FCS
a Bowman company

CITY OF REDMOND

Capital Facilities Charges (CFC) Update

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Background and Overview

Authorized by Section 35.92.025 of the Revised Code of Washington (RCW), the City of Redmond imposes Capital Facilities Charges (CFCs) on new development to recover an equitable share of the cost of system infrastructure. CFCs promote equity between existing customers and growth, recognizing that existing customers have paid (and will continue to pay) for infrastructure that is oversized to serve growth. The City currently charges water, wastewater, and stormwater CFCs.

Exhibit 1 summarizes the City's existing water CFCs, which went into effect on June 15, 2018 with the passing of City Resolution No. 1497.

Exhibit 1. Existing Water CFC Schedule

Water CFC Schedule	Total CFC	Distribution Credit	Net CFC
Single-Family Residential:			
Small Home (0 – 2,400 SF)	$3,050	$1,010	$2,040
Medium Home (2,401 – 3,300 SF)	$4,510	$1,500	$3,010
Large Home (3,301 SF+)	$6,290	$2,090	$4,200
Commercial & Multi-Family:			
3/4" Meter	$4,560	$1,510	$3,050
1" Meter	$11,390	$3,775	$7,615
1-1/2" Meter	$22,780	$7,550	$15,230
2" Meter	$36,450	$12,080	$24,370
3" Meter	$72,900	$24,160	$48,740
4" Meter	$113,900	$37,750	$76,150
6" Meter	$227,800	$75,500	$152,300
8" Meter	$364,500	$120,800	$243,700
Irrigation & Cooling Towers:			
3/4" Meter	$13,670	$4,540	$9,130
1" Meter	$34,170	$11,350	$22,820
1-1/2" Meter	$68,350	$22,700	$45,650
2" Meter	$109,360	$36,320	$73,040
3" Meter	$218,700	$72,640	$146,060
4" Meter	$341,700	$113,500	$228,200
6" Meter	$683,500	$227,000	$456,500
8" Meter	$1,093,600	$363,200	$730,400

Under the City's current water CFC structure, single-family residential connections pay a CFC based on home size because single-family meters are commonly oversized to provide water service and fire flow. Connections other than single-family connections pay a water CFC based on meter size, with irrigation and cooling towers paying a

higher charge to recognize that they use disproportionately more water during the summer months (when system capacity is most constrained) than other users. Resolution No. 1497 establishes a water distribution credit for the value of hydrants, transmission and distribution mains, and pumping facilities that (a) a developer constructs to serve the property, (b) are funded through a local improvement district, or (c) for which reimbursement fees are paid.

Exhibit 2 summarizes the City's current wastewater CFCs, which went into effect on June 15, 2018 with the passing of City Resolution No. 1497.

Exhibit 2. Existing Sewer CFC Schedule

Sewer CFC Schedule	Total CFC	Collection Credit	Net CFC
Residential:			
Single-Family Residence	$2,890	$1,730	$1,160
Duplex	$4,620	$2,770	$1,850
Triplex	$6,930	$4,160	$2,770
Fourplex	$9,240	$5,540	$3,700
Larger Than 4 Units	$1,850	$1,110	$740
Mobile Homes (Per Space)	$2,890	$1,730	$1,160
Residential Suites (Per Unit)	$920	$550	$370
Commercial:			
3/4" Meter	$2,890	$1,730	$1,160
1" Meter	$7,220	$4,330	$2,890
1-1/2" Meter	$14,440	$8,660	$5,780
2" Meter	$23,110	$13,870	$9,240
3" Meter	$46,200	$27,720	$18,480
4" Meter	$72,200	$43,320	$28,880
6" Meter	$144,400	$86,640	$57,760
8" Meter	$231,100	$138,660	$92,440
Cooling Towers:			
3/4" Meter	$430	$260	$170
1" Meter	$1,080	$650	$430
1-1/2" Meter	$2,170	$1,300	$870
2" Meter	$3,470	$2,080	$1,390
3" Meter	$6,900	$4,140	$2,760
4" Meter	$10,800	$6,480	$4,320
6" Meter	$21,700	$13,020	$8,680
8" Meter	$34,700	$20,820	$13,880

