

**LAKEHAVEN WATER AND SEWER DISTRICT**  
**King County, Washington**

**Resolution No. 2017-1299**

**A RESOLUTION** of the Board of Commissioners of the Lakehaven Water and Sewer District, King County, Washington, adopting water, sewer and street lights rates and superseding all prior rate resolutions and rate resolution amendments.

**WHEREAS**, pursuant to RCW 57.08.005, 57.08.060 and 57.08.081, the Board of Commissioners is empowered to establish periodic rates for the furnishing of water, sanitary sewer and street light services, and

**WHEREAS**, in order to ensure that the District will be able to meet the financial requirements for providing reliable water, sewer and street lighting services to its customers, the Board regularly reviews and considers such periodic rates, and

**WHEREAS**, the District has retained the Financial Consulting Solutions Group to review and update the District's rate model and hydrant charges, and to produce a detailed technical memoranda summarizing their findings, and

**WHEREAS**, believing that a modification to a category of water rates is appropriate and that the rates established herein are fair and equitable and will enable the District to meet its financial requirements,

**NOW THEREFORE, BE IT RESOLVED** as follows:

1. The District adopts the rates set forth herein pursuant to the "December 11, 2017 Technical Memorandum from FCS Group RE: 2017 Water & Sewer Rate Study & Capital Facilities Charge Update", which Technical Memorandum is incorporated fully herein
2. Water Rates - The following rates shall be billed on a bi-monthly basis for water furnished by the District.
  - A. Single Family Residences
    - (i) For billings transmitted during 2018 the base monthly charge determined by meter size, shall be as follows:

	Inside	Outside
	Federal Way	Federal Way
5/8"	\$ 12.53	\$ 12.79
3/4"	\$ 17.18	\$ 17.53
1"	\$ 26.46	\$ 27.00
1 1/2"	\$ 49.66	\$ 50.69
2"	\$ 77.52	\$ 79.12

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside	Outside
	Federal Way	Federal Way
First 16 ccf	\$ 1.52 per ccf	\$ 1.55 per ccf
17-30 ccf	\$ 2.87 per ccf	\$ 2.93 per ccf
31+ ccf	\$ 4.24 per ccf	\$ 4.32 per ccf

- (ii) For billings transmitted during 2019 the base monthly charge determined by meter size, shall be as follows:

	Inside	Outside
	Federal Way	Federal Way
5/8"	\$ 12.74	\$ 13.01
3/4"	\$ 17.48	\$ 17.84
1"	\$ 26.92	\$ 27.48
1 1/2"	\$ 50.53	\$ 51.58
2"	\$ 78.88	\$ 80.51

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside	Outside
	Federal Way	Federal Way
First 16 ccf	\$ 1.54 per ccf	\$ 1.57 per ccf
17-30 ccf	\$ 2.92 per ccf	\$ 2.98 per ccf
31+ ccf	\$ 4.32 per ccf	\$ 4.40 per ccf

- (iii) For billings transmitted during 2020 the base monthly charge determined by meter size, shall be as follows:

	Inside	Outside
	Federal Way	Federal Way
5/8"	\$ 12.99	\$ 13.24
3/4"	\$ 17.82	\$ 18.15
1"	\$ 27.44	\$ 27.96
1 1/2"	\$ 51.52	\$ 52.48
2"	\$ 80.42	\$ 81.91

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside	Outside
	Federal Way	Federal Way
First 16 ccf	\$ 1.57 per ccf	\$ 1.60 per ccf
17-30 ccf	\$ 2.98 per ccf	\$ 3.03 per ccf
31+ ccf	\$ 4.40 per ccf	\$ 4.48 per ccf

- (iv) For billings transmitted during 2021 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 13.22	\$ 13.47
3/4"	\$ 18.13	\$ 18.47
1"	\$ 27.92	\$ 28.45
1 1/2"	\$ 52.42	\$ 53.40
2"	\$ 81.83	\$ 83.35

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
First 16 ccf	\$ 1.60 per ccf	\$ 1.63 per ccf
17-30 ccf	\$ 3.03 per ccf	\$ 3.09 per ccf
31+ ccf	\$ 4.48 per ccf	\$ 4.56 per ccf

- (v) For billings transmitted during 2022 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 13.45	\$ 13.71
3/4"	\$ 18.45	\$ 18.79
1"	\$ 28.41	\$ 28.94
1 1/2"	\$ 53.34	\$ 54.33
2"	\$ 83.26	\$ 84.81

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
First 16 ccf	\$ 1.63 per ccf	\$ 1.66 per ccf
17-30 ccf	\$ 3.08 per ccf	\$ 3.14 per ccf
31+ ccf	\$ 4.56 per ccf	\$ 4.64 per ccf

#### B. Multiple Residential Unit Structures

- (i) For billings transmitted during 2018 the base monthly charge shall be \$7.03 per unit plus \$1.61 per 100 cubic feet(ccf) of water consumed for customers located inside the City of Federal Way and \$7.17 per unit plus \$1.64 per 100 cubic feet of water consumed for customers located outside the City of Federal Way.

- (ii) For billings transmitted during 2019 the base monthly charge shall be \$7.15 per unit plus \$1.64 per 100 cubic feet(ccf) of water consumed for customers located inside the City of Federal Way and \$7.30 per unit plus \$1.67 per 100 cubic feet of water consumed for customers located outside the City of Federal Way.
- (iii) For billings transmitted during 2020 the base monthly charge shall be \$7.29 per unit plus \$1.67 per 100 cubic feet(ccf) of water consumed for customers located inside the City of Federal Way and \$7.43 per unit plus \$1.70 per 100 cubic feet of water consumed for customers located outside the City of Federal Way.
- (iv) For billings transmitted during 2021 the base monthly charge shall be \$7.42 per unit plus \$1.70 per 100 cubic feet(ccf) of water consumed for customers located inside the City of Federal Way and \$7.56 per unit plus \$1.73 per 100 cubic feet of water consumed for customers located outside the City of Federal Way.
- (v) For billings transmitted during 2022 the base monthly charge shall be \$7.55 per unit plus \$1.73 per 100 cubic feet(ccf) of water consumed for customers located inside the City of Federal Way and \$7.69 per unit plus \$1.76 per 100 cubic feet of water consumed for customers located outside the City of Federal Way.

C. Non-Residential

- (i) For billings transmitted during 2018 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 12.53	\$ 12.79
3/4"	\$ 17.18	\$ 17.53
1"	\$ 26.46	\$ 27.00
1 1/2"	\$ 49.66	\$ 50.69
2"	\$ 77.52	\$ 79.12
3"	\$142.52	\$145.45
4"	\$235.37	\$240.21
6"	\$467.50	\$477.12

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 1.98	\$ 2.02
Summer	\$ 2.82	\$ 2.88

- (ii) For billings transmitted during 2019 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 12.74	\$ 13.01
3/4"	\$ 17.48	\$ 17.84
1"	\$ 26.92	\$ 27.48
1 1/2"	\$ 50.53	\$ 51.58
2"	\$ 78.88	\$ 80.51
3"	\$145.02	\$148.00
4"	\$239.49	\$244.42
6"	\$475.68	\$485.47

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.02	\$ 2.06
Summer	\$ 2.87	\$ 2.93

- (iii) For billings transmitted during 2020 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 12.99	\$ 13.24
3/4"	\$ 17.82	\$ 18.15
1"	\$ 27.44	\$ 27.96
1 1/2"	\$ 51.52	\$ 52.48
2"	\$ 80.42	\$ 81.91
3"	\$147.85	\$150.59
4"	\$244.17	\$248.69
6"	\$484.97	\$493.96

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.06	\$ 2.10
Summer	\$ 2.92	\$ 2.98

- (iv) For billings transmitted during 2021, the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 13.22	\$ 13.47
3/4"	\$ 18.13	\$ 18.47
1"	\$ 27.92	\$ 28.45
1 1/2"	\$ 52.42	\$ 53.40
2"	\$ 81.83	\$ 83.35
3"	\$150.44	\$153.22
4"	\$248.44	\$253.04
6"	\$493.46	\$502.61

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.09	\$ 2.13
Summer	\$ 2.97	\$ 3.03

- (v) For billings transmitted during 2022 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 13.45	\$ 13.71
3/4"	\$ 18.45	\$ 18.79
1"	\$ 28.41	\$ 28.94
1 1/2"	\$ 53.34	\$ 54.33
2"	\$ 83.26	\$ 84.81
3"	\$153.07	\$155.90
4"	\$252.79	\$257.47
6"	\$502.10	\$511.40

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.13	\$ 2.17
Summer	\$ 3.03	\$ 3.09

#### D. Fire Protection

- (i) For billings transmitted during 2018 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 6.50	\$ 6.63
3/4"	\$ 7.83	\$ 8.00
1"	\$ 10.48	\$ 10.69
1 1/2"	\$ 17.09	\$ 17.44
2"	\$ 25.02	\$ 25.54
3"	\$ 43.53	\$ 44.44
4"	\$ 70.01	\$ 71.46
6"	\$136.17	\$138.97

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 1.98	\$ 2.02
Summer	\$ 2.82	\$ 2.88

- (ii) For billings transmitted during 2019 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 6.62	\$ 6.75
3/4"	\$ 7.97	\$ 8.14
1"	\$ 10.66	\$ 10.88
1 1/2"	\$ 17.39	\$ 17.75
2"	\$ 25.47	\$ 25.99
3"	\$ 44.31	\$ 45.22
4"	\$ 71.24	\$ 72.71
6"	\$138.56	\$141.40

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.02	\$ 2.06
Summer	\$ 2.87	\$ 2.93

- (iii) For billings transmitted during 2020 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 6.74	\$ 6.87
3/4"	\$ 8.13	\$ 8.28

1"	\$ 10.87	\$ 11.07
1 1/2"	\$ 17.73	\$ 18.06
2"	\$ 25.97	\$ 26.44
3"	\$ 45.18	\$ 46.01
4"	\$ 72.63	\$ 73.98
6"	\$141.26	\$143.88

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.06	\$ 2.10
Summer	\$ 2.92	\$ 2.98

- (iv) For billings transmitted during 2021, the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 6.86	\$ 6.99
3/4"	\$ 8.27	\$ 8.42
1"	\$ 11.06	\$ 11.27
1 1/2"	\$ 18.04	\$ 18.37
2"	\$ 26.42	\$ 26.90
3"	\$ 45.97	\$ 46.82
4"	\$ 73.90	\$ 75.28
6"	\$143.73	\$146.39

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.09	\$ 2.13
Summer	\$ 2.97	\$ 3.03

- (v) For billings transmitted during 2022 the base monthly charge determined by meter size, shall be as follows:

	Inside Federal Way	Outside Federal Way
5/8"	\$ 6.98	\$ 7.11
3/4"	\$ 8.41	\$ 8.57
1"	\$ 11.26	\$ 11.46
1 1/2"	\$ 18.36	\$ 18.69
2"	\$ 26.88	\$ 27.37
3"	\$ 46.77	\$ 47.64



4"	\$ 75.20	\$ 76.59
6"	\$146.25	\$148.96

plus additional charges per hundred cubic feet (ccf) of water consumed:

	Inside Federal Way	Outside Federal Way
Winter	\$ 2.13	\$ 2.17
Summer	\$ 3.03	\$ 3.09

E. Definitions - the following definitions shall apply to the establishment of water rates.

- (i) Summer Usage: Water usage billed from ~~September~~ <sup>August</sup> through ~~December (4 months)~~ <sup>November</sup>. *AE 11/21 DMK -*
- (ii) Winter Usage: All water usage other than Summer Usage as defined herein (8 months).
- (iii) Multiple Residential Unit Structures: Structure containing two or more separate units of residential living space served by a single water meter.

F. Public Fire Protection (Hydrant) Charge - The annual charge for public fire protection within the District's Water System Service Area shall be \$196.50 per fire hydrant per year.

G. Commencement of Charges - Monthly charges for water service shall commence pursuant to Resolution No. 2017-1300 or any amendment thereto.

3. Sewer rates - The following monthly rates shall be billed on a bi-monthly basis for sewer service furnished by the District.

A. For billings transmitted during 2018 the base monthly charge and additional charges per hundred cubic feet (ccf) of effluent discharged shall be:

	Inside Federal Way	Outside Federal Way
Monthly Base Charge	\$ 13.60	\$ 13.10
Single Family Residential	\$ 2.85	\$ 2.74
Multi-Family Residential	\$ 2.85	\$ 2.74
CDC #1	\$ 2.85	\$ 2.74
CDC #2	\$ 4.44	\$ 4.27
CDC #3	\$ 6.03	\$ 5.81
CDC #4	\$ 7.60	\$ 7.33
CDC #5	\$ 9.19	\$ 8.86

Additional charge for sewage flows treated by other agencies (per ccf)

Pierce County Sewer Utility	\$ 1.80	\$ 1.74
King County Metro	\$ 2.14	\$ 2.06

Add \$ .65/lb. for B.O.D.and Suspended Solids in excess of 1,000mg/l

- B. For billings transmitted during 2019 the base monthly charge and additional charges per hundred cubic feet (ccf) of effluent discharged shall be:

	Inside Federal Way	Outside Federal Way
Monthly Base Charge	\$ 13.97	\$ 13.46
Single Family Residential	\$ 2.93	\$ 2.82
Multi-Family Residential	\$ 2.93	\$ 2.82
CDC #1	\$ 2.93	\$ 2.82
CDC #2	\$ 4.56	\$ 4.39
CDC #3	\$ 6.19	\$ 5.97
CDC #4	\$ 7.81	\$ 7.53
CDC #5	\$ 9.45	\$ 9.10

Additional charge for sewage flows treated by other agencies (per ccf)

Pierce County Sewer Utility	\$ 1.85	\$ 1.78
King County Metro	\$ 2.20	\$ 2.12

Add \$ .67/lb. for B.O.D.and Suspended Solids in excess of 1,000mg/l

- C. For billings transmitted during 2020 the base monthly charge and additional charges per hundred cubic feet (ccf) of effluent discharged shall be:

	Inside Federal Way	Outside Federal Way
Monthly Base Charge	\$ 14.36	\$ 13.83
Single Family Residential	\$ 3.01	\$ 2.90
Multi-Family Residential	\$ 3.01	\$ 2.90
CDC #1	\$ 3.01	\$ 2.90
CDC #2	\$ 4.68	\$ 4.51
CDC #3	\$ 6.36	\$ 6.13
CDC #4	\$ 8.03	\$ 7.73
CDC #5	\$ 9.71	\$ 9.35

Additional charge for sewage flows treated by other agencies (per ccf)

Pierce County Sewer Utility	\$ 1.90	\$ 1.83
King County Metro	\$ 2.26	\$ 2.18

Add \$ .68/lb. for B.O.D.and Suspended Solids in excess of 1,000mg/l

- D. For billings transmitted during 2021 the base monthly charge and additional charges per hundred cubic feet (ccf) of effluent discharged shall be:

	Inside Federal Way	Outside Federal Way
Monthly Base Charge	\$ 14.75	\$ 14.21
Single Family Residential	\$ 3.09	\$ 2.98
Multi-Family Residential	\$ 3.09	\$ 2.98
CDC #1	\$ 3.09	\$ 2.98
CDC #2	\$ 4.81	\$ 4.64
CDC #3	\$ 6.54	\$ 6.30
CDC #4	\$ 8.25	\$ 7.95
CDC #5	\$ 9.97	\$ 9.61

