37 | |
| Cumulative Bill Difference | | $0.98 | $0.98 | $2.85 | $4.81 | $6.89 | $8.48 | $9.93 | $11.43 | $12.77 | $14.14 | |
| **Debt Service Coverage Ratio (all debt)** | | | | | | | | | | | | |
| Before Rate Adjustment | 2.80 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| After Proposed Rate Adjustment | 2.80 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| **Reserve Funds** | | | | | | | | | | | | |
| **Beginning Fund Balance** | **$7,314,194** | **$6,519,995** | **$6,698,461** | **$4,595,369** | **$4,739,509** | **$4,638,545** | **$4,579,812** | **$4,694,889** | **$4,920,455** | **$5,212,485** | **$5,072,930** | |
| ***Operating Fund*** | | | | | | | | | | | | |
| **Beginning Balance** | **$1,600,000** | **$1,605,451** | **$1,636,760** | **$1,656,649** | **$1,650,674** | **$1,715,012** | **$1,744,514** | **$1,786,677** | **$1,856,033** | **$1,990,290** | **$1,691,386** | |
| Plus: Additions | 5,451 | 31,309 | 19,889 | 0 | 64,338 | 29,502 | 42,162 | 69,356 | 134,258 | 0 | 148,369 | |
| Less: Uses of Funds | 0 | 0 | 0 | (5,975) | 0 | 0 | 0 | 0 | 0 | (298,904) | 0 | |
| **Ending Balance** | **$1,605,451** | **$1,636,760** | **$1,656,649** | **$1,650,674** | **$1,715,012** | **$1,744,514** | **$1,786,677** | **$1,856,033** | **$1,990,290** | **$1,691,386** | **$1,839,755** | |
| *Minimum Fund Balance - 90 days O&M* | *$1,157,623* | *$1,066,266* | *$1,213,915* | *$1,250,978* | *$1,311,239* | *$1,359,786* | *$1,414,151* | *$1,460,771* | *$1,514,331* | *$1,696,803* | *$1,640,219* | |
| ***Capital Fund*** | | | | | | | | | | | | |
| **Beginning Balance** | **$5,714,194** | **$4,914,544** | **$5,061,701** | **$2,938,721** | **$3,088,835** | **$2,923,532** | **$2,835,298** | **$2,908,212** | **$3,064,422** | **$3,222,194** | **$3,381,544** | |
| Plus: Additions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Plus: GFCs | 125,600 | 147,157 | 148,629 | 150,115 | 151,616 | 153,132 | 154,663 | 156,210 | 157,772 | 159,350 | 160,943 | Exhibit 3 |
| Less: Capital Project Funding | (925,250) | 0 | (2,271,609) | 0 | (316,919) | (241,367) | (81,749) | 0 | 0 | 0 | 0 | |
| **Ending Balance** | **$4,914,544** | **$5,061,701** | **$2,938,721** | **$3,088,835** | **$2,923,532** | **$2,835,298** | **$2,908,212** | **$3,064,422** | **$3,222,194** | **$3,381,544** | **$3,542,488** | |
| ***Bond Reserve Fund*** | | | | | | | | | | | | |
| **Beginning Balance** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| Plus: Additions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Less: Uses of Funds | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| **Ending Balance** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | |
| *Minimum Fund Balance - 125% of DS* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | |
| **Ending Fund Balance** | **$6,519,995** | **$6,698,461** | **$4,595,369** | **$4,739,509** | **$4,638,545** | **$4,579,812** | **$4,694,889** | **$4,920,455** | **$5,212,485** | **$5,072,930** | **$5,382,243** | |