Under the City's current wastewater CFC structure, residential connections pay a CFC based on the number of dwelling units and residential customer equivalent (RCE) assignments established by King County. King County

has historically assigned 1 RCE to single-family dwellings, 0.8 RCEs per unit to buildings with up to four dwelling units, and 0.64 RCEs per unit for buildings with five or more dwelling units. Non-residential connections pay a wastewater CFC based on meter size, with cooling towers paying 15% of the applicable commercial CFC to recognize the estimated amount of their water usage that enters the sewer system (most water used evaporates during the cooling process). Resolution No. 1497 establishes a sewer collection credit for the value of sewer mains, manholes, and pump stations that (a) a developer constructs to serve the property, (b) are funded through a local improvement district, or (c) for which reimbursement fees are paid.

Exhibit 3 summarizes the current stormwater CFCs, which went into effect on May 12, 2018 with the passing of City Ordinance No. 2921.

Exhibit 3. Existing Stormwater CFC Schedule

Stormwater CFC Schedule	Total
Citywide CFC per Impervious Unit (IU)	$1,342
Overlake Sub-Basin CFC per IU	$10,929
Downtown Sub-Basin CFC per IU	$5,979

Section 13.20.020 (C) of the Redmond Municipal Code (RMC) defines an impervious unit as 2,000 square feet of impervious surface area. The City generally assigns 1 IU to single-family parcels and calculates IUs for other parcels based on measured impervious area, rounding down to the nearest tenth. RMC 13.20.045 and RMC 13.20.047 establish sub-basin CFCs for the Downtown and Overlake sub-basins, respectively, in lieu of requirements to construct onsite stormwater detention and water quality facilities that apply elsewhere in the City. The City offers an 80% sub-basin CFC credit to sites that fully infiltrate stormwater in private systems that meet current City standards.

General Methodology

The City's existing stormwater CFCs reflect an "average-cost" methodology, which divides the total cost of the system by the total capacity of the system to arrive at an average cost per equivalent unit of capacity (typically defined in terms of a single-family home). For this update, this methodology was also utilized for the water and sewer CFCs (which have historically been calculated based on the cost of existing facilities and growth-related capital projects) to promote the use of a consistent methodology across all utilities.

Cost Basis

The cost basis includes the cost of facilities of general system benefit, such as storage reservoirs, transmission mains, and pump stations. It intends to recognize the net investment made in existing system assets by ratepayers, and includes the following components:

- ***Original Cost of Existing Assets:*** RCW 35.92.025 authorizes cities to impose "such reasonable connection charge as the legislative body of the city or town shall determine proper in order that such property owners shall bear their equitable share of the cost of such system." This includes the documented (non-depreciated) cost of utility assets. The Washington State Supreme Court's decision in *Boe v. Seattle* limits this cost to original/actual cost and precludes utilities from using current replacement costs as the basis for setting CFCs.

- ***Plus – Interest Accrued on Existing Assets:*** RCW 35.92.025 allows the CFC to include "interest charges applied from the date of construction of the water or sewer system until the connection, or for a period not to exceed ten years, whichever is shorter, at a rate commensurate with the rate of interest applicable to the city or town at the time of construction or major rehabilitation of the system, or at the time of installation of the lines to which the property owner is seeking to connect but not to exceed ten percent per year."

- ***Plus – Construction in Progress:*** The cost basis can also include construction in progress, investments that the City has made in infrastructure that are neither booked as assets (having not yet been placed in service) nor included in its forward-looking capital improvement plan.

- ***Less – Contributed Assets:*** The stormwater CFC analysis reflects the more stringent standard that RCW 57.08.005 (11) imposes on connection charges for special-purpose districts, excluding assets that were donated or paid for by grants and projects (or portions of projects) that the City anticipates funding through grants or developer contributions. For consistency with the City's past practices, the water and wastewater CFC calculations include the cost of donated and grant-funded facilities but builds the cost of those facilities into the water distribution and sewer collection credits that offset what most new or expanded connections pay.