Additional charge for sewage flows treated by other agencies (per ccf)

Pierce County Sewer Utility	\$ 1.95	\$ 1.88
King County Metro	\$ 2.32	\$ 2.24

Add \$ .69/lb. for B.O.D.and Suspended Solids in excess of 1,000mg/l

- E. For billings transmitted during 2022 the base monthly charge and additional charges per hundred cubic feet (ccf) of effluent discharged shall be:

	Inside Federal Way	Outside Federal Way
Monthly Base Charge	\$ 15.19	\$ 14.60
Single Family Residential	\$ 3.18	\$ 3.06
Multi-Family Residential	\$ 3.18	\$ 3.06
CDC #1	\$ 3.18	\$ 3.06
CDC #2	\$ 4.96	\$ 4.76
CDC #3	\$ 6.73	\$ 6.47
CDC #4	\$ 8.49	\$ 8.17
CDC #5	\$10.27	\$ 9.87

Additional charge for sewage flows treated by other agencies (per ccf)

Pierce County Sewer Utility	\$ 2.01	\$ 1.93
King County Metro	\$ 2.39	\$ 2.30

Add \$ .71/lb. for B.O.D.and Suspended Solids in excess of 1,000mg/l

- F. The volume portion of the service charge for single-family and individually metered multi-family residential accounts is based upon water consumption reflected in water rate bills issued by the District, or other purveyor, in January, February, March, and April. The average of water consumption during this period shall be designated as the "wet-month average" and be recalculated each year. New single-family residential customers shall be assigned a wet-month average of 500 cubic feet of water consumption per month (1,000 per two-month cycle). New individually metered multi-family residential customers shall be assigned a wet-month average of 400 cubic feet of water consumption per month (800 per two-month cycle). This amount shall continue until the next wet-month averaging period is complete and the actual consumption can be determined. New customers shall be entitled to provide verifiable water consumption records from their last prior residence for consideration in establishing the initial wet-month average. In order to be considered, such information shall be submitted to the District within thirty (30) days of the first sewer bill.
- G. Commencement of Charges –Billing of water rates shall commence on the earlier of the installation date of the water meter to serve the property or the date eighteen (18) months following payment of the Water System Capital Facilities Charge. Billing of sewer rates shall commence on the earlier of the issuance date of the sewer service connection permit for the property or the date eighteen (18) months following payment of the Sewer System Capital Facilities Charge.
4. Street Light Rates - In order that the District shall recover \$12.00 per month for each street light, all properties within a standard street lighting system established by the Lakehaven Utility District shall pay a monthly charge for such service of \$2.00 per month. In circumstances where the street lights serve more, or less, than six lots, then the amount of the monthly charge shall be adjusted such that the District receives an equivalent \$12.00 cost from the properties served thereby. Properties included within a street light system shall continue to be subject to the monthly charge herein until such time as the property shall be determined to be "non-buildable" by the District. In addition to providing proof of the designation of a parcel as "non-buildable" by the land use authority with jurisdiction over the parcel, property owners may submit as such proof the certification from a licensed soils engineer or licensed septic tank design professional that the parcel will not be suitable for service by a septic system.
5. Duplicate Billing - Where a property owner requests that a copy of the water, sewer and/or street light billing be sent to any address other than the account address, a 0.50 dollars charge shall be added to the bill for each such duplicate billing sent.
6. Capital Facilities Charge Capacity Rental - Beginning with billings transmitted after December 31, 2013, the District shall collect capacity rent from property owners using more capacity in the water and/or sewer facilities of general benefit than was acquired for the property served. The rent shall be billed as a rate under authority of applicable law and shall, for each bi-monthly period, equal one percent (1%) of the current Capital Facilities Charge ("CFC") for each Equivalent Residential Unit ("ERU"), or portion thereof, of


capacity used in the water and/or sewer systems in excess of the amount established by the District as the level of CFC credit owned at the property (measured in ERU's). The amount of the CFC and volume of service associated with an ERU of capacity shall be as set forth in the current fees and charges resolution. Each property served by the water and/or sewer systems shall be allocated a CFC credit based upon the level of CFC capacity acquired for the property. Any excess capacity used in the water and/or sewer systems for which capacity rent shall be collected will be allocated in increments of hundredths (.01) of an ERU. The credit level shall be increased by a factor of twenty (20) percent for each ERU credit allocated in the system (e.g. 6 actual credits equals 7.2 credits for rent calculation purposes). In addition, no rent shall be collected for the first full ERU of excess capacity used after the credit adjustment (e.g. a property with a credit of 2 ERU's would begin paying rent for capacity used in excess of 3.4 ERU's). The amount of excess capacity used shall be further based upon the average of use for the prior twelve (12) month period as determined by the volume of water used at the property. Water determined by the District to have been leaked shall not be included in the calculation of water or sewer system capacity rent. For purposes of determining sewer capacity used, the consumption of water through irrigation meters will not be included in the calculation of sewer system use.

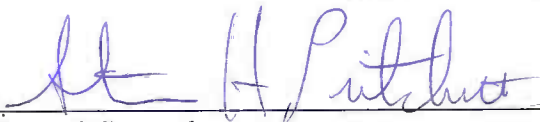
Where multiple water and/or sewer connections exist on a single non-single family residential parcel, capacity rent shall be based on any excess service capacity used for the entire parcel. The capacity rent owing for the period shall be allocated to the service connections based on the service connection's pro rata share of the total consumption at the parcel. Where two or more non-single family residential parcels with a common boundary are held under common ownership, as shall be determined at the discretion of the District, the District will aggregate the credits from all such parcels and levy any capacity rental on the basis of the credits and consumption associated with all such parcels. The capacity rental charge to each service connection on such parcel shall be based on the service connection's pro rata share of the total consumption of the parcel for the period. To avoid the stranding of credits in parcels within a common commercial or multi-family development that are allocated credits (typically where the CFC was paid as an area charge) and are not served by water and/or sewer facilities, the capacity credits for parcels within commercial or multi-family residential developments that do not use water and/or sewer service will be allocated to the other connections within the development in proportion to their pro rata share of the total consumption of capacity within the development.

7. This Resolution shall supersede Resolution all prior rate resolutions and rate resolution amendments for billings transmitted after December 31, 2017 and shall become effective on the date of adoption below. The Board reserves its authority to amend this resolution and the rates established herein at any time it deems such amendment to be in the best interests of the District.

**ADOPTED** by the Board of Commissioners of Lakehaven Utility District, King County, Washington, at an open public meeting thereof held this fourteenth day of December, 2017.

ATTEST:

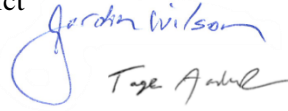
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 _____ Vice President and Commissioner	<input checked="" type="checkbox"/> Yea	<input type="checkbox"/> Nay	<input type="checkbox"/> Abstain
 _____ Secretary and Commissioner	<input checked="" type="checkbox"/> Yea	<input type="checkbox"/> Nay	<input type="checkbox"/> Abstain
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Approved as to form:   
\_\_\_\_\_  
General Counsel

**To:** John Bowman, General Manager  
Lakehaven Water and Sewer District

**Date:** December 11, 2017

**From:** Gordon Wilson, Project Manager  
Tage Aaker, Project Manager



**RE:** 2017 Water & Sewer Rate Study & Capital Facilities Charge Update

## A. INTRODUCTION AND SUMMARY OF RESULTS

This memorandum documents the key assumptions and results of the 2017 Water and Sewer Rate Study performed for the Lakehaven Water and Sewer District. At the District's request, we have prepared detailed rate schedules through 2026 and updated the District's Capital Facilities Charges.

### A1. OVERVIEW OF RATE FORECAST

**Exhibit 1** shows projected overall increases in the water and sewer utility revenue requirements.

#### **Exhibit 1: Recommended Overall Increases in Utility-Related Rate Revenue**

Utility	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Water</b>	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
<b>Sewer</b>	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%

The increases shown here are consistent with previously-adopted rate increases through 2020. The increases shown here are in place of, not in addition to, the previously adopted rate increases.

The recommended rate strategy allows the District to increase its level of rate-funded capital reinvestment in each utility, continue with a conservative approach toward debt, and maintain financial stability with only modest rate increases.

The annual rate increases are 1% per year higher for Sewer than for Water. This is largely caused by the front-loaded capital program for Sewer, with roughly 75% of the capital costs incurred in the first five years of the forecast. Water is able to cash-fund its capital program, but Sewer will require debt. The combined impact of these increases for an average single family customer with both water and sewer service is about 2.3% per year, starting in 2018.

Both utilities are projected to continue in a strong financial position, and projected rate increases are within historical inflation levels. The rate forecast continues to have conservative assumptions about customer growth, water conservation, operating reserves, as well as incorporating debt service coverage targets that are more conservative than what is required by debt covenants.

We moved toward a policy of committing a minimum of 100% of water depreciation and 80% of sewer depreciation for rate-funded capital reinvestment. This will limit the need for future debt. For Water, this represents an increase above the assumption in the 2015-16 rate study, which was 90%.

### A2. COST-OF-SERVICE AND RATE DESIGN CHANGES

We are not recommending a cost-of-service adjustment between rate classes this year. A cost-of-service analysis is a snapshot in time, based on the demand characteristics of each rate class during the previous year. This year, the calculated cost-of-service adjustments would have been small—less than a 5% shift in either direction for all rate classes.

In addition, there are a number of rate design changes made in 2016 that may still be affecting demand patterns. The rate design changes for Water included moving to a 3-block charge structure for single family water customers, eliminating seasonal usage rates for multi-family customers, changing the definition of the summer season for non-residential seasonal usage rates. For both Water and Sewer, we created separate rate schedules for customers inside and outside Federal Way. These changes were significant enough to justify waiting until the next rate study in 2019 to re-evaluate the demand patterns of the different customer classes.

We did update several surcharges and fees. For the water system, we updated the public fire protection charge (“hydrant fee”), which is an offset to the franchise fee paid to the City of Federal Way. For the sewer system, we updated the surcharges for customers served by King County and Pierce County treatment facilities.

### A3. CAPITAL FACILITIES CHARGE (CFC) RESULTS

**Exhibit 2** shows the recommended changes to the capital facilities charges for both water and sewer.

#### Exhibit 2: Recommended Increases in Capital Facilities Charges

Recommended Changes in Combined Water and Wastewater CFC			
Assume 2-Year Phase-In	Water	Wastewater	Combined
<b>Change in Capital Facilities Charge per ERU</b>			
Current CFC	\$3,476	\$3,325	<b>\$6,801</b>
Recommended 2018 CFC	3,707	3,487	<b>7,194</b>
Recommended 2019 CFC	3,937	3,649	<b>7,586</b>
Two-Year Change in Charge per ERU (\$)	\$461	\$324	<b>\$785</b>
Two-Year Change in Charge per ERU (%)	13.3%	9.8%	<b>11.5%</b>

The Water CFC increased from \$3,476 per ERU to \$3,937 per ERU. This amounts to an increase of \$461, or 13.3%. The Wastewater CFC increased from \$3,325 to \$3,649, an increase of 9.8%. We recommend that the updated CFCs be phased in over two years, as shown above.

### A4. BUY-IN UNIT COST

The District also has a “buy-in unit cost” that is used as the basis for its capacity rental charges, when existing customers require more water and wastewater capital capacity than the level for which they paid CFCs at the time the property was developed. This unit cost is similar to the CFC, but it only contains an existing cost component—the cost basis does not include future capital costs from the CIP. Similarly, the capacity figures (the denominator in the calculation) exclude future capacity.

**Exhibit 3** shows the updated buy-in unit costs for both Water and Wastewater. The overall buy-in unit cost is increasing by 5%. We assume that phasing in the new rate is not needed.

#### Exhibit 3: Recommended Update to Buy-In Unit Cost

Buy-In Unit Cost for Capacity Rental Charges			
	Water	Wastewater	Total
<b>Unit Cost per ERU</b>			
Current Buy-In Unit Cost	\$2,439	\$2,665	<b>\$5,104</b>
Updated Buy-In Unit Cost	\$2,604	\$2,748	<b>\$5,352</b>
\$ Change	\$165	\$83	<b>\$248</b>
% Change	7%	3%	<b>5%</b>
<i>Assume phase-in is not needed.</i>			



## B. APPROACH AND KEY ASSUMPTIONS

In order to develop recommended rates for the two utilities, we reviewed District data on budgeted and actual revenues and expenditures, asset values, planned capital expenditures, existing and anticipated debt, and available fund balances. We prepared a revenue requirement forecast, which shows the overall level of rate revenue that will be needed in the coming years in order to fund operating, capital and debt service costs. We worked with District management to confirm capital funding strategies and the status of fund balances. After discussing the forecast results with the District, we prepared a multi-year rate schedule for both the sewer and water utilities. The following sections will cover our general economic forecast assumptions and certain financial policies.

### B1. GENERAL FORECAST ASSUMPTIONS

The following major economic and accounting assumptions were used in this rate forecast:

- Budget realization factors supplied by District staff:
  - ◆ 85% for both water and sewer operating expenditures
  - ◆ 60% for water capital projects (previously 80%)
  - ◆ 60% for sewer capital projects (previously 70%)

Based on input from District staff, we reduced both capital budget realization factors to better reflect historical spending patterns.

- Inflation:
  - ◆ General cost inflation – assumed to be 3.0% per year based on historical data from the Consumer Price Index Urban Consumers - Seattle / Tacoma / Bremerton (CPI - U).
  - ◆ Construction cost inflation – assumed to be 4.0% per year based on District input and historical data from the ENR Construction Cost Index (CCI) - 20 City Average index.
  - ◆ Personnel cost inflation – per District staff, combined labor and benefits cost inflation assumed to be 2.5-3.5% per year.
- State Taxes:
  - ◆ Water: 5.029% public utilities tax on rate revenue, plus 1.5% B&O tax on miscellaneous revenue.
  - ◆ Sewer: 1.78% of rate revenue (weighted average of 3.852% public utilities tax on collection system-related revenue and 1.5% B&O tax on revenue related to treatment and transmission), plus 1.5% B&O tax on miscellaneous revenue.
- Fund Earnings – 1.0% per year based recent King County Investment Pool earnings.
- Customer Growth – Based on several years of historical data:
  - ◆ Account growth: 0.50% per year (adding roughly 200 ERUs each year).
  - ◆ Usage per account: flat through forecast.
- Revenue Bonds: Assume 20-year maturity, 4.0% interest, 1% issuance cost. The interest rate is based approximately on the Revenue Bond Index published by the *Bond Buyer*.

### B2. DEBT ASSUMPTIONS

In the past, the District's borrowing has been a mixture of low-cost State loans and revenue bonds. After 2017, when the District will make its final revenue bond payment on its only outstanding revenue bond, the District's outstanding debt will consist entirely of low-cost State loans. However,

in the forecast, revenue bond financing is still the “fallback option” for capital funding—to the degree that sufficient capital funds are not available from reserve balances or CFCs or capacity rental charges, then we assume that revenue bonds would be issued to meet the remaining need.