**City of Issaquah**
**Storm Water Utility Rate Study**
**Capital Improvement Plan**
**Exhibit 4**

**Inflation [1] = 0.0%**



| | *Project Number* | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | Total | *Notes* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital Projects** | | | | | | | | | | | | | | |
| West Lake Sammamish Pkwy Storm Improvement | *ST 001* | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $288,750 | $0 | $0 | $0 | $288,750 | |
| E Lake Sammamish Pkwy West Ditch Conveyance Project | *ST 002* | 0 | 165,240 | 1,684,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,849,740 | |
| E Lake Sammamish Pkwy Convey Proj. 56th St to Boat Launch | *ST 003* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *Est. timing* |
| Laughing Jacobs Creek Channel Enhancement Support | *ST 005* | 0 | 40,000 | 0 | 0 | 209,569 | 619,570 | 0 | 0 | 0 | 0 | 0 | 869,139 | |
| Lower Issaquah Creek Stream & Riparian Enhancement | *ST 006* | 0 | 46,000 | 1,357,830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,403,830 | |
| Storm Drainage Rehab & Improv. Prog. - Biannual | *ST 008* | 0 | 10,000 | 400,000 | 30,000 | 450,000 | 40,000 | 450,000 | 0 | 0 | 0 | 0 | 1,380,000 | |
| Squak Valley Park South | *ST 009* | 0 | 0 | 0 | 0 | 0 | 263,500 | 40,084 | 1,440,110 | 0 | 0 | 0 | 1,743,694 | |
| Cabin Creek Tributary Stabilization and Enhancement | *ST 011* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Bush Street Stormwater Improvements | *ST 014* | 0 | 0 | 0 | 0 | 0 | 183,493 | 1,213,000 | 0 | 0 | 0 | 0 | 1,396,493 | |
| SE 56th Street Conveyance Improvements | *ST 017* | 0 | 0 | 0 | 0 | 0 | 0 | 63,483 | 242,600 | 0 | 0 | 0 | 306,083 | |
| Central Park Bioswale Improvements | *ST 019* | 0 | 0 | 0 | 0 | 0 | 38,418 | 285,182 | 0 | 0 | 0 | 0 | 323,600 | |
| Issaquah Highlands West 45 Stormwater Lift Station Rehab | *ST 020* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reservoir Overflow Discharge Improvements | *ST 042* | 0 | 125,000 | 606,420 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 731,420 | |
| Sewer & Storm Pipe CCTV Inpection Van & Equip. | *EU 006* | 0 | 145,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 145,000 | |
| Maintenance Facility Phase 2 - Design | *FC 013* | 0 | 0 | 0 | 62,760 | 61,140 | 47,730 | 0 | 0 | 0 | 0 | 0 | 171,630 | *Addition to CIP* |
| Issaquah Highlands Storage Site | *FC 018* | 0 | 0 | 0 | 47,070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47,070 | *Addition to CIP* |
| Parking Building Expansion | *FC 020* | 0 | 0 | 0 | 62,760 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62,760 | *Addition to CIP* |
| PWO - MMS Upgrade | *TC 006* | 0 | 22,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22,500 | *Addition to CIP* |
| Maint. Managmnt Software Replacement | *TC 009* | 0 | 0 | 3,207 | 94,140 | 96,210 | 18,656 | 0 | 0 | 0 | 0 | 0 | 212,213 | *Addition to CIP* |
| MUNIS - Optimization | *TC 010* | 0 | 78,263 | 39,993 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118,256 | *Addition to CIP* |
| Stormwater Dri-Prime Pump | *EU 016* | 0 | 35,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35,000 | *Addition to CIP* |
| Storm Conveyance Rehabilitation Program | *Budget* | 390,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 390,000 | |
| Lower Issaquah Creek Stream and Riparian Enhancement | *Budget* | 10,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,000 | |
| E Lake Sammamish Pkwy Drainage | *Budget* | 150,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150,000 | |
| Laughing Jacobs Creek Channel | *Budget* | 25,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25,000 | |
| Sunrise Place Drainage | *Budget* | 60,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60,000 | |
| LRIG Mitigation | *Budget* | 550,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 550,000 | |
| ***Total Capital Projects*** | | **$1,185,000** | **$667,003** | **$4,091,950** | **$296,730** | **$816,919** | **$1,211,367** | **$2,051,749** | **$1,971,460** | **$0** | **$0** | **$0** | **$12,292,178** | |
| Unidentified Future Capital Projects | | $0 | $0 | $0 | $128,270 | $0 | $0 | $0 | $78,540 | $1,000,000 | $1,000,000 | $1,100,000 | **$3,306,810** | |
| Transfer to Cash Reserve | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | **$0** | |
| **Total Capital Improvement Projects** | | **$1,185,000** | **$667,003** | **$4,091,950** | **$425,000** | **$816,919** | **$1,211,367** | **$2,051,749** | **$2,050,000** | **$1,000,000** | **$1,000,000** | **$1,100,000** | **$15,598,988** | |

| | *Project Number* | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | Total | *Notes* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Less: Outside Funding Sources*** | | | | | | | | | | | | | | |
| Operating Fund Reserves | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | |
| Capital Fund Reserves | | 925,250 | 0 | 2,271,609 | 0 | 316,919 | 241,367 | 81,749 | 0 | 0 | 0 | 0 | 3,836,894 | |
| Developer Contributed | | 0 | 0 | 130,341 | 0 | 0 | 0 | 500,000 | 0 | 0 | 0 | 0 | 630,341 | |
| Grants | | 154,750 | 40,000 | 1,490,000 | 0 | 0 | 220,000 | 620,000 | 1,100,000 | 0 | 0 | 0 | 3,624,750 | |
| Low Interest Loans | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Assumed New Low Interest Loan | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Additional Revenue Bonds | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ***Total Funding Sources*** | | **$1,080,000** | **$40,000** | **$3,891,950** | **$0** | **$316,919** | **$461,367** | **$1,201,749** | **$1,100,000** | **$0** | **$0** | **$0** | **$8,091,985** | |
| **Rate Funded Capital** | | **$105,000** | **$627,003** | **$200,000** | **$425,000** | **$500,000** | **$750,000** | **$850,000** | **$950,000** | **$1,000,000** | **$1,000,000** | **$1,100,000** | **$7,507,003** | |

[1] - Capital projects identified in the adopted CIP are assumed to included inflation costs in future years