- ***Future Capital Projects:*** The cost basis includes costs associated with planned future capital projects, of which there are three main types:

  » Projects upgrading the level of service for all customers to comply with regulatory requirements imposed by State/Federal agencies.

  » Projects increasing capacity to serve growth, which would not be needed in the absence of growth.

  » Projects that repair or replace existing infrastructure, which are most often needed because existing facilities have deteriorated due to use by existing customers.

  While the water and wastewater CFC calculations have historically excluded replacement projects, the updated calculations include all capital project costs in the cost basis – to avoid double charging customers for existing assets and their replacement, the cost basis is adjusted to deduct the estimated cost of the assets being replaced through the planned capital projects.

- ***Less – Utility-Funded Meters & Services:*** Recognizing that new connections will generally have to pay for the meters and service lines for their properties, the cost basis does not include investments that the City has made or plans to make in other customers' meters and service lines.

System Capacity

Given that the City's customers can impose significantly different demands on the utility systems, the calculation expresses the capacity of each system in terms of equivalent units. The average-cost methodology divides the total cost of each system by the total number of capacity units that it can serve to arrive at an average cost per unit of capacity. Though the denominator includes both existing and future capacity units to determine the

charge per capacity unit, existing customers have already paid the applicable CFCs and will pay for a proportionate share of any future costs through ongoing rates.

Water Capital Facilities Charge

Cost Basis

The cost basis for the water CFC is split into three core functions of service that differentiate how the City's various customers use the water system:

- ***Base Capacity:*** Costs associated with providing infrastructure to meet "base" demands, or the level of demand that would exist in the absence of peaking. This analysis uses winter-average demands to estimate base demands.
- ***Peak Capacity:*** Costs incurred to oversize infrastructure to meet peak demands.
- ***Fire Suppression:*** Costs incurred to provide and oversize infrastructure to accommodate the required levels of fire-flow conveyance and fire-suppression storage.

The first step in allocating the CFC cost basis to these functions is to separate the various components of the cost basis into the core categories of infrastructure that comprise the water system. Based on City-provided documents including plant-in-service records as of year-end 2024, current construction work in progress, and capital improvement plans from 2025-2030, **Exhibit 4** summarizes the water CFC cost basis in terms of the core infrastructure components. These components were then allocated to functions of service based on the following principles:

- **Supply & Treatment:** Wells and other assets related to supply and treatment were allocated between base capacity and peak capacity based on the ratio of winter-average daily production (representing "base" capacity needs in the absence of peaking) to maximum-day production. Table 4-3 of the 2023 Water System Plan indicates a maximum-day production of 17.9 million gallons per day (mgd) based on an average of 2019 – 2021 data, which includes both the City and Novelty Hill Service Areas. Tables 10-1 through 10-4 of the Water System Plan provide 2023 maximum-day demand estimates for both service areas, suggesting that the City Service Area (including the Well Service Area, the Rose Hill Service Area, and the Bellevue-Overlake-Viewpoint Service Area) represents about 89.1% of the total combined maximum-day demand. Applying this percentage to the 2019 – 2021 maximum-day production resulted in an estimate of 15.9 mgd as the maximum-day production attributable to the City Service Area.

  Based on monthly production data from Table 4-2 of the Water System Plan, the winter-average daily production was estimated to be approximately 4.795 mgd. The estimated winter-average daily production represents 30.1% of the maximum-day production, resulting in an allocation of 30.1% to base capacity and 69.9% to peak capacity.