#### a) Interfund Borrowing

Another option--which our forecast ignores, just to be conservative—is interfund borrowing. In this case, it would consist of the Sewer Fund borrowing from the Water Fund. Interfund loans have some limitations and some advantages. They are convenient for short-term purposes—typically five years or less. They need to be formally adopted by the Board, with a set interest rate and repayment schedule. To the Water Fund, an interfund loan would function as just another investment, so the interest rate need only match the interest earned on normal investments, which is lower than typical revenue bond rates. Interfund loans also avoid the issuance costs of a revenue bond, and because they are relatively quick and easy to issue, they are a good option to have available when there is uncertainty about the timing of needed capital funds.

In an active capital program where borrowing is needed, we often see utilities issue short-term “bond anticipation notes” or equivalent bank loans to serve as interim financing while a project is underway, later to be replaced by long-term bonds. The idea is that interim financing is designed to be flexible in amount and timing but short-term in character. In Lakehaven’s case, because the Water Fund has such a strong cash position (about \$25 million in capital reserves projected for the end of 2017) and a relatively level capital spending demands over the ten-year CIP, interfund loans are an especially useful tool for interim financing purposes. At some point, when the amount of accumulated interfund loans is sufficient to justify the issuance cost of a long-term bond, the interfund loans can be “taken out” by a revenue bond issue.

If the District chooses to adopt a strategy of interim financing following by long-term borrowing, the interim borrowing (whether from a bank or from an interfund loan) should be accompanied by a “reimbursement resolution,” stating that this debt is intended to be reimbursed by long-term debt at a future time. That way, when it comes time to sell the long bonds, there will be no question that the use of the bond proceeds is a legitimate use of tax-exempt debt. The reimbursement resolution provides documentation that while the bond proceeds will not all be used directly for capital spending, they will be used to retire interim debt that was used for capital spending and was intended all along to be retired with revenue bonds.

The advice of bond counsel should be sought to confirm any financing strategy involving tax-exempt debt; our only point here is that whatever steps would need to be taken with bond anticipation notes or an interim bank loan should also be taken with an interfund loan, assuming that it is part of a capital funding strategy and intended to be replaced by long-term debt.

Again, our forecast does not assume interim financing or interfund borrowing—for the sake of simplicity and to be conservative, we just assumed revenue bonds. But financial planning is different from the actual administration of a capital program. For the time being, the Sewer Fund has plenty of cash balances—over \$21 million in capital reserves projected for the end of 2017. However, the Sewer CIP has some heavy capital spending scheduled over the next 4-5 years, and the reserves will be drawn down during that period if the capital projects actually move ahead. If and when that happens, we suggest that the District explore more seriously the potential for borrowing from the Water Fund, particularly as part of an interim financing strategy.

#### b) Debt Service Coverage

Debt service coverage is a calculation designed to assure bondholders that a sufficient level of net operating revenue is pledged each year to meet debt service requirements, plus a little bit extra. “Net operating revenue” means total revenue minus operating expenses—it represents the annual operating

surplus that is available each year for either debt service or current capital expenditures or building future reserves.

With typical revenue bond covenants, the District would be required to maintain bonded debt service coverage of at least 1.25. This means that the amount of net operating income must be at least 1.25 times the amount of annual debt service on revenue bonds. In other words, you cannot spend all of your annual operating surplus on bonded debt service. At least some of it has to be used for either current capital projects or reserve accumulation or to pay debt service on subordinate debt (debt that is less secure than bonded debt—i.e., it would be paid after bonded debt in the event of a default).

To be conservative, our forecast assumes a policy target for debt service coverage that is more stringent than the legal minimum: 1.5 for bonded debt and 1.25 for total debt (which includes state loans in the coverage calculation). State loans are subordinate to bonded debt and do not actually have a coverage requirement, so building into the forecast a minimum coverage target based on total debt is a conservative assumption.

In actual practice, revenues from the two utilities are cross-pledged, meaning that either utility could conceivably be required to pay debt service for the other's obligations. This feature increases the security for bondholders and allows the District more advantageous financing terms. However, the forecast assumes that both utilities must meet the minimum coverage targets independently.

### B3. OTHER POLICY ASSUMPTIONS

In addition to the debt policies, the forecasts contain three other policy assumptions that affect the amount of revenue needed to be generated by service rates. These policies address operating reserves, capital reserves, and the minimum rate-funded capital reinvestment.

#### a) Operating Reserve Range

One important policy assumption is the target range for operating reserves. The operating reserve is a cushion to allow for potential mid-year fluctuations in cash balance due to the timing of revenues in relation to expenditures. For this study, we assumed the same target as for the 2015-16 study: 60-90 days of O&M expenses for Water and 45-60 days of O&M expenses for Sewer. The threshold is less for Sewer than for Water, because sewer revenues are typically more stable than water revenues. Sewer does not rely on the sale of irrigation water, which can vary significantly from year to year.

For the water system, the 2018 minimum year-end operating reserve is about \$1.7 million and the maximum is about \$2.5 million. In our forecast, if the operating fund balance at the end of a given year is higher than 90 days, the excess is re-characterized as a capital reserve; if it is lower than 60 days, rates are raised in order to achieve the minimum balance. The same approach is taken with the sewer utility, but the 2018 range is from \$1.7 million to \$2.2 million (45 to 60 days).

In our model, any amount above the maximum operating reserve target is “swept” into the capital reserve. In actual practice, the District finds it more administratively convenient to hold the majority of its cash in the Operating Fund, only transferring cash resources to the Capital Fund as necessary. This difference in accounting practice does not affect the forecasted rates.

#### b) Capital Reserve Minimum

Another key assumption is that there should be a “capital contingency”—that is, a minimum ending balance in the capital reserves—equal to at least 1% of the utility plant-in-service cost. The purpose of the capital contingency is to give the District the financial capability to address significant unanticipated capital needs in a short amount of time without disrupting utility operations. This 1% target is equivalent to just over \$2 million for each system.

### c) Minimum Rate-Funded Capital Reinvestment

The final key assumption discussed here is the minimum rate-funded capital reinvestment. This target consists of a minimum amount of current rate revenue committed each year to capital expenditures. It is typically expressed as a percentage of annual depreciation. The purpose of this target is to help the District avoid excessive reliance on debt. As we construct a multi-year capital financing strategy, rate funding provides resources for capital purposes that otherwise would have to be met by borrowing.

For the water system, we assumed a minimum rate-funded capital target of 100% of depreciation. Because the capital demands are greater for the sewer system, we assumed a minimum target of 80% of depreciation for Sewer. If a 100% target were assumed for the sewer system (to match the water system target), sewer rate increases would need to be higher than 2.75% per year in the later years of the forecast.

In the 2015-16 rate study, these targets were 90% of depreciation for water and 80% for sewer. Higher than anticipated net operating cash flow allowed us to increase the rate-funded capital reinvestment target without pushing up rates too quickly. Both Water and Sewer have bond issues maturing in 2017, but the reduction in debt service is larger for Water, allowing for a larger amount to be redirected toward rate-funded capital reinvestment (from 90% to 100% of depreciation).

In any given year, the amount of actual rate-funded capital reinvestment may exceed the minimum, as excess operating reserves are swept into the capital program.

**Exhibit 4** summarizes the key policy assumptions that are incorporated into the forecast. It shows that in this forecast, Water has effective rate-funded capital reinvestment exceeding 100% in each year of the forecast and Sewer has several years close to 100% of depreciation.

#### Exhibit 4: Summary of Forecast Policy Assumptions

Key Policy Assumptions	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Minimum Operating Reserve</b>									
(days of O&M)									
Water	60	60	60	60	60	60	60	60	60
Sewer	45	45	45	45	45	45	45	45	45
<b>Target Capital Contingency</b>									
(% of utility plant original cost)	1%	1%	1%	1%	1%	1%	1%	1%	1%
<b>Minimum Rate-Funded Capital Reinvestment</b>									
(% of Depreciation)									
Water	100%	100%	100%	100%	100%	100%	100%	100%	100%
Sewer	80%	80%	80%	80%	80%	80%	80%	80%	80%
<b>Projected Rate Funded Capital Reinvestment, including Operating Surplus</b>									
(% of Depreciation)									
Water	111%	109%	109%	105%	103%	113%	111%	109%	107%
Sewer	102%	100%	96%	86%	81%	80%	80%	80%	80%
<b>Debt Service Coverage Target - Minimum</b>									
Revenue Bonds	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
All Debt	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25

## C. CAPITAL REQUIREMENTS

**Exhibit 5** shows the total projected capital spending in each system through the end of our study period. These capital figures represent 60% of the original water capital plan and 60% of the original sewer capital plan, which are then inflated to their respective years of construction.

**Exhibit 5: Capital Spending Forecast (\$ million, including inflation)**

Capital Plans inflated, million \$	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
<b>Water</b>	\$3.0	\$5.8	\$6.3	\$7.6	\$7.9	\$5.0	\$7.1	\$8.4	\$6.7	\$9.5	<b>\$67</b>
<b>Sewer</b>	\$9.0	\$9.4	\$13.1	\$12.4	\$10.1	\$8.6	\$7.8	\$3.7	\$4.5	\$4.7	<b>\$83</b>

The sewer capital program is over \$16 million larger than the water capital program, after incorporating inflation and the 60% realization factor to each utility. Sewer’s projected capital spending is also more front-loaded than water’s plan: \$54 million in 2017-21 versus \$31 million. The peak spending year for Water is 2026, while the peak spending years for Sewer are 2019-21.

The Water CIP includes several major projects: Oasis Phases I & II, the balance of the Second Supply project, AMR Implementation, Road and Street Main Relocations, and Office Facility Improvements. However, with the completion of the Filtration Plant, the largest portion of the Second Supply capital expenditures are now in the past.

The Sewer CIP is dominated by several large projects at the two treatment plants: Lakota Mixer, Lakota Odor System Replacement, Lakota Blower and PLC, Redondo UV, Redondo Generator, Redondo Retaining Wall, and Redondo Odor Control Improvements. In addition, there is substantial capital spending projected for Pump Stations 12, 33, and 44 and for Office Facility Improvements.

The next sections discuss the financial forecast results and projected rates for each utility. While the rate study forecast period extends through 2026, most of the remaining exhibits will be limited due to page size, showing 2017 plus five years of forecast, spanning 2018 through 2022.

## D. WATER FORECAST AND RATES

### D1. WATER CAPITAL FUNDING STRATEGY

For each utility, the forecast is built in two stages. First, a *capital funding strategy* is developed, to determine how best to pay for the capital project costs identified in the CIP. Typically, we first rely on grants or other outside funding sources, then on capital facilities charges (CFCs) and capacity rental income. After that, we rely on rate revenue funding, either from the planned rate funded capital reinvestment or from any operating surplus from the previous year that was swept into the capital program. The “last resort” source of capital financing is debt.

In addition to these capital funding sources for which there is a clear priority, there are two other funding sources that in any given year would probably be used ahead of borrowing—beginning fund balances and interest earnings on fund balances. These two sources might be restricted for a specific project—depending on the original source of the fund balances—but more commonly they are available to be used before CFCs or current rate revenue.

The goal of the capital funding strategy is usually to answer the questions, “How much do we have to borrow?” and “How much do we need to pay for with rate revenue?” Rate revenue is best committed far in advance of the actual spending need, and that is why the capital funding strategy is developed in the context of a multi-year forecast.

The capital funding strategy for the water system is shown in **Exhibit 6**.

**Exhibit 6: Water Capital Funding Strategy**

Capital Fund Summary	2017	2018	2019	2020	2021	2022	9-Year Total 2018 - 2026	Average 2018-2026
<b>Beginning Capital Balance</b>	\$ 20,877,988	\$ 24,925,775	\$ 25,735,989	\$ 25,156,840	\$ 23,342,711	\$ 21,320,629		
<b>Capital Revenues:</b>								
Rate Funded Capital Reinvestment:								
Minimum Policy Capital Reinvestment	\$ 3,944,082	\$ 4,004,082	\$ 4,119,682	\$ 4,245,604	\$ 4,398,412	\$ 4,555,436	\$ 40,840,554	\$ 4,537,839
Operating Surplus	469,712	433,066	384,396	369,692	233,880	156,506	3,486,954	387,439
Total Rate Funded Capital Reinvestment	\$ 4,413,794	\$ 4,437,149	\$ 4,504,078	\$ 4,615,296	\$ 4,632,293	\$ 4,711,942	\$ 44,327,508	\$ 4,925,279
Grants / Outside Sources	-	-	-	-	-	-	-	-
Capital Facilities Charges	2,259,400	1,738,000	789,667	793,615	797,583	801,571	8,167,002	907,445
Capacity Rental Revenue	165,813	165,813	165,813	165,813	165,813	165,813	1,492,317	165,813
Net Debt Proceeds Available for Projects	-	-	-	-	-	-	-	-
Direct Rate Funding	-	-	-	-	-	-	-	-
Interest Earnings	208,780	249,258	257,360	251,568	233,427	213,206	2,034,643	226,071
<b>Total Capital Resources</b>	<b>27,925,775</b>	<b>31,515,994</b>	<b>31,452,907</b>	<b>30,983,133</b>	<b>29,171,827</b>	<b>27,213,161</b>	<b>56,021,469</b>	<b>6,224,608</b>
<b>Capital Project Expenditures</b>	<b>(3,000,000)</b>	<b>(5,780,005)</b>	<b>(6,296,067)</b>	<b>(7,640,423)</b>	<b>(7,851,198)</b>	<b>(5,044,475)</b>	<b>(64,247,423)</b>	<b>(7,138,603)</b>
							Δ Fund Balance 2017-2026:	
<b>Ending Capital Balance</b>	<b>\$ 24,925,775</b>	<b>\$ 25,735,989</b>	<b>\$ 25,156,840</b>	<b>\$ 23,342,711</b>	<b>\$ 21,320,629</b>	<b>\$ 22,168,686</b>	<b>\$ 8,225,954</b>	<b>\$ 913,995</b>
<i>Minimum Target</i>	1,955,820	2,013,621	2,076,581	2,152,985	2,231,497	2,281,942		

- No grants are assumed.
- Over the nine years from 2018 through 2026:
  - ◆ Total CFC and capacity rental revenue averages \$1.1 million per year.
  - ◆ Total rate-funded capital reinvestment averages \$4.9 million per year, and interest earnings average about \$225,000 per year.
  - ◆ Fund reserves descend gradually from \$25 million to \$16.7 million by the end of 2026, which is the equivalent is allowing just over \$900,000 per year to be spent for capital purposes.
  - ◆ Capital expenditures average \$7.1 million per year.
- The combination of CFCs, capacity rental revenue, rate revenue, and a high beginning reserve balance provide enough resources to fully fund the water capital program, and no debt is needed throughout the forecast period.

**D2. WATER ANNUAL FINANCIAL FORECAST**

After the capital funding strategy has determined how whether any new borrowing is needed (and if so, how much), we then develop the *annual financial forecast*. This incorporates debt service on existing debt, operating expenses, and rate funded capital requirements. At the same time, non-rate revenue is added to the rate revenue assuming existing rates, and the total revenue is compared with the total requirements. If there is a deficiency, then rate increases are incorporated into the forecast, at the level sufficient to address the deficiency.