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| # of ESUs | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | As Customer Growth |
| Cost ($ / ESU) | $1,256 | 1,457 | 1,457 | 1,457 | 1,457 | 1,457 | 1,457 | 1,457 | 1,457 | 1,457 | 1,457 | |
| | **$125,600** | **$147,157** | **$148,629** | **$150,115** | **$151,616** | **$153,132** | **$154,663** | **$156,210** | **$157,772** | **$159,350** | **$160,943** | |
| **2019 Budgeted** | **$181,000** | | | | | | | | | | | |

**Stormwater Rate Schedule**
**Proposed Rates**

| | *Present* | *Proposed* | | | | |
|---|---|---|---|---|---|---|
| | ***Rates*** | **2021** | **2022** | **2023** | **2024** | **2025** |
| **Residential Developed** | *$ / Parcel / Bi-Mo* | | | | | |
| All | $33.92 | $33.92 | $35.79 | $37.76 | $39.84 | $41.43 |
| **Non-Residential Developed** | *$ / ESU / Bi-Mo* | | | | | |
| All | $33.92 | $33.92 | $35.79 | $37.76 | $39.84 | $41.43 |
| **Undeveloped** | *$ / Parcel / Bi-Mo* | | | | | |
| All | $16.98 | $16.96 | $17.90 | $18.88 | $19.92 | $20.72 |

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# Appendix K

# Draft Sewer Master Plan Comments and Responses

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# General Sewer Plan - Ecology Comment Sheet for Issaquah

**GSP Revision Date:** March 1, 2024
**GSP Contact:** Matt Ellis

**Reviewed By:** Sean Wilson
**Review Date:** 6/1/2024

| Comment No. | Page # | Section | Comment | Ecology Reviewer | GSP Response | GSP Responder | Ecology Acceptance Comments |
|---|---|---|---|---|---|---|---|
| 1 | 77 | 5.2 | Per WAC 173-240-050(3)(d)(ii) and (iii), please include at least one figure with the flow direction of all current and proposed sewer lines. The District could also add flow direction to the existing Figure 5-2 if that is preferred. | Wilson | Bellevue and Kirkland (neighboring sewer utilities) do not have similar maps in their sewer plans as described. A map with flow direction for all sewer pipes would be illegible and therefore not useful. Figure 5-2 has been updated to include the flow directions for select sewer pipes. | Soundarya | |
| 2 | General | General | From the figures provided, it is difficult to understand which pipes are gravity and which are force mains. Per WAC 173-240-050(d)(iv), a layout map that shows all force mains is required. Please update one of the current figures or create a new figure such that this distinction is apparent. | Wilson | Figure 5-2 has been updated to include separate symbology for force mains, to distinguish from gravity mains. | Soundarya | |
| 3 | 527 | Appendix D | A final, signed SEPA determination will be required for final approval. | Wilson | The signed SEPA checklist and Determination of Non-Significance will be included in Appendix D. | Soundarya | |
| 4 | 59 | 2.5 | Please revise Figure 2-6 to include the location of the groundwater wells described in 2.5.1 as well as any private wells within the District in accordance with WAC 173-240-050(d)(vii) and (j). It is currently difficult to determined if unsewered areas pose a risk to wells or water supply. | Wilson | Figure 2-6 has been revised to include the location of groundwater wells within the City limits. | Soundarya | |
| 5 | 61 | Chapter 3 | The newly passed HB1110 will allow multi-family units on most lots (especially those in King County). How will HB 1110 affect zoning and population projections within the District? | Wilson | The City assesses growth and capacity needs based on the best available population projection data from PSRC, which does account for increased population/housing density. The impacts of ESS HB 1110 will likely be better understood in the next iteration of the PSRC data, which will be used in future general sewer plans. Text has been added to Section 3.3.1 to clarify how future planning changes will be incorporated as part of future updates or studies. | Soundarya | |
| 6 | 49 | 2.3.1 | The general sewer plan must address the requirement of WAC 173-240-050(3)(h), which requires "A statement regarding provisions for treatment and discussion of the adequacy of the treatment." The plan must include sufficient discussion necessary to demonstrate that the District's agreements with King County will provide adequate treatment throughout the planning period. **Please revise Chapter 2.3.1 to include a summary of any limits on flow, number of connections, etc. (or affirm that none exist).** Thank you for including the interlocal agreements with City of Bellevue and King County Metro in Appendix A. | Wilson | There are no limits in the City-County sewage disposal agreement on the amount of wastewater King County will accept. Issaquah has capacity in their system to convey wastewater to the County pipes. In high flow events, the County creates backwater/surcharging conditions in City pipes near City Center. This summary is added as section 2.6 and referenced in table 1.1. | Soundarya | |