Exhibit 4. Water CFC Cost Basis by Functional Component

Cost Basis Component ($ Millions)	Supply	Treatment	Pumping	Storage	Transmission & Distribution	Meters & Services	Hydrants	General	Total
Plant-In-Service as of Year-End 2024	$23.3	$5.8	$ 8.7	$ 9.7	$ 90.3	$13.4	$ 7.3	$ 6.2	**$164.7**
Plus: Construction Work In Progress	-	-	0.0	-	0.4	-	-	4.2	**4.6**
Plus: 2025 – 2030 Capital Improvement Plan									
Upgrade/Expansion	0.3	-	-	-	2.0	-	-	23.3	**25.6**
Repair/Replacement	-	-	3.9	11.0	11.5	6.2	-	9.1	**41.7**
Less: Provision for Retirement of Existing Assets	-	-	(1.7)	(0.5)	(0.1)	(2.7)	-	(1.5)	**(6.5)**
Plus: Interest Accrued on Existing Assets	10.9	2.5	3.1	4.4	34.4	4.3	2.9	1.7	**64.2**
Less: Costs Not Included In CFC Cost Basis	-	-	-	-	-	(21.2)	-	-	(21.2)
Total Cost Basis	**$34.5**	**$8.3**	**$14.0**	**$24.6**	**$138.6**	**$ -**	**$10.2**	**$43.0**	**$273.1**

- **Pumping:** Booster pump stations and other pumping facilities were allocated to functions based on an allocation of the capacity of the pump stations. Any pumps dedicated to fire flow were allocated to fire suppression; the remaining capacity was allocated between base capacity and peak capacity using the allocation discussed above for supply and treatment assets. **Exhibit 5** summarizes the functional allocation of pumping facilities:

Exhibit 5. Functional Allocation of Pumping Facilities

Pump Station	Pumping Capacity	Functional Allocation of Pumping Capacity			
		Base Capacity	Peak Capacity	Fire Suppression	Total
Reservoir Park	3,000 gpm	30.1%	69.9%	0.0%	100.0%
Perrigo Springs	615 gpm	30.1%	69.9%	0.0%	100.0%
Education Hill[1]	2,600 gpm	12.7%	29.6%	57.7%	100.0%
SE Redmond[2]	3,320 gpm	7.4%	17.3%	75.3%	100.0%
Rose Hill Supply Station No. 2	8,000 gpm	30.1%	69.9%	0.0%	100.0%
Rose Hill 650 Zone	5,250 gpm	30.1%	69.9%	0.0%	100.0%
Rose Hill North Reservoir	2,500 gpm	30.1%	69.9%	0.0%	100.0%
Bellevue/Redmond NE 40th	2,640 gpm	30.1%	69.9%	0.0%	100.0%
Total	**27,925 gpm**	**7,195 gpm**	**16,730 gpm**	**4,000 gpm**	
Percent of Total		**25.8%**	**59.9%**	**14.3%**	**100.0%**

[1]1,500 gpm (57.7%) of the Education Hill Pump Station's capacity is attributable to dedicated fire-flow pumps.
[2]2,500 gpm (75.3%) of the SE Redmond Pump Station's capacity is attributable to dedicated fire-flow pumps.

- **Storage:** The allocation of the City's reservoirs to fire suppression was based on an inventory of storage capacity and applicable requirements outlined in Section 10.3 of the Water System Plan. For each of the pressure-zone groupings, the storage capacity was allocated to functions based on the following principles:

  - » Capacity needed to meet current equalizing storage requirements was allocated to peak capacity, given that its purpose is to meet peak demands.

  - » Capacity needed to meet fire-suppression storage requirements was allocated to fire suppression, given that its purpose is to provide the required level of fire flow.

  - » Capacity needed to meet current standby storage requirements (in excess of required fire-suppression storage requirement, as the City nests these storage requirements) was allocated between base capacity and peak capacity based on the allocation of supply facilities.

  - » Capacity above the current requirements was allocated between base capacity and peak capacity based on the allocation of equalizing and standby storage capacity, given that only the equalizing and standby storage requirements will increase over time with growth.

  - » Operational storage capacity was allocated proportionately among functions based on the allocation of other storage capacity, given that it relates to the general operation of the reservoirs (managing pumps and flow-control valves) rather than any specific function of service.