In addition to the *cash deficiency* described in this calculation, there can also be a deficiency created by a failure to meet the debt service coverage targets, so the eventual rate increases could in theory be driven by either cash needs or by coverage requirements. However, for both water and sewer utilities, the rate increases in this forecast are driven by cash requirements, not debt service coverage.



**Exhibit 7** shows the impact of the capital funding strategy on the forecast for the water utility. Debt service in 2017 is actually higher than what is shown here, but since 2017 is the last year of a bond series, about \$1.8 million is paid from the debt reserve.

**Exhibit 7: Water Annual Financial Forecast**

Operating Fund Summary	2017	2018	2019	2020	2021	2022
<b>Summary of Existing Operations Before Rate Increases</b>						
Rate Revenues	\$ 14,986,637	\$ 15,061,570	\$ 15,136,878	\$ 15,212,562	\$ 15,288,625	\$ 15,365,068
Other Revenues and Interest	\$ 1,670,061	\$ 1,612,119	\$ 1,638,524	\$ 1,643,601	\$ 1,648,643	\$ 1,654,088
Expenditures and Transfers	\$ (16,186,986)	\$ (16,436,447)	\$ (16,827,230)	\$ (17,201,151)	\$ (17,660,297)	\$ (18,109,454)
Cash Surplus / (Deficiency)	\$ 469,712	\$ 237,242	\$ (51,828)	\$ (344,988)	\$ (723,029)	\$ (1,090,298)
<b>Annual Rate Increase</b>		<b>1.75%</b>	<b>1.75%</b>	<b>1.75%</b>	<b>1.75%</b>	<b>1.75%</b>
<b>Cumulative Rate Increase</b>		<b>1.75%</b>	<b>3.53%</b>	<b>5.34%</b>	<b>7.19%</b>	<b>9.06%</b>
<b>Revenues After Rate Increases</b>						
Rate Revenues (After Rate Increases)	\$ 14,986,637	\$ 15,325,147	\$ 15,671,304	\$ 16,025,280	\$ 16,387,251	\$ 16,757,398
Other Revenues & Interest	1,670,061	1,612,119	1,638,524	1,643,601	1,648,643	1,654,088
<b>Total Operating Revenues With Rate Increases</b>	<b>\$ 16,656,697</b>	<b>\$ 16,937,266</b>	<b>\$ 17,309,828</b>	<b>\$ 17,668,881</b>	<b>\$ 18,035,894</b>	<b>\$ 18,411,486</b>
<b>Cash Surplus / (Deficiency)</b>	<b>\$ 469,712</b>	<b>\$ 487,564</b>	<b>\$ 455,722</b>	<b>\$ 426,858</b>	<b>\$ 320,347</b>	<b>\$ 232,011</b>
<b>Expenditures and Transfers</b>						
Cash Operating Expenses	\$ 10,298,188	\$ 10,519,208	\$ 10,808,476	\$ 11,070,561	\$ 11,390,984	\$ 11,697,203
Existing Debt Service	1,944,715	1,913,156	1,899,071	1,884,986	1,870,900	1,856,815
New Debt Service	-	-	-	-	-	-
Rate-Funded Capital Reinvestment Minimum	3,944,082	4,004,082	4,119,682	4,245,604	4,398,412	4,555,436
Additional Taxes After Rate Increase	-	13,255	26,876	40,872	55,250	70,020
Additions to Operating Fund Balance	-	54,498	71,326	57,165	86,467	75,506
Transfer of Surplus to Capital	469,712	433,066	384,396	369,692	233,880	156,506
<b>Total Expenditures and Transfers</b>	<b>\$ 16,656,697</b>	<b>\$ 16,937,266</b>	<b>\$ 17,309,828</b>	<b>\$ 17,668,881</b>	<b>\$ 18,035,894</b>	<b>\$ 18,411,486</b>
<i>Debt Service Coverage - Revenue Bonds</i>	3.7	n/a	n/a	n/a	n/a	n/a
<i>Debt Service Coverage - All Debt</i>	2.3	3.6	3.6	3.7	3.7	3.8

To address the cash needs of the utility, annual across-the-board increases of 1.75% per year are needed. The water system is projected to maintain operating reserves within the target range and maintain debt service coverage at healthy levels. The tightest “squeeze” in the forecast is in 2017, when debt service coverage on all debt is projected at 2.3. **Exhibit 8** shows the ending balance for each of the District’s Water reserves.

**Exhibit 8: Ending Reserve Forecast - Water**

Ending Fund Balances	2017	2018	2019	2020	2021	2022
Operating Reserve	\$ 2,539,279	\$ 2,593,777	\$ 2,665,104	\$ 2,722,269	\$ 2,808,736	\$ 2,884,242
Capital Reserve	24,925,775	25,735,989	25,156,840	23,342,711	21,320,629	22,168,686
Debt Reserve	-	-	-	-	-	-
<b>Total</b>	<b>\$ 27,465,054</b>	<b>\$ 28,329,766</b>	<b>\$ 27,821,944</b>	<b>\$ 26,064,980</b>	<b>\$ 24,129,364</b>	<b>\$ 25,052,928</b>
Minimum Operating Target (60 days)	\$ 1,692,853	\$ 1,729,185	\$ 1,776,736	\$ 1,814,846	\$ 1,872,491	\$ 1,922,828
Minimum Capital Target (1%)	\$ 1,955,820	\$ 2,013,621	\$ 2,076,581	\$ 2,152,985	\$ 2,231,497	\$ 2,281,942

**D3. PUBLIC FIRE PROTECTION CHARGE**

We updated the Public Fire Protection Charge, which is a charge for the public fire protection function within the District’s Water System Service Area. It is also referred to as a “hydrant charge” because it is calculated based on the number of hydrants in a given jurisdiction, but it actually recovers costs broader than just hydrants. In December 2009, it was set at \$170.85 per year per hydrant, and was adjusted to \$194.48 as part of the 2015-16 study. The District did not collect this charge in the past, but as part of the franchise agreement, the District began collecting it from the City of Federal Way.

The costs captured within the charge are identified through an allocation of the District’s water system costs to the following functions: Customer, Meter & Services, Base Demand, Peak Demand, and Fire Protection. This functionalization includes an analysis of the District’s pipe inventory to estimate the degree to which existing pipes have been oversized for fire protection requirements.

As a result of this analysis, approximately 6% of the District’s projected 2018 total costs are related to providing public fire protection to its service area, which represents approximately \$850,000 per year. According to District records, there are 4,319 hydrants within its service area, resulting in a per-hydrant charge of \$196.50 per year, as shown in **Exhibit 9**.

There are 3,194 hydrants inside Federal Way, so the annual charge to the City would be \$627,617 per year beginning in 2018. Because this charge is based on an allocation of the District’s costs, we recommend it be updated as part of each rate study.

**Exhibit 9: Public Fire Protection Charge for 2018**

Fire Protection Charge	
Estimated Annual Fire Protection Cost	\$ 848,678
Hydrants in Service Area	4,319
<b>Annual Cost per Hydrant</b>	<b>\$196.50</b>
Total Federal Way Hydrants	3,194
Potential Annual Federal Way Charge	\$ 627,617

**D4. PROJECTED WATER RATE SCHEDULE (OUTSIDE FEDERAL WAY)**

**Exhibits 10 and 11** show how the rate increases are translated into detailed rate schedules. At the direction of District staff, this table provides rate through 2022. These rates apply to customers outside of Federal Way, as they are not affected by the Federal Way franchise agreement.

**Exhibit 10: Projected Outside-Federal Way Water Rate Schedule – Residential**

Outside City Rate Schedule						
	2017	2018	2019	2020	2021	2022
<i>Annual System-Wide Rate Increase</i>	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
<b>Single Family Residential</b>						
<u>Fixed Monthly Charge</u>						
5/8"	\$ 12.57	\$ 12.79	\$ 13.01	\$ 13.24	\$ 13.47	\$ 13.71
3/4"	\$ 17.23	\$ 17.53	\$ 17.84	\$ 18.15	\$ 18.47	\$ 18.79
1"	\$ 26.54	\$ 27.00	\$ 27.48	\$ 27.96	\$ 28.45	\$ 28.94
1 1/2"	\$ 49.82	\$ 50.69	\$ 51.58	\$ 52.48	\$ 53.40	\$ 54.33
2"	\$ 77.76	\$ 79.12	\$ 80.51	\$ 81.91	\$ 83.35	\$ 84.81
<u>Existing Variable Charge Structure (3 blocks)</u>						
Block 1 (0-16 ccf/bi-month)	\$ 1.52	\$ 1.55	\$ 1.57	\$ 1.60	\$ 1.63	\$ 1.66
Block 2 (17-30 ccf/bi-month)	\$ 2.88	\$ 2.93	\$ 2.98	\$ 3.03	\$ 3.09	\$ 3.14
Block 3 (31+ ccf/bi-month)	\$ 4.25	\$ 4.32	\$ 4.40	\$ 4.48	\$ 4.56	\$ 4.64
<b>Multiple Residential Unit Structures (two or more units)</b>						
<u>Fixed Monthly Charge</u>						
Per Unit	\$ 7.05	\$ 7.17	\$ 7.30	\$ 7.43	\$ 7.56	\$ 7.69
<u>Variable Charge</u>						
Winter (ccf)	\$ 1.61	\$ 1.64	\$ 1.67	\$ 1.70	\$ 1.73	\$ 1.76
Summer (ccf)	\$ 1.61	\$ 1.64	\$ 1.67	\$ 1.70	\$ 1.73	\$ 1.76



**Exhibit 11: Projected Outside-Federal Way Water Rate Schedule - Non-Residential**

Outside City Rate Schedule						
	2017	2018	2019	2020	2021	2022
Annual System-Wide Rate Increase	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
<b>Non-Residential (Includes Commercial, Irrigation, &amp; Public Authority)</b>						
<b>Fixed Monthly Charge</b>						
5/8"	\$ 12.57	\$ 12.79	\$ 13.01	\$ 13.24	\$ 13.47	\$ 13.71
3/4"	\$ 17.23	\$ 17.53	\$ 17.84	\$ 18.15	\$ 18.47	\$ 18.79
1"	\$ 26.54	\$ 27.00	\$ 27.48	\$ 27.96	\$ 28.45	\$ 28.94
1 1/2"	\$ 49.82	\$ 50.69	\$ 51.58	\$ 52.48	\$ 53.40	\$ 54.33
2"	\$ 77.76	\$ 79.12	\$ 80.51	\$ 81.91	\$ 83.35	\$ 84.81
3"	\$ 142.95	\$ 145.45	\$ 148.00	\$ 150.59	\$ 153.22	\$ 155.90
4"	\$ 236.08	\$ 240.21	\$ 244.42	\$ 248.69	\$ 253.04	\$ 257.47
6"	\$ 468.91	\$ 477.12	\$ 485.47	\$ 493.96	\$ 502.61	\$ 511.40
<b>Variable Charge</b>						
Winter (ccf)	\$ 1.99	\$ 2.02	\$ 2.06	\$ 2.10	\$ 2.13	\$ 2.17
Summer (ccf)	\$ 2.83	\$ 2.88	\$ 2.93	\$ 2.98	\$ 3.03	\$ 3.09
<b>Fire Protection (Sprinklers)</b>						
<b>Fixed Monthly Charge</b>						
5/8"	\$ 6.52	\$ 6.63	\$ 6.75	\$ 6.87	\$ 6.99	\$ 7.11
3/4"	\$ 7.86	\$ 8.00	\$ 8.14	\$ 8.28	\$ 8.42	\$ 8.57
1"	\$ 10.51	\$ 10.69	\$ 10.88	\$ 11.07	\$ 11.27	\$ 11.46
1 1/2"	\$ 17.14	\$ 17.44	\$ 17.75	\$ 18.06	\$ 18.37	\$ 18.69
2"	\$ 25.10	\$ 25.54	\$ 25.99	\$ 26.44	\$ 26.90	\$ 27.37
3"	\$ 43.68	\$ 44.44	\$ 45.22	\$ 46.01	\$ 46.82	\$ 47.64
4"	\$ 70.23	\$ 71.46	\$ 72.71	\$ 73.98	\$ 75.28	\$ 76.59
6"	\$ 136.58	\$ 138.97	\$ 141.40	\$ 143.88	\$ 146.39	\$ 148.96
<b>Variable Charge (a)</b>						
Winter (ccf)	\$ 1.99	\$ 2.02	\$ 2.06	\$ 2.10	\$ 2.13	\$ 2.17
Summer (ccf)	\$ 2.83	\$ 2.88	\$ 2.93	\$ 2.98	\$ 3.03	\$ 3.09

**D5. PROJECTED WATER RATE SCHEDULE (INSIDE FEDERAL WAY)**

According to the franchise agreement between the District and the City of Federal Way, the District pays to the City a franchise fee based on the amount of rate revenue from customers within the city limits. Initially the franchise fee was set at 3.6% of inside-City rate revenues. It will then increase to 3.8% in 2020 and 4.0% beginning in 2024. The City took over the payments to Puget Sound Energy for street lighting in that same area, and pays the District a public fire protection charge (“hydrant charge”) to account for the District’s provision of water for fire protection purposes. The Board’s policy direction was to separate inside-Federal Way and outside-Federal Way rate schedules, so the benefits and costs of the agreement affect just inside-City customers.

Because payments to the District for the hydrant charge exceed water franchise fee payments to the City, customers inside the City of Federal Way have rates that are approximately 2% lower than those same customers would have outside the City. These calculations take into account the impact that the additional revenues and payments have on the District’s taxes to the State.