| Comment No. | Page # | Section | Comment | Ecology Reviewer | GSP Response | GSP Responder | Ecology Acceptance Comments |
|---|---|---|---|---|---|---|---|
| 7 | 73 | 5.1 | Chapter 5.1 states that the system contains grinder pumps but in the following sentences does not list the quantity of grinder pumps when listing the assets owned, operated, and maintained by the City. Table 5-6 lists the four pump stations that have "Grinder/Submersible" pumps. It is unclear if there are any grinder pumps that service single parcels or small groups of parcels.<br><br>WAC 173-240-104 extends to grinder pumps that serve a single residence. The City is required to ensure individual grinder pumps are properly operated and maintained to protect public health and water quality.<br><br>Please add clarification to the GSP as to whether there are individual grinder pumps in the Districts boundaries and, if so, what City/District policies or ordinances are in place related to individual grinder pumps standard design specifications and rights of access by the District for emergency maintenance. | Wilson | Language has been added to Section 4.8 to indicate what qualifications for determination are acceptable. The City has a standard Temporary Service Agreement for privately-owned grinder pump systems. The City plans to review and update the Temporary Service Agreement, as necessary, once the Ecology Guidance has been published in the Orange Book | Soundarya | |
| 8 | 111 | Figure 7-4 | Figure 7-4 appears to show an overloaded line in between the Pickering and Holiday Inn near the Picking Pump Sation. This overload is not indicated on the 2040 model results of Figure 7-5. There does not appeart to be a capital project included in Table 10-1 for this area or pump station. Please explain what accounts for the flow reductions between 2028 and 2040. | Wilson | The pipeline in Figure 7-4 that appears to be overloaded is the Pickering Pump Station force main. Force mains will appear to be surcharged in this pipeline color scheme, when they are operating. There is no flow reduction or capital project incorporation at that location, between the two scenarios represented in those two Figures. The pump station was not operating for the dataset shown in Figure 7-5. Note that FIgure 5-2 has been updated to distinguish between gravity pipes and force mains. | Dave | |
| 9 | 142 | 9.6 | Please provide more detail about how Sanitary Sewer Overflows (SSOs) will be reported to Ecology in accordance with WAC 173-303-145. SSOs should be reported immediately to Ecology's 24-hour ERTS phone line. | Wilson | Any SSO event will be reported to Ecology through Environmental Report Tracking System (ERTS) within 24 hours of spill. The standard operating procedure for SSO is attached in Appendix H. | Soundarya | |
| 10 | | | | | | | |

## Reviewer: Sammamish Plateau Water & Sewer District

1. Page 13/152: Figure ES-1 Existing Sanitary Sewer Service Area and Adjacent Utilities And other maps in the Plan with sewer service boundaries indicated.

   The figure does not reflect the recent adjustment of the sewer service boundary between Sammamish Plateau Water and the City. Since this was a relatively recent boundary adjustment, it is likely that the base mapping just needs to be updated on this and any other maps in the Plan with the sewer service boundary.

   The 2017 Agreement between the City and District to add this area to the District's sewer service area is referenced specifically in Section 2.3.3 of the Plan, and the action was formalized through an Annexation for Sewer Service action through the King County Boundary Review Board in 2022.

   **All the figures in the plan have been revised to reflect the recent adjustment of the sewer service boundary between Sammamish Plateau Water and the City.**

2. Page 30/152: 1.3.2 Growth Management Act 2nd Paragraph: … As on-site sewage disposal systems fail, or as required by development, the City will satisfy property owner requests for sanitary sewer service as identified in Chapter 4.

   This appears to indicate that the City will be providing the process to implement extension of sewer to currently unsewered areas, potentially including City capital investments as well. (See Chapter 4 comments following.)

   **No Change in text. As on-site septic systems (OSS) fail, the City will satisfy property owner requests for sanitary sewer service. This includes formalizing the OSS inspection program and stream sampling assessment as identified in Section 4.6.**

3. Page 39/152: 2.1 Background Paragraph 2 Population figures are provided for the City as a whole.

   This paragraph could clarify that this is the entire City population, and that the sewer service area population is reported in Chapter 3.

   **Text has been added to clarify, "The portion of the population within the City wastewater system service area is presented in Chapter 3."**

4. Page 43/152: 2.2.1 Issaquah Wastewater Planning Area Paragraph 1: … The North Issaquah subarea is served by the Sammamish Plateau Water District (SPWD). While it is City policy to provide direct sewer service to all customers within the City limits, there are several areas that remain unsewered, primarily in low-lying areas, due to physical constraints in constructing sewer service. All system evaluations for this Plan will take place within the wastewater planning area boundaries.

   This paragraph identifies that the North Issaquah subarea has sewer service provided by the SPWD. However, the following sentence regarding areas without current sewer service availability, includes a policy of providing direct service to all customers within the City limits. Perhaps this statement could be altered from City limits to the City wastewater planning area boundaries, as identified in the final sentence of the paragraph.

**The text in Section 2.2.1 has been revised to reflect this change and the "City Limits" has been changed to "Wastewater planning area boundaries".**

5. Page 65/152: Chapter 4 Regulations and Policies/4.1 Overview Paragraph 2 … the City has established the following four goals for sewer service:

   There are 8 goals listed following the indication of 4 goals.

   **Text Revised. Typo has been corrected to reflect "eight" in Section 4.1.**

6. SPW Comment:

   Page 66-67/152: 4.4 Sewer Master Plan Policies

   Policy 1: Provide safe, reliable, and timely sewer service to its consumers at a fair and reasonable price.

   Policy 5: Extend sewers into unsewered neighborhoods located within or adjacent to environmentally sensitive areas.