Exhibit 6 summarizes the functional allocation of storage facilities:

Exhibit 6. Functional Allocation of Storage Facilities

Storage Facilities by Pressure-Zone Grouping	Storage Capacity	Functional Allocation of Storage Capacity			
		Base Capacity	Peak Capacity	Fire Suppression	Total
Upper Well Area:					
Equalizing Storage	0.83 MG	0.0%	100.0%	0.0%	100.0%
Fire-Suppression Storage	0.84 MG	0.0%	0.0%	100.0%	100.0%
Standby Storage (Net of FSS)	2.68 MG	30.1%	69.9%	0.0%	100.0%
Available for Equalizing/Standby	0.29 MG	22.9%	77.1%	0.0%	100.0%
Operational Storage	0.36 MG	18.8%	63.1%	18.1%	100.0%
Lower Well Area:					
Equalizing Storage	1.31 MG	0.0%	100.0%	0.0%	100.0%
Fire-Suppression Storage	0.84 MG	0.0%	0.0%	100.0%	100.0%
Standby Storage (Net of FSS)	4.69 MG	30.1%	69.9%	0.0%	100.0%
Available for Equalizing/Standby	1.52 MG	23.5%	76.5%	0.0%	100.0%
Operational Storage	0.84 MG	21.2%	68.8%	10.0%	100.0%
Upper Rose Hill Area:					
Equalizing Storage	0.89 MG	0.0%	100.0%	0.0%	100.0%
Fire-Suppression Storage	0.22 MG	0.0%	0.0%	100.0%	100.0%
Standby Storage (Net of FSS)[1]	1.06 MG	30.1%	69.9%	0.0%	100.0%
Operational Storage	0.24 MG	14.8%	75.2%	10.0%	100.0%
Lower Rose Hill Area:					
Equalizing Storage	0.38 MG	0.0%	100.0%	0.0%	100.0%
Fire-Suppression Storage	0.22 MG	0.0%	0.0%	100.0%	100.0%
Standby Storage (Net of FSS)	1.39 MG	30.1%	69.9%	0.0%	100.0%
Available for Equalizing/Standby	1.94 MG	23.6%	76.4%	0.0%	100.0%
Operational Storage	0.24 MG	22.3%	72.2%	5.5%	100.0%
Overlake Area:					
Equalizing Storage	0.72 MG	0.0%	100.0%	0.0%	100.0%
Fire-Suppression Storage	0.37 MG	0.0%	0.0%	100.0%	100.0%
Standby Storage (Net of FSS)[1]	0.62 MG	30.1%	69.9%	0.0%	100.0%
Operational Storage	0.37 MG	10.9%	67.6%	21.6%	100.0%
Total	**22.87 MG**	**4.40 MG**	**15.72 MG**	**2.75 MG**	
Percent of Total		**19.2%**	**68.7%**	**12.0%**	**100.0%**

[1]Standby storage capacity is currently limited by existing deficiency in meeting nested standby/FSS requirements.

- **Transmission & Distribution:** The City sized its transmission and distribution system to meet peak water demands and accommodate the required level of fire flow. Not all mains are oversized for fire flow, however – mains that are too small (e.g. appurtenance piping) do not have the capacity for fire flow, and

the City's largest mains are generally supply transmission mains that are not explicitly sized for fire flow. This analysis assumes that if the City did not have to provide fire suppression, 8" mains could be 6" mains (absent the need to meet residential fire-flow requirements); 10" and 12" mains could be 8" mains (absent the need to meet commercial fire-flow requirements). This analysis allocated the estimated replacement cost of mains to functions, allocating the portion attributable to fire-flow oversizing to fire suppression and the remainder between base capacity and peak capacity based on the allocation of supply assets. **Exhibit 7** summarizes the functional allocation of water mains.