**Exhibits 12 and 13** show the projected rate schedules through 2022 for customers within the City of Federal Way.

**Exhibit 12: Projected Inside-Federal Way Water Rate Schedule - Residential**

Inside City Rate Schedule						
	2017	2018	2019	2020	2021	2022
Annual System-Wide Rate Increase	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
Franchise Fee Increases	0.00%	0.00%	0.00%	0.20%	0.00%	0.00%
Total Increase	1.75%	1.75%	1.75%	1.95%	1.75%	1.75%
<b>Single Family Residential</b>						
<u>Fixed Monthly Charge</u>						
5/8"	\$ 12.31	\$ 12.53	\$ 12.74	\$ 12.99	\$ 13.22	\$ 13.45
3/4"	\$ 16.88	\$ 17.18	\$ 17.48	\$ 17.82	\$ 18.13	\$ 18.45
1"	\$ 26.00	\$ 26.46	\$ 26.92	\$ 27.44	\$ 27.92	\$ 28.41
1 1/2"	\$ 48.81	\$ 49.66	\$ 50.53	\$ 51.52	\$ 52.42	\$ 53.34
2"	\$ 76.19	\$ 77.52	\$ 78.88	\$ 80.42	\$ 81.83	\$ 83.26
<u>Existing Variable Charge Structure (3 blocks)</u>						
Block 1 (0-16 ccf/bi-month)	\$ 1.49	\$ 1.52	\$ 1.54	\$ 1.57	\$ 1.60	\$ 1.63
Block 2 (17-30 ccf/bi-month)	\$ 2.82	\$ 2.87	\$ 2.92	\$ 2.98	\$ 3.03	\$ 3.08
Block 3 (31+ ccf/bi-month)	\$ 4.17	\$ 4.24	\$ 4.32	\$ 4.40	\$ 4.48	\$ 4.56
<b>Multiple Residential Unit Structures (two or more units)</b>						
<u>Fixed Monthly Charge</u>						
Per Unit	\$ 6.91	\$ 7.03	\$ 7.15	\$ 7.29	\$ 7.42	\$ 7.55
<u>Variable Charge</u>						
Winter (ccf)	\$ 1.58	\$ 1.61	\$ 1.64	\$ 1.67	\$ 1.70	\$ 1.73
Summer (ccf)	\$ 1.58	\$ 1.61	\$ 1.64	\$ 1.67	\$ 1.70	\$ 1.73

**Exhibit 13: Projected Inside-Federal Way Water Rate Schedule – Non-Residential**

Inside City Rate Schedule						
	2017	2018	2019	2020	2021	2022
Annual System-Wide Rate Increase	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
Franchise Fee Increases	0.00%	0.00%	0.00%	0.20%	0.00%	0.00%
Total Increase	1.75%	1.75%	1.75%	1.95%	1.75%	1.75%
<b>Non-Residential (Includes Commercial, Irrigation, &amp; Public Authority)</b>						
<u>Fixed Monthly Charge</u>						
5/8"	\$ 12.31	\$ 12.53	\$ 12.74	\$ 12.99	\$ 13.22	\$ 13.45
3/4"	\$ 16.88	\$ 17.18	\$ 17.48	\$ 17.82	\$ 18.13	\$ 18.45
1"	\$ 26.00	\$ 26.46	\$ 26.92	\$ 27.44	\$ 27.92	\$ 28.41
1 1/2"	\$ 48.81	\$ 49.66	\$ 50.53	\$ 51.52	\$ 52.42	\$ 53.34
2"	\$ 76.19	\$ 77.52	\$ 78.88	\$ 80.42	\$ 81.83	\$ 83.26
3"	\$ 140.07	\$ 142.52	\$ 145.02	\$ 147.85	\$ 150.44	\$ 153.07
4"	\$ 231.32	\$ 235.37	\$ 239.49	\$ 244.17	\$ 248.44	\$ 252.79
6"	\$ 459.46	\$ 467.50	\$ 475.68	\$ 484.97	\$ 493.46	\$ 502.10
<u>Variable Charge</u>						
Winter (ccf)	\$ 1.95	\$ 1.98	\$ 2.02	\$ 2.06	\$ 2.09	\$ 2.13
Summer (ccf)	\$ 2.77	\$ 2.82	\$ 2.87	\$ 2.92	\$ 2.97	\$ 3.03
<b>Fire Protection (Sprinklers)</b>						
<u>Fixed Monthly Charge</u>						
5/8"	\$ 6.39	\$ 6.50	\$ 6.62	\$ 6.74	\$ 6.86	\$ 6.98
3/4"	\$ 7.70	\$ 7.83	\$ 7.97	\$ 8.13	\$ 8.27	\$ 8.41
1"	\$ 10.30	\$ 10.48	\$ 10.66	\$ 10.87	\$ 11.06	\$ 11.26
1 1/2"	\$ 16.80	\$ 17.09	\$ 17.39	\$ 17.73	\$ 18.04	\$ 18.36
2"	\$ 24.60	\$ 25.03	\$ 25.47	\$ 25.97	\$ 26.42	\$ 26.88
3"	\$ 42.80	\$ 43.55	\$ 44.31	\$ 45.18	\$ 45.97	\$ 46.77
4"	\$ 68.81	\$ 70.01	\$ 71.24	\$ 72.63	\$ 73.90	\$ 75.20
6"	\$ 133.83	\$ 136.17	\$ 138.56	\$ 141.26	\$ 143.73	\$ 146.25
<u>Variable Charge [a]</u>						
Winter (ccf)	\$ 1.95	\$ 1.98	\$ 2.02	\$ 2.06	\$ 2.09	\$ 2.13
Summer (ccf)	\$ 2.77	\$ 2.82	\$ 2.87	\$ 2.92	\$ 2.97	\$ 3.03

## E. SEWER UTILITY

### E1. SEWER CAPITAL FUNDING STRATEGY

The recommended sewer capital funding strategy is summarized in **Exhibit 14**.

#### Exhibit 14: Sewer Capital Funding Strategy

Capital Fund Summary	2017	2018	2019	2020	2021	2022	9-Year Total 2018 - 2026	Average 2018-2026
<b>Beginning Capital Balance</b>	\$ 24,175,842	\$ 21,387,225	\$ 18,171,660	\$ 10,245,517	\$ 5,167,405	\$ 4,904,136		
<b>Capital Revenues:</b>								
Rate Funded Capital Reinvestment:								
Minimum Policy Capital Reinvestment	\$ 3,218,007	\$ 3,218,007	\$ 3,367,858	\$ 3,577,189	\$ 3,775,955	\$ 3,937,919	\$ 34,744,654	\$ 3,860,517
Operating Surplus	430,817	896,227	822,358	699,532	285,134	69,758	2,773,009	308,112
Total Rate Funded Capital Reinvestment	\$ 3,648,823	\$ 4,114,233	\$ 4,190,216	\$ 4,276,721	\$ 4,061,089	\$ 4,007,677	\$ 37,517,663	\$ 4,168,629
Grants / Outside Sources	-	-	-	-	-	-	-	-
Capital Facilities Charges	2,161,250	1,662,500	625,550	628,678	631,821	634,980	6,755,356	750,595
Capacity Rental Revenue	159,552	159,552	159,552	159,552	159,552	159,552	1,435,968	159,552
Net Debt Proceeds Available for Projects	-	-	-	2,177,359	4,955,337	3,713,184	13,782,369	1,531,374
Interest Earnings	241,758	213,872	181,717	102,455	51,674	49,041	828,000	92,000
<b>Total Capital Resources</b>	<b>30,387,225</b>	<b>27,537,383</b>	<b>23,328,694</b>	<b>17,590,282</b>	<b>15,026,879</b>	<b>13,468,571</b>	<b>60,319,356</b>	<b>6,702,151</b>
<b>Capital Project Expenditures</b>	<b>(9,000,000)</b>	<b>(9,365,723)</b>	<b>(13,083,177)</b>	<b>(12,422,877)</b>	<b>(10,122,743)</b>	<b>(8,617,320)</b>	<b>(74,335,401)</b>	<b>(8,259,489)</b>
<b>Ending Capital Balance</b>	<b>\$ 21,387,225</b>	<b>\$ 18,171,660</b>	<b>\$ 10,245,517</b>	<b>\$ 5,167,405</b>	<b>\$ 4,904,136</b>	<b>\$ 4,851,251</b>	<b>\$ 14,016,045</b>	<b>\$ 1,557,338</b>
							Δ Fund Balance 2017-2026:	
<i>Minimum Target</i>	2,011,188	2,104,845	2,235,677	2,359,905	2,461,133	2,547,306		

- Again, no grants are assumed.
- Over the nine years from 2018 through 2026:
  - ◆ Total CFC and capacity rental revenue averages just over \$900,000 per year.
  - ◆ Total rate-funded capital reinvestment averages \$4.2 million per year, and interest earnings average about \$92,000 per year.
  - ◆ Fund reserves descend gradually from \$21.4 million to \$7.4 million by the end of 2026, which is the equivalent of allowing about \$1.6 million per year to be spent for capital purposes.
  - ◆ Capital expenditures average about \$8.3 million per year.
  - ◆ Total capital resources other than debt (including the drawdown of reserves) average about \$6.7 million per year, compared with \$8.3 million of capital expenditures per year.
- As a result, an average of \$1.5 million of debt proceeds is needed, or a total of \$13.8 million of debt proceeds over the 2018-2026 period. The need for debt funding begins in 2020 and continues through 2023, after which the annual rate-funded capital reinvestment amount is adequate to fund the annual capital program.

## E2. SEWER ANNUAL FINANCIAL FORECAST

The annual financial forecast for the sewer system is shown in **Exhibit 15**.

### Exhibit 15: Sewer Annual Financial Forecast

Operating Fund Summary	2017	2018	2019	2020	2021	2022
<b>Summary of Existing Operations Before Rate Increases</b>						
Rate Revenues	\$ 16,500,000	\$ 16,582,500	\$ 16,665,413	\$ 16,748,740	\$ 16,832,483	\$ 16,916,646
Other Revenues and Interest	\$ 823,353	\$ 834,394	\$ 835,743	\$ 837,675	\$ 841,152	\$ 847,204
Expenditures and Policy Transfers	\$ (16,892,536)	\$ (17,101,595)	\$ (17,666,879)	\$ (18,378,057)	\$ (19,346,061)	\$ (20,188,799)
Cash Surplus / (Deficiency)	\$ 430,817	\$ 315,299	\$ (165,723)	\$ (791,643)	\$ (1,672,425)	\$ (2,424,950)
<b>Annual Rate Increase</b>		<b>2.75%</b>	<b>2.75%</b>	<b>2.75%</b>	<b>2.75%</b>	<b>2.75%</b>
<b>Cumulative Rate Increase</b>		<b>2.75%</b>	<b>5.58%</b>	<b>8.48%</b>	<b>11.46%</b>	<b>14.53%</b>
<b>Revenues After Rate Increases</b>						
Rate Revenues (After Rate Increases)	\$ 16,500,000	\$ 17,038,519	\$ 17,594,613	\$ 18,168,858	\$ 18,761,844	\$ 19,374,183
Other Revenues & Interest	823,353	834,394	835,743	837,675	841,152	847,204
<b>Total Operating Revenues With Rate Increases</b>	<b>\$ 17,323,353</b>	<b>\$ 17,872,913</b>	<b>\$ 18,430,357</b>	<b>\$ 19,006,533</b>	<b>\$ 19,602,996</b>	<b>\$ 20,221,387</b>
<b>Cash Surplus / (Deficiency)</b>	<b>\$ 430,817</b>	<b>\$ 763,190</b>	<b>\$ 746,917</b>	<b>\$ 603,166</b>	<b>\$ 222,549</b>	<b>\$ (11,211)</b>
<b>Expenditures and Transfers</b>						
Cash Operating Expenses	\$ 13,419,512	\$ 13,486,207	\$ 13,903,277	\$ 14,231,934	\$ 14,688,323	\$ 15,071,759
Existing Debt Service	255,018	253,381	251,744	250,108	165,079	164,276
New Debt Service	-	-	-	174,826	572,704	870,846
Rate-Funded Capital Reinvestment Minimum	3,218,007	3,362,007	3,511,858	3,721,189	3,919,955	4,081,919
Additional Taxes After Rate Increase	-	8,127	16,561	25,310	34,386	43,799
Additions to Operating Fund Balance	-	10,964	68,559	47,634	81,415	(11,211)
Transfer of Surplus to Capital	430,817	752,227	678,358	555,532	141,134	-
<b>Total Expenditures and Transfers</b>	<b>\$ 17,323,353</b>	<b>\$ 17,872,913</b>	<b>\$ 18,430,357</b>	<b>\$ 19,006,533</b>	<b>\$ 19,602,996</b>	<b>\$ 20,221,387</b>
<i>Debt Service Coverage - Revenue Bonds</i>	24.1	n/a	n/a	28.7	8.9	6.1
<i>Debt Service Coverage - All Debt</i>	10.2	18.8	19.3	11.8	6.9	5.1

The forecast calls for rate increases of 2.75% per year. With these increases, operating reserves are projected to stay within the targeted O&M reserve range, and debt service coverage on all debt is projected to stay at or above 5.1 through 2022.

**Exhibit 16** shows the ending balance for each of the District's Sewer reserves.

### Exhibit 16: Ending Reserve Forecast - Sewer

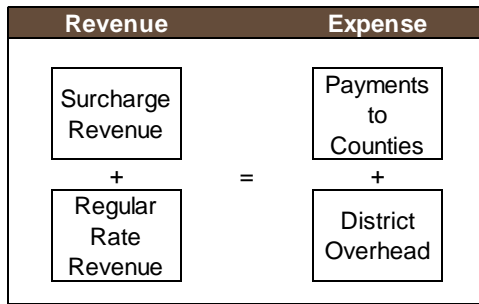
Ending Fund Balances	2017	2018	2019	2020	2021	2022
Operating Reserve	\$ 2,205,947	\$ 2,216,911	\$ 2,285,470	\$ 2,333,104	\$ 2,414,519	\$ 2,477,549
Capital Reserve	21,387,225	18,171,660	10,245,517	5,167,405	4,904,136	4,851,251
Debt Reserve	-	-	-	174,826	572,704	870,846
<b>Total</b>	<b>\$ 23,593,173</b>	<b>\$ 20,388,571</b>	<b>\$ 12,530,988</b>	<b>\$ 7,675,336</b>	<b>\$ 7,891,359</b>	<b>\$ 8,199,646</b>
Minimum Operating Target (45 days)	\$ 1,654,460	\$ 1,662,683	\$ 1,714,103	\$ 1,749,828	\$ 1,810,889	\$ 1,858,162
Minimum Capital Target (1%)	\$ 2,011,188	\$ 2,104,845	\$ 2,235,677	\$ 2,359,905	\$ 2,461,133	\$ 2,547,306

## E3. KING & PIERCE COUNTY TREATMENT SURCHARGES

One element of the sewer rate schedule is the volume surcharge added for those customers whose sewage flows into King County or Pierce County treatment plants. This surcharge is an incremental unit cost: it represents the difference between the unit cost of treatment by either King or Pierce County facilities and the unit cost of treatment by the District's own plants.

**Exhibit 17** shows the relationship between revenue and expenses applicable to these surcharges. The District's payments to the counties exceed the surcharge revenue—the two counties charge the District about \$1.1 to \$1.2 million per year, while the surcharge revenue is roughly \$300,000 per year. That is because the surcharge supplements regular rate revenue paid by these same customers. The sum of their share of the regular rate revenue plus surcharge revenue is equal to the wholesale treatment charges paid to the two counties plus a proportionate share of district overhead. There is no double-count in the calculation of the surcharge; the customers in those areas pay the regular rates plus the difference in costs applicable to the service they receive.

**Exhibit 17: Revenues and Expenses Related to King and Pierce County Treatment**



Because the surcharge is the difference between two larger independent variables, a relatively small percentage change in either the Lakehaven unit cost of treatment or the County unit cost of treatment can mean a large percentage change in the increment. To illustrate how this can happen, **Exhibit 18** shows a hypothetical situation in which a 5% increase in the unit cost of one of the counties could—if the District’s unit cost did not change—result in a 30% surcharge increase.

**Exhibit 18: Hypothetical Change in Incremental Cost**

Hypothetical Figures	Year 1	Year 2	% Change
County	\$120	\$126	5%
District	\$100	\$100	0%
Increment	\$20	\$26	30%

These large percentage swings can go in either direction—either up or down. That does not mean that the total customer bills in those areas go up or down so dramatically. It just means that the difference between what those King or Pierce County customers pay and what the majority of Lakehaven customers pay can widen or narrow in any given year.

For 2018, the difference between King and Pierce County costs and the treatment costs at Lakehaven’s own treatment plants is narrowing—by a small amount for King County, by a larger amount for Pierce County.

The updated surcharge calculation is shown in **Exhibit 19**.