   Policy 12: Identify, prioritize, and provide sufficient funding for capital improvement projects and programs that meet one or more of the following criteria:

   Third bullet Extend sewer lines into presently unsewered areas. District staff are very interested in learning more about any programs developed by the City to support Policies 5 and 12. The District also has unsewered neighborhoods and learning about ideas for prioritization and funding would be appreciated. We would value the opportunity to collaborate to establish these policies to have consistency between the City and District.

   **No change in text. Refer Section 4.6 for information on the City's On-Site Septic systems (OSS) program and goals for the transition of OSS systems to City sewer system. SPW staff can coordinate directly with City staff to review the policies for consistency and share strategies.**

7. Page 67/152: 4.4 Sewer Master Plan Policies

   Policy 9: Allow existing single-family homes with septic systems to continue to use them, provided that the systems are functioning property, …. All septic systems in the City shall be monitored according to Seattle-King County Department of Health regulations.

   Policy 10: Require that property owners connect to the sewer system if a septic system is not functioning properly, as documented …

   District staff would like to better understand how information regarding septic system functioning and failures is obtained by the City. Setting up a process to clearly and consistently communicate reports of failing septic systems and sewer connection requirements, would help advance the City's policy in areas provided sewer service by the District.

   **Property owners are responsible for inspecting their septic system. Proposed City code requires an inspection to occur every 3 years for a gravity septic system, and every year for a**

**pumped system, in accordance with KC Department of Health regulations. Inspection forms are reported to City staff. Text has been added to Section 4.6 to explain this.**

**13.36.050 On-Site Septic Inspection.**

A. Inspection
On-site sewerage (OSS) disposal and treatment systems shall be inspected with a site evaluation survey completed within the frequency as outlined below:

| Minimum Monitoring Frequency | | | | | |
|---|---|---|---|---|---|
| | **Gravity System[4]** | **Public Domain Technology[2]** | **Proprietary Domain Technology[3,5]** | **Commercial and Food Establishment** | **Non-Discharging Toilets[6]** |
| **Initial Inspection[1]** | 6 months | 6 months | 45 days | 45 days | N/A |
| **Regular Inspection Frequency** | Every 3 years | Annually | Every 6 months | Annually or 6 months depending on technology used | Annually |
| **Who May Perform the Inspection** | Owner, Licensed Maintainer, or Licensed OSS Pumper | Licensed Maintainer | Licensed Maintainer | Licensed Maintainer | Owner |

8. Page 68/152: 4.4 Sewer Master Plan Policies ; Policy 16: All new on-site septic systems permitted within the City, shall be designed as interim and property owners shall sign an agreement to connect within one year of being notified to do so, based on availability of public sewer.

   The District has a standard Agreement for Future Connection to Sewer Service that is required for all properties installing new septic systems. However, the Districts longstanding (since mid-1990s) Agreement provides the property owner with 5-years to connect to the sewer system. Is this difference in the connection time within the District's service area a concern for the City?

   **Policy 16 and 17 related to the new on-site septic systems have been removed. This policy will be revised to require connection within 3 years, to be consistent with City code. Code requires septic owners to obtain a waiver, to utilize septic systems and maintain their systems.**

9. Page 68/152: 4.4 Sewer Master Plan Policies; Policy 17: Waive the General Facility Charge for property owners currently on septic, that make a connection to the sanitary sewer conveyance system within two (2) years of notification of available sewer.

For all properties connecting in the District's sewer service area, payment of a General Facility Charge is required. The District does not have any policy that allows for waiver of this fee.

**Text revised. The City currently does not have a policy to waive the general facility charge. Policy 16 and 17 related to the new on-site septic systems have been removed.**

10. Page 68/152: 4.5 Sewer Extensions and Connections Paragraph 1: … The City may require the developer to size new sewer infrastructure to accommodate the increased flows and potential surcharging, as discussed under Policy 2A in Section 4.7.1, below.

    In Section 4.7.1 there is Capital Policy 6, but no Policy 2A. This may be a typo or different numbering system.

    **Text revised. The numbering system has been corrected from policy "2A" to policy "6", in Section 4.5.**

11. Page 68/152: 4.5 Sewer Extensions and Connections Paragraph 2: A new policy has been developed to extend sewers into unsewered neighborhoods located within or adjacent to environmentally sensitive areas. This requires sewer connections for all new developments, provided that the connection does not cause significant adverse environmental impact. This requirement excludes single family residential on existing platted lots, that do not lie within the environmentally sensitive areas described below, and where sewer is not within 200 feet of the dwelling served. Tier 3: Critical Aquifer Recharge Area (CARA) 1-10 wellhead capture zone. Goal to extend within 40 years.

    Note the inclusion of CARAs as an environmentally sensitive area, thank you. It is not clear whether single family residential projects on existing platted lots that are outside of an environmentally sensitive area but within 200 feet of a sewer, would be required to connect to the sewer. (Including extension of the sewer for <200 feet). See continued discussion in comment to Section 4.6.