Exhibit 7. Functional Allocation of Water Mains

Size	Length[1]	Replacement Cost per LF[2]	Estimated Replacement Cost ($000s)	Functional Allocation of Replacement Cost			
				Base Capacity	Peak Capacity	Fire Suppression	Total
3/4"	65 LF	$329	$ 21	30.1%	69.9%	0.0%	100.0%
1"	149 LF	$364	54	30.1%	69.9%	0.0%	100.0%
1-1/2"	149 LF	$398	59	30.1%	69.9%	0.0%	100.0%
2"	29,156 LF	$432	12,600	30.1%	69.9%	0.0%	100.0%
3"	1,670 LF	$466	779	30.1%	69.9%	0.0%	100.0%
4"	48,163 LF	$501	24,119	30.1%	69.9%	0.0%	100.0%
6"	208,964 LF	$528	110,377	30.1%	69.9%	0.0%	100.0%
8"	609,338 LF	$571	347,985	16.9%	39.3%	43.8%	100.0%
10"	41,791 LF	$607	25,372	19.2%	44.8%	36.0%	100.0%
12"	514,347 LF	$643	330,786	13.4%	31.1%	55.6%	100.0%
14"	9,413 LF	$714	6,724	30.1%	69.9%	0.0%	100.0%
16"	55,590 LF	$785	43,664	30.1%	69.9%	0.0%	100.0%
20"	24,330 LF	$821	19,986	30.1%	69.9%	0.0%	100.0%
24"	353 LF	$857	302	30.1%	69.9%	0.0%	100.0%
28"	1,518 LF	$894	1,357	30.1%	69.9%	0.0%	100.0%
Total	**1,544,995 LF**		**$924,185**	**$174,131**	**$404,907**	**$345,147**	
% of Total				**18.8%**	**43.8%**	**37.3%**	**100.0%**

[1]Based on a geographic information system (GIS) inventory data provided by the City. excludes 1,238 LF of pipe with unknown size.
[2]Estimated replacement cost utilized from the City's previous cost-of-service analysis which uses the data to make similar allocations between costs for specific utility services

- **Hydrants:** As hydrants are predominantly attributable to the conveyance of water for fire suppression, this analysis assigned the total cost of these facilities to fire suppression.

- **General/Other:** Assets not explicitly attributable to any of the functions specified above (e.g. land, buildings, telemetry) were allocated proportionally to functions of service based on the allocation of other assets.

Exhibit 8 outlines the functional allocation of the water CFC cost basis.

Exhibit 8. Functional Allocation of Water CFC Cost Basis

Component	Water CFC Cost Basis	Functional Allocation of Water CFC Cost Basis			
		Base Capacity	Peak Capacity	Fire Suppression	Total
Supply	$ 34,451,865	30.1%	69.9%	0.0%	100.0%
Treatment	8,292,539	30.1%	69.9%	0.0%	100.0%
Pumping	13,956,685	25.8%	59.9%	14.3%	100.0%
Storage	24,552,633	19.2%	68.7%	12.0%	100.0%
Transmission & Distribution	138,630,776	18.8%	43.8%	37.3%	100.0%
Hydrants	10,220,597	0.0%	0.0%	100.0%	100.0%
General	42,978,868	20.6%	50.4%	29.1%	100.0%
Total	**$273,083,963**	**$56,127,039**	**$137,507,888**	**$79,449,036**	
Percent of Total		**20.6%**	**50.4%**	**29.1%**	**100.0%**

Water System Capacity

The base-capacity and peak-capacity portions of the water CFC calculation were built into a charge per equivalent residential unit (ERU). Connections other than single-family connections were assigned ERUs using meter-flow equivalents (MFEs), a metric which defines the capacity needs of a connection based on the maximum continuous flow capacity of its meter. Because new single-family connections are often oversized to provide water service and fire flow, single-family connections were assigned 1 ERU per meter for the purpose of the CFC calculation rather than being assigned ERUs based on meter size. Given that fire-flow and related storage requirements depend solely on land-use type (regardless of meter size), the fire-suppression portion of the water CFC was built into a charge per meter.