**Exhibit 19: County Treatment Surcharge Summary for 2018**

County Treatment Surcharges	Pierce County	King County
<b>County Treatment Surcharges</b>		
Unit Treatment Cost (per RCE)	\$41.77	\$44.22
Unit Treatment Cost (per ccf)	\$5.57	\$5.90
<b>Unit Cost of Treatment (per ccf)</b>		
County Areas	\$5.57	\$5.90
Lakehaven Treatment Plants	\$3.83	\$3.83
<b>2018 Surcharge (per ccf)</b>	<b>\$1.74</b>	<b>\$2.06</b>
<i>Difference in Unit Cost of Treatment (per ccf)</i>		

The surcharges were calculated using projected 2018 cost data for the District compared with estimated costs for each jurisdiction in the same year. The analysis results in a surcharge of \$1.74 per ccf for Pierce County and \$2.06 per ccf for King County.

The newly updated surcharges represent a \$0.23 per ccf decrease for the Pierce County surcharge and a \$0.05 per ccf decrease for the King County surcharge when compared to the adopted 2018 surcharges for the area outside Federal Way. The Pierce County decrease is attributable mainly to a reduction in the amount of account administration costs charged by Pierce County to the applicable budget line items in 2016.

## E4. PROJECTED SEWER RATE SCHEDULE (OUTSIDE FEDERAL WAY)

Exhibit 20 shows rates through 2022 that apply to customers outside the City of Federal Way.

### Exhibit 20: Projected Outside-Federal Way Sewer Rate Schedule

Outside City Rate Schedule						
	2017	2018	2019	2020	2021	2022
System-Wide Rate Increases		2.75%	2.75%	2.75%	2.75%	2.75%
<b>Fixed Monthly Charge</b>	<b>\$12.75</b>	\$13.10	\$13.46	\$13.83	\$14.21	\$14.60
<b>Volume Charges</b>						
Single Family	\$2.67	\$2.74	\$2.82	\$2.90	\$2.98	\$3.06
Multi Family	\$2.67	\$2.74	\$2.82	\$2.90	\$2.98	\$3.06
CDC #1	\$2.67	\$2.74	\$2.82	\$2.90	\$2.98	\$3.06
CDC #2	\$4.16	\$4.27	\$4.39	\$4.51	\$4.64	\$4.76
CDC #3	\$5.65	\$5.81	\$5.97	\$6.13	\$6.30	\$6.47
CDC #4	\$7.13	\$7.33	\$7.53	\$7.73	\$7.95	\$8.17
CDC #5	\$8.62	\$8.86	\$9.10	\$9.35	\$9.61	\$9.87
<b>Surcharges: per CCF</b>						
Pierce County	\$1.91	\$1.74	\$1.78	\$1.83	\$1.88	\$1.93
King County	\$2.06	\$2.06	\$2.12	\$2.18	\$2.24	\$2.30

## E5. PROJECTED SEWER RATE SCHEDULE (INSIDE FEDERAL WAY)

According to the franchise agreement, the District pays the City of Federal Way a franchise fee based on sewer rate revenue inside the City, just as it does for water revenue. The percentages are the same as for water—3.6% initially, then 3.8% in 2020, then 4.0% in 2024. In the case of the sewer franchise fee, there is no offsetting hydrant fee revenue. So sewer customers that are inside the City must pay the full franchise fee, plus any applicable taxes.

Exhibit 21 shows the projected rate schedule through 2022 for customers inside the City of Federal Way. Because of the tax impact of the franchise agreement, their rates are approximately 4% higher than the rates for outside-City customers.

### Exhibit 21: Projected Inside-Federal Way Sewer Rate Schedule

Inside City Rate Schedule						
	2017	2018	2019	2020	2021	2022
Annual System-Wide Rate Increase	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%
Franchise Fee Increase	0.00%	0.00%	0.00%	0.20%	0.00%	0.00%
Total Increase	2.75%	2.75%	2.75%	2.96%	2.75%	2.75%
<b>Fixed Monthly Charge</b>	<b>\$13.24</b>	\$13.60	\$13.97	\$14.36	\$14.75	\$15.19
<b>Volume Charges</b>						
Single Family	\$2.77	\$2.85	\$2.93	\$3.01	\$3.09	\$3.18
Multi Family	\$2.77	\$2.85	\$2.93	\$3.01	\$3.09	\$3.18
CDC #1	\$2.77	\$2.85	\$2.93	\$3.01	\$3.09	\$3.18
CDC #2	\$4.32	\$4.44	\$4.56	\$4.68	\$4.81	\$4.96
CDC #3	\$5.87	\$6.03	\$6.19	\$6.36	\$6.54	\$6.73
CDC #4	\$7.40	\$7.60	\$7.81	\$8.03	\$8.25	\$8.49
CDC #5	\$8.95	\$9.19	\$9.45	\$9.71	\$9.97	\$10.27
<b>Surcharges: per CCF</b>						
Pierce County	\$1.99	\$1.80	\$1.85	\$1.90	\$1.95	\$2.01
King County	\$2.13	\$2.14	\$2.20	\$2.26	\$2.32	\$2.39

## F. RATE COMPARISONS

**Exhibit 22** shows how the recommended sewer and water rates for the District compare with other regional jurisdictions. The District’s rates continue to be noticeably lower than those of most other sewer and water systems in the survey group.

The rates used for this survey comparison reflect how they are stated on each jurisdiction’s website, so they may or may not include City utility taxes. We show the Lakehaven rates both inside and outside the City of Federal Way—it does not change the relative position of the District’s rates. The water survey assumes 7 ccf per month of usage. The sewer survey assumes 6 ccf per month, since less water is used during winter months

### Exhibit 22: Comparative Utility Rate Survey

Single Family Residence - Water		
#	Jurisdiction	Rate
1	LWSD 2017 (Inside)	\$22.74
2	LWSD 2018 (Inside)	\$23.14
3	LWSD 2017 (Outside)	\$23.21
4	LWSD 2018 (Outside)	\$23.62
5	Puyallup	\$24.91
6	Lacey	\$25.78
7	Olympia	\$28.69
8	Soos Creek WSD	\$30.84
9	Redmond	\$32.42
10	Tacoma (Winter)	\$33.98
11	Tacoma (Summer)	\$34.89
12	Renton	\$37.12
13	Auburn	\$38.52
14	Kent	\$39.95
15	Highline WD (Winter)	\$40.25
16	Kirkland	\$44.02
17	Bellevue	\$47.25
18	Seattle (Winter)	\$51.20
19	Skyway WSD	\$51.90
20	Seattle (Summer)	\$54.68

Assumes 7 ccf per month

Jurisdictions = City unless noted with WSD or WD  
(Water & Sewer District or Water District)

Single Family Residence - Sewer		
#	Jurisdiction	Rate
1	Midway SD	\$26.00
2	LWSD 2017 (Outside)	\$28.77
3	LWSD 2018 (Outside)	\$29.56
4	LWSD 2017 (Inside)	\$29.86
5	LWSD 2018 (Inside)	\$30.68
6	SWSSD	\$32.75
7	Puyallup	\$50.49
8	Tacoma	\$50.70
9	Lacey	\$57.48
10	Redmond	\$58.37
11	Olympia	\$59.35
12	Soos Creek WSD	\$62.25
13	Kent	\$66.38
14	Bellevue	\$68.52
15	Auburn	\$69.11
16	Kirkland	\$72.01
17	Renton	\$72.98
18	Tukwila	\$73.22
19	Seattle	\$77.58
20	Skyway WSD	\$85.50

Assumes 6 ccf per month

SWSSD = Southwest Suburban Sewer District.

## G. CAPITAL FACILITIES CHARGES

### G1. INTRODUCTION TO CFC

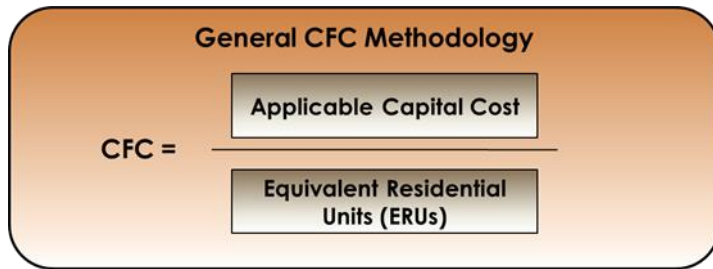
A Capital Facilities Charge (CFC) is a one-time charge imposed when a property is developed or redeveloped to a higher density. For utilities, CFCs are a common tool to ensure equity between new and existing customers, by assigning to new customers a proportionate share of the capital cost of the existing system and the planned cost of future capital improvements. In general, a CFC represents the unit cost of capacity. CFC revenue may only be used for capital expenditures.

A CFC may have other names. The most generic name is “connection charge,” but it may also be a General Facilities Charge, System Development Charge, Improvement Charge, System Investment Fee, Capacity Charge, or other names. The common idea is that the fee recovers a share of general capital investment in the system, separate from the cost of inspections or meter installation.

The basic approach to a CFC calculation is illustrated in **Exhibit 23**.



### Exhibit 23: Approach to CFC Calculation



The CFC has a numerator and a denominator. The numerator is the cost basis. The denominator is the number of units to which those costs apply. The applicable customer base is measured in Equivalent Residential Units (ERUs). The ERUs should be measured in the same manner that is used when a property owner shows up at the development counter and is charged a CFC for a new building. In other words, when it comes to defining the ERU, the *calculation* of the CFC should match the *administration* of the CFC.

## G2. COST COMPONENTS - NUMERATOR

The capital costs used in the CFC calculation can be separated into two major categories:

- **Existing System:** The *existing cost basis* consists of the District's net investment in assets, both in-service assets and construction work-in-progress. The existing cost basis starts with original costs as actually paid by the District. We do not subtract depreciation; we do not add inflation to replicate "replacement cost"; we do not include costs paid for by other sources such as developers or grants. We do adjust for accrued interest and net debt principal.
- **Future Capital Projects:** The *future cost basis* refers to the projected cost of capital projects that the utility plans to undertake within the next ten years, as defined in the District's adopted comprehensive capital improvement plan (CIP). Future capital costs are classified by the District into one of three categories, depending on the reason for the capital expenditure:
  - ◆ **Repair & Replacement (R&R) Projects:** These projects are to replace existing infrastructure due to wear and tear over time. These projects do not increase system capacity and are not upgrades to functionality or regulatory compliance. These costs are typically excluded from the CFC calculation, since they are assumed to be repairing or replacing fixed assets that are already accounted for in the existing cost basis.
  - ◆ **Upgrade Projects:** These projects broadly benefit both existing and future customers without increasing system capacity. Examples might include construction of an operations facility, improving system security, or projects driven by new regulations.
  - ◆ **Expansion Projects.** These projects primarily increase system capacity to serve additional customers. They may include main extensions, investments in conservation programs, treatment plant expansions, or pipe upsizing projects.

The District's CFC calculation only includes future capital projects that are upgrades or expansion projects; R&R projects are excluded from the future cost basis. However, after an R&R project is constructed, it is then included in the existing cost basis, and the old asset that is replaced by an R&R project is retired from the District's asset inventory when it is no longer in service.

A single capital project may have components in more than one of these groups, in which case the District provided an estimate of the percentage of project cost applicable to each classification. For example, a pipe being replaced by a larger pipe may be considered to be 50% R&R and 50% expansion if the new pipe has twice the capacity of the older pipe.



### G3. EQUIVALENT RESIDENTIAL UNITS (ERUS) – DENOMINATOR

In the calculation of a CFC, an important variable is the number of ERUs over which the cost basis is to be spread. The more ERUs, the lower the resulting CFC; the fewer the number of ERUs, the higher the resulting CFC. The number of ERUs, in turn, is affected by the definition of an ERU.

An equivalent residential unit (ERU) is not really a hard number that can be directly counted—such as the number of accounts or meters. Instead, the ERU is a measure of equivalent demand—the amount of demand that a non-single family account places on the system in relation to an average single family account. The purpose of the ERU is simply to maintain equitable proportions—between single-family and other customers, and between existing customers and future customers.

- **Single Family Customers:** When it comes to their impact on the system, single family customers are relatively homogenous and can reasonably be averaged together. That is why the ERU is a useful measurement. By definition, one single family account equals 1.0 ERU, and the average demand for single family accounts is the starting point in defining an ERU for other customer classes.
- **Multi-Family Customers:** Based on historical water and sewer consumption flows, along with input from District staff, one multi-family unit is assumed to be 0.75 ERU.
- **Non-Residential Customers:** Non-residential customers vary widely in their impact on water and wastewater systems, and there is not a simple number of units that can be counted in a commercial or industrial property that will automatically yield a demand equivalence to single family customers. Some utilities base the non-residential ERU on meter size, which makes sense for water but is problematic for wastewater. The District has chosen another common approach, which is to base the non-residential ERU on estimated water usage for a particular development.

The current non-residential ERU is based on a standard 248 gallons per day for water and 210 gallons per day for wastewater. That is not changing in this study.

### G4. CALCULATION METHODOLOGY

#### a) Water Calculation Methodology

The water methodology calculates separate CFCs for water supply and non-supply, then adds them together.

- For the *non-supply* part of the CFC, we use an integrated approach, in which the combined cost of existing and future assets is divided by the projected future number of ERUs. Because capacity figures are not available for the transmission and distribution system, the denominator is based on the projected demand. The time frame for all projections is ten years.
- The *supply* calculation is separated from the rest of the water system because the District has made a significant commitment to two new types of supply capacity: the Tacoma Second Supply Project (SSP) and the Optimization of Aquifer Storage for Increased Supply (OASIS) project, and the capital cost of the SSP and OASIS is significantly higher per ERU than the capital cost of the District's wells. (The operating cost associated with SSP is lower than that of the wells, but the CFC recovers capital costs, not operating costs.)

For the supply part of the CFC, we use an incremental methodology, one that ignores the current investment in wells to the degree that well capacity is already used. The existing investment in unused well capacity, plus the existing investment in SSP and OASIS (which also represents unused capacity), is added to projected future costs related to SSP and OASIS to determine the total cost basis. This cost basis is divided by the total capacity for SSP and OASIS plus unused well capacity, all expressed in ERUs. This approach is illustrated in **Exhibit 24**.

### Exhibit 24: Calculation Methodology for Water CFC



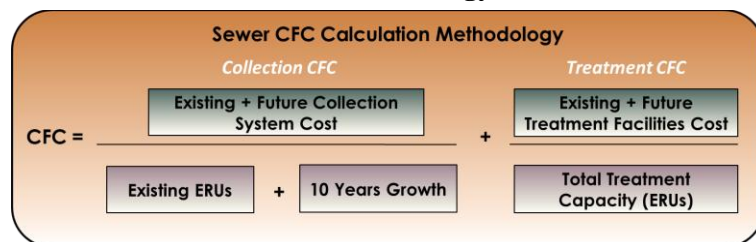
Using the incremental approach to recover supply costs ensures that new customers are paying for the marginal cost of supply capacity—in other words, growth is paying for the cost of growth. Normally, our preferred methodology is the integrated methodology, but in this case, there is such a large and readily identifiable difference between the historical and future costs of supply capacity that it makes sense to assign the less expensive infrastructure to existing customers and the more expensive infrastructure to new customers.