    **For single family residential lots, the policy reverts back to code. The requirement for Single family lots will be 200 feet from the building served. If a SFL redevelops and they are less than 200 feet from sewer, they will need to connect. No change in Section 4.5 text.**

12. Page 69/152: 4.6 Septic-to-Sewer Projects Paragraph 2 & Paragraph 3 bullet 1: King County Board of Health (KCBOH) code governs inspection frequencies for OSS systems, requirements for connection to sewer, and permits for OSS installation, repairs, and replacements. Currently, the City supplements KCBOH requirements in the IMC (connection required and connection waivers) and the OSS Inspection Program … Public Works staff have historically maintained an inventory of unsewered properties, including inspection status and condition. The City identified the following actions to meet the identified goals for the transition of OSS systems to the City sewer system:

    Bullet 1 Update IMC Chapter 13, Division II. Sewers code language regarding OSS inspection and reporting requirements, definitions, connection requirements, connection waivers and code enforcement.

With respect to the inventory and inspection status of unsewered properties, is this limited to the City's sewer service area, or also include areas provided service by the District? Having this information on lots within the District's service area could inform consideration of future sewer projects.

**The City only keeps an inventory and inspection status within the City's service area.**

City of Issaquah IMC 13.32.030 requires connection for parcels with existing structures fronting sewer mains unless waived by IMC 13.80.040. What is not clear is when new proposed individual structures on existing lots are required to extend sewer and connect. (If it is in the IMC and I did not find it, please provide the code section.) Trying to follow the KCBOH and King County Code for sewer connection requirements is not as straightforward as it could be and can require some interpretation. If the City were to include a clear statement on the expectations for when connection would be required (e.g. if the sewer is within 200 feet of the property) that would clarify the requirements and allow clear requirements to property owners proposing a new project.

**The City is revising code to state sewer connection is required if sewer is within 200 feet of the property to be served. This is a slight deviation from KCBOH, but supports development on large lots where the development is far away from sewer mains, even if the lot itself is near sewer. No change in report text.**

13. Page 71/152: 4.7.2 Policy 7: Developer Capacity Impacts Thresholds Paragraph 2 All property owners seeking to connect to the City's sewer system are also assessed a general facility charge. This charge is determined by IMC 13.70.020 – General Facility Charge – Sewer.

    This policy does not completely match the previously stated Policy 17 under Section 4.4 Sewer Master Plan Policies, which allows waiver of the Sewer General Facility Charge in certain situations for septic transitions. This could be because Section 4.7 is associated with new development, in which case the statement regarding "all property owners" could be clarified further.

    **Text Revised. This is addressed in the response to comment 9 above. As per recent discussion with the City, Policy 16 and 17 have been deleted from Section 4.4.**

14. Page 143-144152: 9.7 Staffing Assessment: Table 9-3 & Table 9-4 Sewer Utility Staffing Comparison

    Tables 9-3 and 9-4 list the City of Sammamish as an agency with sanitary sewer facilities. This should be Sammamish Plateau Water & Sewer District (or Sammamish Plateau Water or SPWD as listed elsewhere in the Plan).

    **Text Revised. The reference in Table 9-3 and Table 9-4 have been updated to "Sammamish Plateau Water & Sewer District" for consistency with Section 2.3.3.**

## Reviewer: King County Utilities Technical Review Committee (UTRC)

General Comments

1. Various figures. Many of the figures do not include the boundaries of the City's sewer service area; rather the City's municipal boundaries are identified. Please edit each map to add the boundaries of the sewer service area.
   **The figures have been revised to reflect the change in City sewer service area boundary.**

2. King County Code (13.24.010 H. Water and sewer system comprehensive plans) requires wastewater system plans to compare amounts of inflow and infiltration (I/I) to the system with King County's 1,100 gallons-per-acre-per-day-standard, and steps being taken to reduce the inflow and infiltration. While the Plan does identify existing and projected I/I and indicates annual projects will be constructed to address needs, the Plan does not compare these with the County's standard. Please include text in the plan document that provides this comparison.
   **Text has been added to Section 6.6 to compare against the 1,100 gal/acre/day standard and refer to prior work by King County on reducing I/I which will be considered as part of a programmatic approach.**

3. King County Code (13.24.010 H.) Water and sewer system comprehensive plans) requires wastewater system plans to identify and describe areas of concern with respect to corrosion and odor control and steps being taken to reduce their occurrence. It does not appear that the draft plan address odor or corrosion. Please include additional text in the plan document to address odor and corrosion concerns and steps the City plans to take.
   **A new Section 4.7 has been added to the Plan to specifically address Odor Control and Corrosion.**

4. The Plan will need to be approved by the City Council prior to the County Council approving it.
   **The Final Plan will be approved by the City Council and then shared with the County Council for approval.**

Specific Comments

1. Page 2-5, Section 2.2 Land Use and Planning Areas. The text refers to Figure 2-1 to define the City's sewer service area. It would be beneficial text to the plan document that identifies the percent or area within the City that is served by the City and clarifies that the City's sewer service area doesn't extend outside of its municipal boundaries.
   **Text has been added to Section 2.2.1 to clarify that the City's sewer service area doesn't extend outside of its municipal boundaries. While it is City policy to provide direct sewer service to all customers within the City wastewater planning area boundaries, there are several areas that remain unsewered, primarily in low-lying areas, due to physical constraints in constructing sewer service.**