The general methodology for estimating the applicable capacity units of the water system included three steps:

1. ***Define the existing customer base using current customer data.***

Exhibit 9 summarizes the existing water customer base:

Exhibit 9. Existing Water Customer Base (2024)

Meter Size	Maximum Continuous Flow	Number of ERUs	Number of Meters			
			Single-Family	Multi-Family & Commercial	Irrigation & Cooling Towers	Total
3/4"	20 gpm	1.00	12,658	241	139	13,038
1"	50 gpm	2.50		490	153	643
1-1/2"	100 gpm	5.00		1,002	266	1,268
2"	160 gpm	8.00		446	184	630
3"	320 gpm	16.00		78	4	82
4"	500 gpm	25.00		84	3	87
6"	1,000 gpm	50.00		11	1	12
8"	1,600 gpm	80.00		4		4
Total Meters			**12,658**	**2,356**	**750**	**15,764**
Total ERUs			**12,658**	**14,262**	**3,513**	**30,433**

2. Estimate Future System Capacity.

The next step was to determine how many ERUs the City's water system can serve (independently of when the related service connections are expected to occur). Table 10-17 of the Water System Plan indicates that based on maximum-day demand (MDD), the City's water system currently serves approximately 38,036 MDD equivalents (though the Water System Plan uses the term "ERUs," this report uses the term "MDD equivalents" to avoid confusion with the ERU definition embedded in the water CFC structure based on meters and meter size). Though Table 10-17 indicates that standby storage constraints would limit the capacity of the water system in MDD equivalents to 39,485, City staff reported that storage improvements included in the water utility's capital improvement plan would alleviate the standby storage capacity issue and enable the City to add up to an additional 22,954 MDD equivalents (for a total capacity of 60,990 MDD equivalents). This capacity would allow the water system to grow by approximately 60%. Detailed further in **Exhibit 10**, applying this growth proportionately to the existing customer base presented in **Exhibit 9** resulted in system capacity estimates of 25,277 meters and 48,798 ERUs.

3. Develop Class-Specific Cost Allocations & Weightings.

To recognize differences in how the City's various customers use its water system, the City's water CFC structure differentiates among several customer classifications as shown in **Exhibit 1**. While irrigation and cooling tower meters historically paid a CFC equal to 3.0 times the CFC applicable to a comparably sized residential or commercial meter, the current analysis introduced different weightings for each component of the CFC to recover costs more equitably from different types of users. Intended to capture differences relative to a typical single-family connection, these weightings were based on an average of 2022 – 2024 customer billing data provided by the City.

- Given that the base-capacity component of the CFC intends to recover costs attributable to a water system sized to meet demands without peaking, the weightings based on base-capacity needs were developed based on the winter-average daily demand per ERU. For this purpose, the "winter" period was defined as the first two billing periods of the year (bills sent out from January through April, which largely reflect water used from December through March). Though the City includes bills sent in November, December, and May in the "winter" period for ongoing water rates, our review of usage during these periods found that these months comprised a "shoulder season" including a blend of peak and off-peak usage (and would thus be less representative of usage without peaking).

- Because the peak-capacity component of the CFC recovers the incremental costs of oversizing the water system to meet peak demands, the weightings based on peak-capacity needs were developed based on the incremental peak demand per ERU. Given limitations in the billing data currently available, this was determined for each class as the difference between its average bimonthly demand per ERU during the systemwide peak bimonthly billing period) and its winter-average daily demand per ERU.

- The fire-suppression component was split into two parts to recognize differences in the level of service provided. The portion attributable to fire-flow conveyance was weighted based on class-specific fire-flow requirements (in gpm), while the portion attributable to fire-suppression storage was weighted based on class-specific fire-suppression storage requirements (fire-flow rate multiplied by the required duration).

Exhibit 10 summarizes the class-specific weighting factors for each component of the water CFC.