### b) Wastewater Calculation Methodology

The methodology calculates separate CFCs for wastewater collection and treatment, then adds them together. This approach yields a “Collection Only” CFC, which applies to areas that will continue to flow toward King County treatment plants.

Both the Collection and Treatment CFC use the integrated methodology—existing and future costs divided by total future ERUs. The only difference between them is how future ERUs are estimated. For the Treatment CFC, the denominator is total plant capacity, whereas for the Collection CFC, the denominator is ten-year projected demand. This is illustrated in **Exhibit 25**.

### Exhibit 25: Calculation Methodology for Wastewater CFC



## H. WATER CFC CALCULATION

This section summarizes the data used to calculate the Water CFC and the resulting recommended charges, starting with the numerator.

### H1. EXISTING AND FUTURE COST BASIS - WATER

**Exhibit 26** summarizes the existing system assets through the end of December 2016, plus Construction Work in Progress (CWIP). It shows the adjustments to exclude the cost of Meters & Services and any donated or grant funded assets. It adds up to 10 years of interest on booked assets, and it deducts any net outstanding debt principal.

The total existing cost basis is just over \$63 million for the non-supply component and \$98 million for the supply component. Based on calculations shown in the next section, only 6% of total well capacity is unused, so only 6% of existing investment related to wells is shown.

The exhibit then shows future capital costs from the 10-year CIP. Repair and Replacement (R&R) projects are excluded, and upgrade projects related to meters and services are also excluded. The

result is multiplied by the 60% CIP realization factor. After applying this factor, the total future cost basis is \$24.5 million for non-supply and \$13.1 million for the supply function.

The total existing plus future cost basis is about \$88 million for non-supply costs; this is the numerator for the non-supply component of the water CFC. The numerator for supply costs is just under \$111.5 million.

**Exhibit 26: Existing and Future Cost Basis for Water CFC**

Water Utility Costs Description	Non-Supply	Supply			Total
		SSP	OASIS	Wells-Unused Capacity	
Unused Well Capacity				6%	
<b>Existing Cost Basis</b>					
Plant-in-Service	\$ 106,049,866	\$ 66,669,288	\$ 5,629,821	\$ 863,537	\$ 179,212,512
plus: Construction Work in Progress	1,481,235	-	-	105	1,481,340
less: Meters and Services	(13,382,739)	-	-	-	(13,382,739)
less: Grants and Contributions	(53,268,444)	-	-	-	(53,268,444)
Original Cost Basis	\$ 40,879,918	\$ 66,669,288	\$ 5,629,821	\$ 863,641	\$ 114,042,669
plus: Up to 10 Years Interest	\$ 22,370,318	\$ 22,759,277	\$ 1,940,840	\$ 466,165	\$ 47,536,601
Less: Net Outstanding Debt Principal					
Outstanding Debt Principal	\$ -	\$ (20,477,441)	\$ -	\$ (46,595)	\$ (20,524,036)
Offset: Existing Cash Balances	-	25,134,753	-	3,525	25,138,278
Less: Net Outstanding Debt Principal	\$ -	\$ -	\$ -	\$ (43,070)	\$ (43,070)
<b>Total Existing Cost Basis</b>	<b>\$ 63,250,236</b>	<b>\$ 89,428,565</b>	<b>\$ 7,570,662</b>	<b>\$ 1,286,736</b>	<b>\$ 161,536,200</b>
<b>Future Cost Basis</b>					
Repair & Replacement Projects	\$ 15,918,168	\$ -	\$ -	\$ 300,000	\$ 16,218,168
Upgrade & Expansion Projects	55,338,676	2,358,862	18,752,124	713,742	77,163,404
Total Projects	\$ 71,256,844	\$ 2,358,862	\$ 18,752,124	\$ 1,013,742	\$ 93,381,572
less: Non Meter R&R Projects	\$ (9,221,616)	\$ -	\$ -	\$ (300,000)	\$ (9,521,616)
less: Meters and Services - Upgrade	(14,539,311)	-	-	-	(14,539,311)
Total Eligible Planned Projects	\$ 47,495,917	\$ 2,358,862	\$ 18,752,124	\$ 713,742	\$ 69,320,645
Assumed CIP Realization Factor	60%	60%	60%	60%	60%
Future Cost Basis Assumed in CFC	\$ 28,497,550	\$ 1,415,317	\$ 11,251,274	\$ 428,245	\$ 41,592,387
<b>Total Cost Basis</b>	<b>\$ 91,747,786</b>	<b>\$ 90,843,883</b>	<b>\$ 18,821,936</b>	<b>\$ 1,714,981</b>	<b>\$ 203,128,587</b>

**H2. EQUIVALENT RESIDENTIAL UNITS (ERUS) - WATER**

As we mentioned earlier, the way CFCs are calculated should match the way that they are actually charged at the permit counter. For Water, this means that each single-family residential unit counts as 1.0 ERU, each multi-family residential unit counts as 0.75 ERUs, and one ERU for non-residential development is equivalent to 248 gallons per day of average daily demand. Using these rules, we can estimate the total ERUs for both non-supply and supply functions.

**a) Non-Supply Component - Existing ERUs Base + Growth**

Unlike water supply facilities (dams and reservoirs and wells), pipes in the water transmission and distribution system do not have a single estimate of capacity. However, the Water System Plan develops a CIP intended to be adequate for future growth, so capacity must be at least the amount of demand projected in the System Plan. Since the future cost basis uses a 10-year time horizon from the base year of 2016, we use the ten-year projected demand (in ERUs) as the denominator for the non-supply part of the water system.

Projecting the number of ERUs in 2026 for the non-supply function is a three-step process, shown in **Exhibit 27**. First, the number of accounts from a 2016 customer billing system download are converted to ERUs. Then the demand growth projections in Table 4.8 of the 2015 Water System Plan are converted to an annual growth rate. Finally, that annual growth rate is applied to the 2016 ERUs to yield 2026 projected ERUs. The result is a denominator of 51,865 ERUs.

**Exhibit 27: Projected 2026 ERUs for Water Transmission and Distribution System**

Projected 2026 ERUs for Water Transmission and Distribution System				
Gallons per Day (gpd) per ERU	248	Gpd assumption based on 2015 Water Comp Plan "High" page 4-8.		
ERU Calculator	Conversion	2016 Data	Unit	ERUs
Single Family	1.00	26,169	Accounts	26,169
Multi Family	0.75	16,773	Dwelling Units	12,580
Non-Residential *	121.02	942,945	Annual ccf	7,792
<b>Total, assuming 248 gallons/day for Non-Residential</b>				<b>46,540</b>
* Annual CCF per ERU=(248 gpd * 365 days) ÷ 748 gal per CCF				
Calculating Projected Growth Rate in Average Daily Demand (ADD)				
Year	ADD (Medium Demand) [a]	Total % Growth Above 2014	Compound Annual Growth Rate Above 2014	
2014	11.10			
2020	11.95	8%	1.24%	
<b>2024</b>	<b>12.37</b>	11%	<b>1.09%</b>	
2034	13.47	21%	0.97%	
2040	14.15	27%	0.94%	
<i>[a] Per Table 4.8 in 2015 Water System Plan</i>				
Escalating ERUs to 2026				
Year	Growth	Projected ERUs		
2016	1.09%	46,540		
2017	1.09%	47,047		
2018	1.09%	47,559		
2019	1.09%	48,077		
2020	1.09%	48,601		
2021	1.09%	49,130		
2022	1.09%	49,666		
2023	1.09%	50,207		
2024	1.09%	50,753		
2025	1.09%	51,306		
2026	1.09%	<b>51,865</b>		

**b) Water Supply Component - Unused Capacity**

Exhibit 28 shows the source of our estimate for unused water capacity, which is the denominator for the supply component.

- Wells: The most recent estimate of the average annual reliable groundwater yield was 12.3 mgd, from the 2015 Water System Plan (Section 7.2.1), equivalent to 49,597 ERUs. We previously estimated that 46,540 ERUs are currently being served, which implies that 3,057 ERUs (or 6% of the well capacity) is currently unused.
- Second Supply Project (SSP): The SSP estimate is based an assumption taken from the 2015 Water System Plan that 60% of the District’s water right from SSP would be reliable, resulting in 30,578 ERUs of capacity. The 60% assumption implies that only 7.6 mgd of the 12.6 mgd water right can be counted on to be available on an annual average basis, per the WSP.
- OASIS: The OASIS estimate is constrained by the Phase I infiltration capacity at Panther Lake, currently estimated to be 4.4 mgd in the 2015 WSP (section 6.4.1.4). This results in 17,742 ERUs of capacity.

### Exhibit 28: Unused Capacity per Water Supply Source

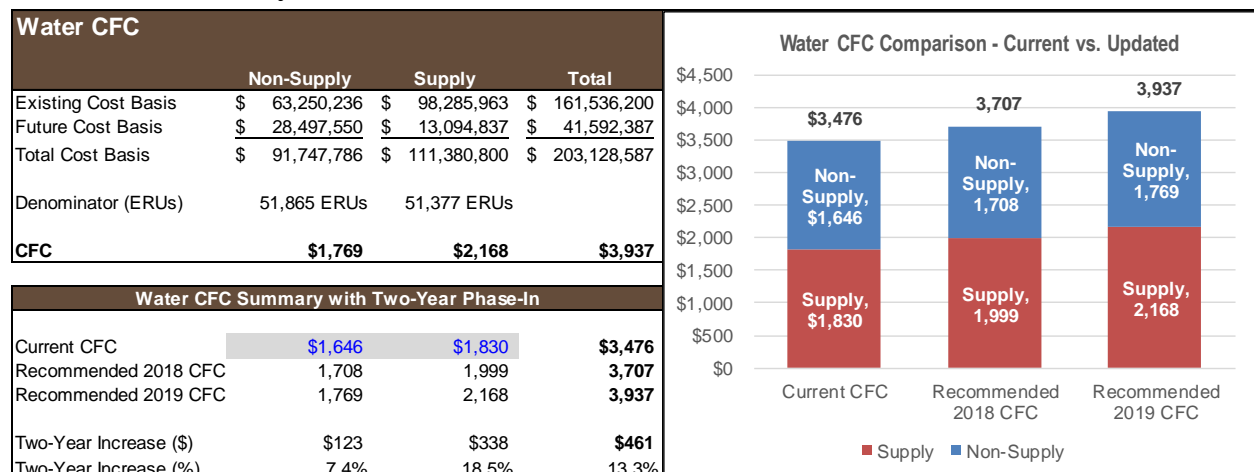
Description	Use	Sources			Total
	Existing ERUs Served	Wells	Second Supply Project	OASIS	
Conversion Factor (per 2015 Comprehensive Plan)		248 gpd/ERU	248 gpd/ERU	248 gpd/ERU	
<b>Wells:</b>					
Avg Annual Reliable Groundwater Yield		12,300,000 gpd			
Total Well Capacity		49,597 ERUs			
Less: Current Well Usage (Existing System ERUs)		-46,540 ERUs			
Unused Well Capacity		3,057 ERUs		6% (Unused well capacity)	
<b>Second Supply Project (SSP):</b>					
Total Expansion in Supply			65,000,000 gpd		
District Entitlement			19.44%		
Assumed Percentage Reliable			60.00%		
Adjusted Growth in Supply			7,583,333 gpd		
Incremental Growth in ERUs			30,578 ERUs		
<b>OASIS:</b>					
Expansion in Supply for Phase I				4,400,000 gpd	
Incremental Growth in ERUs				17,742 ERUs	
<b>Total Capacity</b>		49,597 ERUs	30,578 ERUs	17,742 ERUs	97,917 ERUs
<b>Existing ERUs Served</b>	46,540 ERUs				46,540 ERUs
<b>Unused Capacity</b>		3,057 ERUs	30,578 ERUs	17,742 ERUs	51,377 ERUs

Across all three sources, the District has 97,917 ERUs of capacity, of which 46,540 ERUs are already being served. Under the incremental approach to the supply CFC described earlier, the denominator in the calculation of the water supply CFC is the unused part of total capacity, or 51,377 ERUs.

### H3. SUMMARY OF WATER CFC CALCULATION

Exhibit 29 summarizes the calculation of the Water CFC and compares the recommended charge with the current CFC.

#### Exhibit 29: Summary of Water CFC Calculation



In total, the Water CFC is projected to change from \$3,476 per ERU to \$3,937 per ERU. This amounts to an increase of \$461, or 13.3%. We suggest that this update be phased in over two years, as shown above.

## H4. WATER BUY-IN UNIT COSTS FOR CAPITAL RENTAL CHARGES

The District uses a different approach for the capacity rental charges than for new development. Capacity rental charges are paid not by new customers but by existing customers who occupy properties for which not enough capacity was paid for at the time those properties were originally connected to the system. The “growth pays for growth” rationale does not apply as well to these customers, so the recommended method for the capacity rental charge is a simple “buy-in charge,” which ignores future costs and future capacity to be developed. It is the cost basis for existing assets divided by total existing capacity.

As shown in **Exhibit 30**, the Water buy-in charge is calculated at \$2,604 per ERU, which is a 6.8% increase from the existing buy-in charge of \$2,439. Note that the recommended buy-in charge is less than the recommended CFC of \$3,476. In order to prevent new development from trying to “game” the system by minimizing their ERUs at the time of connection and then buying additional capacity at a reduced rate, we recommend that existing customers opting to permanently buy additional capacity pay the full CFC rate. However, as long as they are in “rental” status, paying extra monthly charges in lieu of buying additional units of capacity, we recommend that the rate they pay be based on a buy-in unit cost of \$2,604.

### Exhibit 30: Water CFC – Buy-in Unit Costs Recommended for Capacity Rental Charges

Buy-in Unit Cost for Capacity Rental Charges - Water System			
	Non-Supply	Supply	Total
<b>Existing Cost Basis (incl. 100% of Wells, excl. OASIS)</b>	\$ 63,250,236	\$ 111,006,008	\$ 174,256,244
<b>Total Capacity (excl. OASIS)</b>	51,865 ERUs	80,175 ERUs	Weighted Avg 66,917 ERUs
<b>Buy-in Unit Cost</b>	\$1,220	\$1,385	<b>\$2,604</b>
<b>Existing Water Buy-in Unit Cost</b>			<b>\$2,439</b>
<b>Change in Buy-In Unit Cost (\$)</b>			\$165
<b>Change in Buy-In Unit Cost (%)</b>			6.8%

## I. WASTEWATER CFC CALCULATION

### II. EXISTING AND FUTURE COST BASIS – WASTEWATER

To calculate the cost basis, or numerator, for the wastewater system, we use the same basic methodology that we used for the water system cost basis, except that wastewater costs are allocated between collection and treatment functions rather than supply and non-supply. The reason for this functional distinction for Wastewater is that some of the District’s new development occurs in areas served by King County treatment plants. Those customers are required to pay the equivalent of a treatment CFC to King County, so the Lakehaven CFC charged to them is a collection-only CFC.

For both the existing and future cost basis for Wastewater, we deduct the cost of the sewer trunk line upsizing in the Federal Way City Center area, since that is part of the cost basis for an “early comer charge” that is charged separately to developing or redeveloping property owners in that area. The early comer charge is like a local facilities charge, but it is collected before and during the construction of the expanded trunk line in the City Center area. After the trunk line is complete, the early comer charge will be converted to a standard Local Facilities Charge.