2. Page 2-5, Section 2.2 Land Use and Planning Areas. The text in this section references City policies and existing and future land use maps. Please include text and or tables in the plan document that identifies the existing number of acres per existing land use and future land use within the City's sewer service area.
   **The text in Section 2.2 has been updated to include the zoning area for each land use category for existing and future conditions. Table 2-1 represent the zoning information for existing and future land use.**

3. Figure 2.1, Existing Sanitary Sewer Service Area and Adjacent Utilities. It appears that there is a property within the City that is not within its sewer service area. Please add text to the plan document that explains why this area is not within the service area and if there may be a need to include it in the future.
   **The area is a state park that is not served by the City. Figure 2-1 has been updated to reflect this change.**

4. Figure 2.1, Existing Sanitary Sewer Service Area and Adjacent Utilities. It appears that the City has an urban growth boundary which is not currently served by a wastewater purveyor. Does the City intend to provide sewer service to this area if annexed? Please add text to the plan document that clarifies this situation.
   **Text has been added to clarify in Section 2.1. The City is fully within the urban growth boundary. The City has code prohibiting against extending service outside the City's limits or service area, per MIC 13.88.010. Text has been added to Section 2.1 for clarity.**

5. Page 3-3, Section 3.3 Future Population and Employment Estimates. The text states, "For MB2, the negative growth forecasted by OFM...." Should this statement reference the PSRC forecast as it appears the OFM information was only used to estimate the 2020 existing population. Please edit text in the plan document to correct if appropriate.
   **Text revised to change "OFM" to "PSRC" in Section 3.3.**

6. Page 4-1, Section 4.1 Regulations and Policies Overview. The text acknowledges that the City's comprehensive plan is currently being updated. It does not appear that the draft sewer system plan contemplates any potential changes through the City's comprehensive plan update. A potential change to the City's comprehensive plan may include the allowance of multiple units on a single lot (ESS HB 1110). Please include text in the plan document that acknowledges if and how the City's comprehensive plan update may potentially affect or necessitate changes for its sewer system plan.
   **The City assesses growth and capacity needs based on the best available population projection data from PSRC, which does account for increased population/housing density. The impacts of ESS HB 1110 will likely be better understood in the next iteration of the PSRC data, which will be used in future general sewer plans. Text has been added to Section 3.3.1 to clarify how future planning changes will be incorporated as part of future updates or studies.**

7. Page 4-2, Section 4.4 Sewer Master Plan Policies. It does not appear that the plan cites a City service policy that requires new development to connect to a sanitary sewer system consistent with King County Countywide Planning Policy PF-12. Please include text in the plan document that references this policy.

   **Policies stated in Section 4.5-Sewer Extensions and Connections are consistent with the King County Countywide Planning Policy PF-12 which requires all development in the Urban Growth Area to be served by a public sewer system except**

   a) **Single-family residences on existing individual lots that have no feasible access to sewers may utilize individual septic systems on an interim basis; or**
   b) **Development served by alternative technology that:**
      1. **Provide equivalent performance to sewers;**
      2. **Provide the capacity to achieve planned densities; and**
      3. **Will not create a barrier to the extension of sewer service within the Urban Growth Area.**

   **Text added to Section 4.5 to reference the policy.**

8. Page 4-2, Section 4.4 Sewer Master Plan Policies. It does not appear that the plan acknowledges the limited instances for the extension of sewer outside of the Urban Growth Area. Does the City have a City service policy that allows for the extension of sewer outside the urban growth area in limited circumstances? Does the City have a service policy that addresses connection to an accessory dwelling unit? If yes, please include text in the plan document that references this policy.

   **The City has code prohibiting against extending service outside the City's limits or service area, per MIC 13.88.010.**

   ***If an application is approved under the conditions of subsection (A)(2), (A)(3), or (A)(4) of this section, then the following conditions shall also apply:***

   ***1. If the property boundary is contiguous to the corporate limit line of the City, the property shall annex into the City prior to service being granted in the form of a water availability certificate.***

   ***2. If the property boundary is not contiguous to the corporate limit line of the City, and is within a potential annexation area of the City, and has had a health hazard declared by the appropriate authority related to their water system, then the applicant shall sign an agreement of no protest as to any proposed annexation of the applicant's property to the City as a condition of providing water service only for the then existing land use.***

   ***3. If the property boundary is not contiguous to the corporate limit line of the City, and is within a potential annexation area of the City, and has not had a health hazard declared by the appropriate authority related to their water system, then service shall be denied until the property is annexed to the City.***

***4. Service being provided outside the City limits under contracts executed prior to the effective date of the ordinance codified in this section are allowed to continue without requiring annexation.***

**Regarding ADUs – The City has no code or policy regarding ADUs. Per IMC 13.48.040 (C)** ***A maximum of 4 residential structures may be connected to a single side sewer.***

**The City is interpreting this to mean up to three ADUs are allowed to connect to a single side sewer. Text added to Section 4.5 to reference the policy.**

9. Page 4-4, Section 4.4 Sewer Master Plan Policies. Policy 16 states that a future connection agreement shall be required for all new on-site septic systems permitted within the City. How many of these agreements currently exist? Does the City anticipate a certain number of on-site septic systems connecting to its system due to these agreements. Please include text in the plan document that identifies the existing number of on-site septic systems, and how many have future connection agreements.
**Text revised. The City currently does not have a policy that states that future connection agreement shall be required for all new OSS systems permitted within the City. Policy 16 and 17 related to the new on-site septic systems have been removed.**

10. Page 4-5, Section 4.6 Septic to Sewer Policies - The draft plan identifies actions for the transition of on-site septic systems to the City sewer system. This includes updating the City's connection requirements, connection waivers, and code enforcement. Please add text in the plan document that clarifies the nature of these updates.
**The goals for the transition of On-Site Septic Systems (OSS) systems to the City sewer system have been identified in Section 4.6. Policy 16 and 17 related to the new on-site septic systems have been removed.**

**The revised code will also be included stating:**

***13.80.040 Connection waivers.***
***A. Waivers or exemptions from the requirement to connect sewer mains may be requested by owners of existing residences when sewer extensions are constructed for purposes of eliminating one or more health hazards, as designated by the City. Requests for a waiver or exemption must be made in writing to the Public Works Director with a site evaluation survey completed in accordance with King County Board of Health (KCBOH) Title 13 by a Certified On-Site System Maintainer (OSM). The site evaluation survey shall have been completed within 3 months prior to submitting the request for waiver or exemption.***

***Existing residences with on-site sewerage disposal and treatment systems categorized by the definitions below will not be granted a waiver or exemption from the requirement to connect to City-owned mains where a connection is feasible, and within 200 feet of a public sewer main, per IMC 13.32.030.***

***I. ¸ Nonconforming OSS systems, per Section 13.32.020:***

*II. Systems in failure with need of OSS major repair, per Section 13.32.020:*
*III. Existing residences undergoing remodeling that require a Building Permit Review, located within areas of environmental concern, as defined in Section 13.32.020.*

***Waivers will be permitted for on-site sewerage disposal and treatment systems in good standing, or those requiring and completing a limited repair, as defined in Section 13.32.020, and as identified in the site evaluation survey.***

***B. Waivers granted by the City are valid for a period of 3 years for gravity systems and every 1 year for pump systems unless there is an on-site system failure sooner.***

***C. Waivers shall be renewed every 3 years and shall comply with subsection A of this section. Renewal requests must be made in writing to the Public Works Director with a site evaluation survey completed in accordance with King County Board of Health (KCBOH) Title 13 by a licensed maintainer. . The site evaluation survey shall have been completed within 3 months prior to submitting the request for waiver or exemption. (Ord. 2186 § 2, 1998).***

***D. In the instance that an on-site sewerage disposal and treatment systems in failure, needing a repair, or a remodel is occurring requiring a building permit review and sewer is not available per IMC 13.32.030, a repair, or a new OSS system fully conforming to KCBOH Title 13 will be permitted.***

11. Figure 5-1, Existing Sanitary Sewer System, and Figure 5-2, Sewer Collection System Basin Boundaries. Each of these figures identify pump stations; however, Figure 5-1 identifies 5 pump stations, and Figure 5-2 identifies 4 pump stations. It appears that Figure 5-1 mistakenly identifies the location of pump station as a name is not associated with it. Please edit the appropriate map to correct the error.
    **Figure 5-1 has been updated to include 4 pump stations and one energy dissipation weir.**

12. Page 8-1, Section 8.1 Reclaimed Water Evaluation. While the Plan provides a list of uses that may use reclaimed water, the King County wastewater guidance document asks for the submittal of the King County Water Reclamation Checklist. Please include a completed checklist as an appendix to the plan document.
    **The referenced checklist is intended for water systems. It is not directly applicable to this General Sewer Plan. If the viability of water reclamation requires further investigation, the City will work jointly with the water supplier in the area to gather information from the King County Water Reclamation Checklists prepared by those agencies to identify potential water users.**

13. Page 10-2, Table 10-1, Capital Improvement Projects. In Chapter 5, the text provides a description of each of the lift stations and identifies deficiencies associated with each. However, it does not appear that any of the identified deficiencies associated with the lift stations are listed as a capital facility project. Why are there not any projects identified to address these deficiencies? Additionally, why is there not an estimated cost for CIP 4? Please add text in the plan document to clarify.

**This work was already identified as a capital improvement project that will be under construction before adoption of the sewer master plan. CIP 4 is complete and will be removed from the plan.**

14. Page 11-1 - Financial Program. WAC 173-240-050(I) requires the Plan to include information pertaining to the cost of service in terms of debt service and
    **The City is completing an independent utility rate study that will be completed in 2025. This will include information on cost of operation and maintenance costs, as well as the forecasted capital improvement plan. This document will be added at a later date as an amendment to the sewer master plan.**

15. Appendix D, SEPA Environmental Checklist. Prior to the UTRC acting on a recommendation, a signed checklist and the issued threshold determination must be provided.
    **SEPA Checklist has been prepared for this plan and a complete signed checklist and determination of non-significance will be included with the final plan.**