The CIP realization factor for the wastewater capital program is assumed to be 60%. This assumption was chosen by District staff based on their expected pace of actual construction for the treatment facilities upgrades called for in the 10-year CIP.



**Exhibit 31** summarizes the existing and future cost basis for the Wastewater CFC, both collection and treatment components.

**Exhibit 31: Existing and Future Cost Basis for Wastewater CFC**

<b>Wastewater Utility Costs</b>	<b>Collection</b>	<b>Treatment</b>	<b>Total</b>
<b>Existing Cost Basis</b>			
Plant-in-Service	\$ 101,707,149	\$ 84,619,243	\$ <b>186,326,392</b>
plus: Construction Work in Progress	\$ 800,195	\$ 4,342,632	\$ <b>5,142,827</b>
less: Downtown Sewer Trunk	\$ (2,850,624)	\$ -	\$ <b>(2,850,624)</b>
less: Grants and Contributions	\$ (56,983,368)	\$ (34,762,107)	\$ <b>(91,745,475)</b>
Original Cost Basis	\$ 42,673,352	\$ 54,199,768	\$ <b>96,873,120</b>
plus: Up to 10 Years Interest	\$ 26,623,882	\$ 30,986,908	\$ <b>57,610,790</b>
Less: Net Outstanding Debt Principal			
Outstanding Debt Principal	\$ -	\$ (1,953,635)	\$ <b>(1,953,635)</b>
Offset: Existing Cash Balances	\$ 11,658,059	\$ 14,806,995	\$ <b>26,465,054</b>
Less: Net Outstanding Debt Principal	\$ -	\$ -	\$ -
<b>Total Existing Cost Basis</b>	<b>\$ 69,297,233</b>	<b>\$ 85,186,676</b>	<b>\$ 154,483,909</b>
<b>Future Cost Basis</b>			
Repair & Replacement Projects	\$ 7,709,775	\$ 24,751,237	\$ <b>32,461,011</b>
Upgrade & Expansion Projects	\$ 46,058,026	\$ 41,150,230	\$ <b>87,208,255</b>
Total Projects	\$ 53,767,801	\$ 65,901,466	\$ <b>119,669,267</b>
Less: Downtown Trunk	\$ (5,000,955)		\$ <b>(5,000,955)</b>
Total Eligible Planned Projects	\$ 48,766,846	\$ 65,901,466	\$ 114,668,312
Assumed CIP Realization Factor	60%	60%	60%
<b>Future Cost Basis Assumed in CFC</b>	<b>\$ 24,634,243</b>	<b>\$ 24,690,138</b>	<b>\$ 49,324,380</b>
<b>Total Existing and Future Cost Basis</b>	<b>\$ 93,931,476</b>	<b>\$ 109,876,814</b>	<b>\$ 203,808,290</b>

After accounting for the various additions and deductions to the cost of plant-in-service, the total wastewater cost basis is about \$94 million for collection facilities and \$110 million for treatment facilities, or \$204 million for the entire wastewater system.

**12. EQUIVALENT RESIDENTIAL UNITS (ERUS) – WASTEWATER**

We described in Section G3 (on page 19) the key assumptions in determining the number of ERUs for the wastewater system: each single-family customer is 1.0 ERU, each multi-family dwelling unit is assumed to be 0.75 ERUs, and non-residential developments are assumed to be one ERU for every 210 gallons per day of projected flow.

We also described in Section G4(b) (on page 20) the “integrated” calculation methodology that is used for both the collection component and the treatment component of the wastewater CFC: total existing plus future costs divided by total future customers. The denominator in that calculation is the projected number of future ERUs.

For the same reasons we discussed with the Water CFC, we use different ways of estimating future ERUs for the two wastewater components. Wastewater treatment plants have an identified estimate of capacity—the total for the District’s two plants is 15.6 mgd—so we use that estimate as the denominator for the treatment component. The pipes making up the sewer collection system do not have a single capacity estimate, but since the 10-year CIP is designed to ensure that all of the pipes are at least large enough to meet projected flows over the ten-year planning period, we use current ERUs plus ten years of growth as the denominator for the collection component.

**a) Collection System Component – Existing ERUs plus Growth**

**Exhibit 32** shows how the projected number of ERUs was developed for the collection system.

**Exhibit 32: Projected 2026 ERUs for Wastewater Collection System**

Projected 2026 ERUs for Wastewater Collection System				
ERU assuming only 50% of I&I (gpd)	210			
ERU Calculator for All Customers	Conversion	2016 Data	Unit	ERUs
Single Family	1.00	21,579	Accounts	21,579
Multi Family	0.75	15,818	Dwelling Units	11,864
Non-Residential *	102.47	553,010	Annual ccf	5,397
<b>Total</b>				<b>38,839</b>
* Annual CCF per ERU=(210 gpd * 365 days) ÷ 748 gal per CCF				
Calculating Annual Growth in ADD				
Description	Value	Year		
Starting ADD (from Water System Plan)	11.10	2014		
Ending ADD (from Water System Plan)	12.37	2024		
Source: 2015 Water System Plan, Table 4.8				
Total Change	11.44%			
Total Years	10			
Compound Average Growth Rate	1.09%			
Adding Growth to Total ERUs (Includes Collection-Only ERUs)				
Year	Growth	ERUs		
2016		38,839		
2017	1.09%	39,262		
2018	1.09%	39,690		
2019	1.09%	40,122		
2020	1.09%	40,559		
2021	1.09%	41,001		
2022	1.09%	41,448		
2023	1.09%	41,899		
2024	1.09%	42,355		
2025	1.09%	42,817		
2026	1.09%	43,283		

The logical flow of this table is similar to that shown in **Exhibit 27** (on page 22) for the water non-supply ERUs. Using actual 2016 data from the billing system, we used the number of single-family accounts, multi-family dwelling units, and the annual metered water usage (assuming 210 gpd) to generate an estimate of 38,839 current ERUs. The 2015 Water System Plan projects that water demand will grow by an average of 1.09% per year. Applying that factor to wastewater demand as well, the resulting ten-year projection is 43,283 ERUs. This serves as the denominator for the collection-only CFC and the collection component of the total wastewater CFC. This total includes not only new development flowing toward the District’s Lakota and Redondo treatment plants and toward Pierce County (areas which are charged the full CFC) but also the new development flowing toward King County, which is subject to the “collection only” CFC.

**b) ERUs for Treatment Component**

For the treatment component, there is no need for a growth forecast, because the number of ERUs in the denominator is based on total plant capacity. All we had to do was convert Lakota and Redondo design capacity into ERUs using the 210 gpd factor discussed previously.

The calculation of ERUs for the treatment component is shown in **Exhibit 33**.

**Exhibit 33: Total Wastewater Treatment Capacity in ERUs**

Description	Lakota WWTP	Redondo WWTP	Total
<b>Plant Capacity</b>			
Design Peak Month for Raw Sewage Flow (gpd) for Lakota	10,000,000		
Design Average Annual Raw Sewage Flow (gpd) for Redondo		5,600,000	
Total Design Capacity (gpd)	10,000,000	5,600,000	15,600,000
Gallons per Day per ERU (with 50% of I&I)	210	210	210
<b>Plant Capacity in ERUs</b>	<b>47,619</b>	<b>26,667</b>	<b>74,286</b>

Source: Table 9-2 and 9-7, 2009 Sewer Comprehensive Plan. For Redondo, peak month design criteria were not stated in the 2009 Sewer Comprehensive Plan, just average annual design criteria.

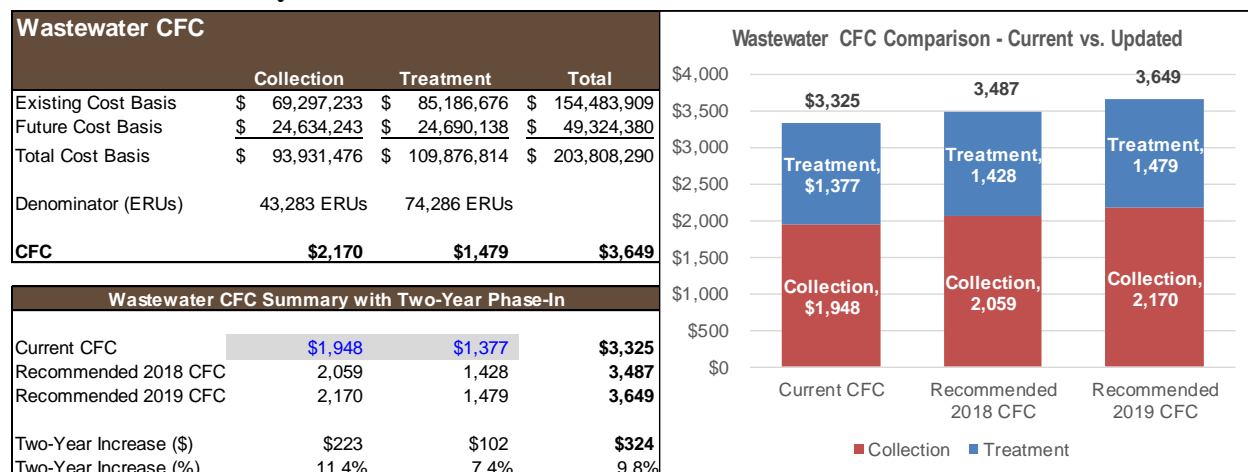


Assuming 210 gpd per ERU, the total capacity in the two treatment plants is 74,286 ERUs.

### 13. SUMMARY OF WASTEWATER CFC CALCULATION

Exhibit 34 shows how the cost basis is divided by total ERUs to generate the wastewater CFC.

**Exhibit 34: Summary of Wastewater CFC Calculation**



The collection-only CFC is projected to change from \$1,948 to \$2,170, an increase of 11.4%. The total Wastewater CFC is projected to change from \$3,325 to \$3,649, an increase of 9.8%. We suggest that this update be phased in over two years, as shown above.

### 14. WASTEWATER BUY-IN UNIT COSTS

Like Water, the buy-in unit cost for Wastewater is calculated separately for its two functions—Collection and Treatment. While there are no areas in the District where a “distribution-only” water CFC is needed, but there is an area where a collection-only wastewater CFC is needed—the area served by King County treatment facilities. Wherever properties are subject to a collection-only CFC, capacity rental charges (if any) should logically be calculated based on the buy-in unit cost of collection facilities only.

Exhibit 35 shows the calculation of updated buy-in unit costs for the wastewater system.

**Exhibit 35: Wastewater CFC – Buy-in Unit Costs Recommended for Capacity Rental Charges**

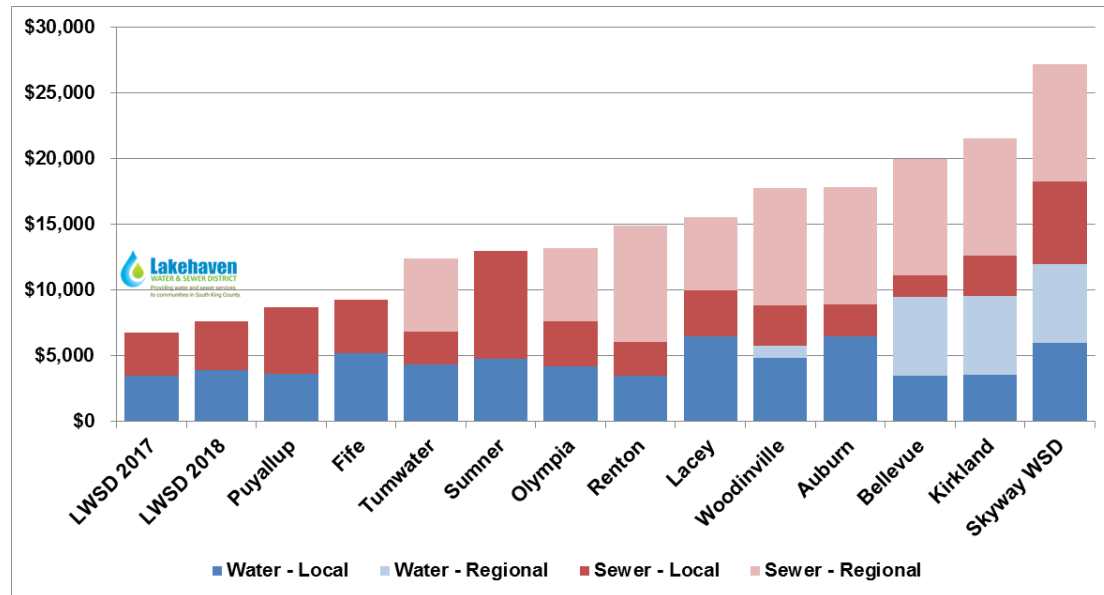
Buy-In Unit Cost for Capacity Rental Charges - Wastewater System			
	Collection	Treatment	Total
Existing Cost Basis	\$ 69,297,233	\$ 85,186,676	\$ 154,483,909
Total Capacity	43,283 ERUs	74,286 ERUs	Weighted Avg 56,222 ERUs
<b>Buy-in Unit Cost</b>	<b>\$ 1,601</b>	<b>\$ 1,147</b>	<b>\$ 2,748</b>
<b>Existing Wastewater Buy-in Unit Cost</b>	<b>\$ 1,567</b>		<b>\$ 2,665</b>
<b>\$ Change in Wastewater Buy-in Unit Cost</b>	<b>\$34</b>		<b>\$83</b>
<b>% Change in Wastewater Buy-in Unit Cost</b>	<b>2.2%</b>		<b>3.1%</b>

For the wastewater system, the buy-in unit cost applicable to collection facilities only is \$1,601. The total buy-in unit cost applicable to the majority of the District service area is \$2,748, which is a 3.1% increase over the current \$2,665. For both the water and wastewater buy-in unit costs, we do not suggest a two-year phase-in period.

## 15. CFC COMPARISON

**Exhibit 36** shows how the recommended sewer and water CFCs for the District compare with other regional jurisdictions. The CFCs for many jurisdictions include both local and regional components, such as the King County Sewer Capacity Charge. The District’s rates continue to be noticeably lower than the other sewer and water systems in the survey group.

**Exhibit 36: Comparative CFC Survey**



## J. CONCLUSION

Both utilities are able to meet or exceed the District’s fiscal policies with small, inflationary rate increases. These recommended increases are the same as those contained in the previous study completed in 2016.

Other recommended changes to rates and charges include updating the Public Fire Protection Charge per fire hydrant, updating the Pierce County and King County sewer treatment surcharges, with the new surcharges taking effect in January 2018, updating the Capital Facilities Charges for both utilities over a two-year period, and updating the buy-in unit costs used in calculating the capacity rental charges.

The recommended changes are summarized below:

- Water Utility
  - ◆ Annual rate increases of 1.75%
  - ◆ Increase hydrant charge from \$194.48 to \$196.50
- Sewer Utility
  - ◆ Annual rate increases of 2.75%
  - ◆ Adjust King County Surcharge to \$2.06 and Pierce County Surcharge to \$1.74
- Capital Facilities Charges
  - ◆ Increase Water CFC from \$3,476 to \$3,937, with a two-year phase-in period
  - ◆ Increase Sewer CFC from \$3,325 to \$3,649, with a two-year phase-in period