Exhibit 10. Class-Specific CFC Weighting Factors & Weighted Capacity Estimates
(Based on 2022 – 2024 Data)

	Single-Family	Multi-Family & Commercial	Irrigation & Cooling Towers	Total
System Capacity in Meters (Unweighted)	20,297	3,778	1,203	25,277
System Capacity in ERUs (Unweighted)	20,297	22,869	5,632	48,798
Winter-Average Daily Demand per ERU	128 gpd	205 gpd	116 gpd	
Base-Capacity Weighting Factor	1.00	1.60	0.91	
ERU Capacity Weighted by Base-Capacity Needs	***20,297***	***36,629***	***5,103***	***62,029***
Peak-Bimonthly Average Daily Demand per ERU	218 gpd	261 gpd	799 gpd	
Less: Winter-Average Demand per ERU	(128 gpd)	(205 gpd)	(116 gpd)	
Incremental Peak Demand per ERU	90 gpd	56 gpd	683 gpd	
Peak-Capacity Weighting Factor	1.00	0.62	7.57	
ERU Capacity Weighted by Peak-Capacity Needs	***20,297***	***14,270***	***42,649***	***77,216***
Fire Flow Requirement per WSP Section 6.4.2	1,500 gpm	3,500 gpm	N/A	
Fire-Flow Conveyance Weighting Factor	1.00	2.33	0.00	
Meter Capacity Weighted by Fire-Flow Needs	***20,297***	***8,815***	***0***	***29,112***
Required Fire-Flow Duration per WSP Section 6.4.2	120 Minutes	240 Minutes	N/A	
Fire-Suppression Storage (FSS) Requirement	0.18 MG	0.84 MG	N/A	
Fire-Suppression Storage Weighting Factor	1.00	4.67	0.00	
Meter Capacity Weighted by FSS Needs	***20,297***	***17,630***	***0***	***37,927***

In **Exhibit 10**, the weighting factors were computed by dividing the requirement applicable to a specific class by the corresponding single-family requirement. For example, the multi-family/commercial base-capacity weighting factor of 1.60 was calculated by dividing the winter-average daily demand of 205 gpd by the single-family winter-average daily demand of 128 gpd. The weighting factors were then applied to the unweighted meters or ERUs as appropriate.

The weighting factors shown in **Exhibit 10** suggest that multi-family and commercial connections use more water (on average) and peak less than a typical single-family connection, while irrigation connections use less water (on average) and peak much more than a typical single-family connection. Multi-family and commercial customers disproportionately drive the need to oversize the water system to meet higher fire-flow requirements, while irrigation users do not drive those costs at all. By better recognizing these intuitive differences in the service required by each customer class, the updated CFC structure intends to recover costs more equitably from development.

Water CFC Calculation

Exhibit 11 summarizes the calculation of the building blocks of the water CFC.

Exhibit 11. Water CFC Calculation

	Total	CFC Component by Class		
		Single Family	Multi-Family & Commercial	Irrigation & Cooling Towers
CFC Cost Basis Allocated to Base Capacity	$56,127,039			
Weighted System Capacity in ERUs	62,029			
Charge per ERU	$905	$905	$1,449	$820
CFC Cost Basis Allocated to Peak Capacity	$137,507,888			
Weighted System Capacity in ERUs	77,216			
Charge per ERU	$1,781	$1,781	$1,111	$13,485
CFC Cost Basis Allocated to Fire Flow Conveyance	$75,945,505			
Weighted System Capacity in Meters	29,112			
Charge per Meter	$2,609	$2,609	$6,087	$ -
CFC Cost Basis Allocated to Fire Suppression Storage	$3,503,531			
Weighted System Capacity in Meters	37,927			
Charge per Meter	$92	$92	$431	$ -
Total Charge per ERU		**$2,686**	**$2,560**	**$14,305**
Total Charge per Meter		**$2,701**	**$6,518**	**$ -**

Water Distribution Credits

Consistent with the previous CFC calculation, donated assets and future capital projects that are intended to be grant funded were built into a water distribution CFC credit to recognize the value of hydrants, transmission and distribution mains, and pumping facilities that (a) a developer constructs to serve the property, (b) are funded through a local improvement district, or (c) for which reimbursement fees are paid. Based on a review of the updated water CFC cost basis, the water distribution credit was revised to equal 45.5% of the transmission and distribution component and 65.2% of the hydrant component of the water CFC.

Single-Family ERU Definition

As shown in **Exhibit 1**, the existing single-family water CFC structure assigns ERUs based on home size (as defined by total living area) in square feet (SF). Based on a sample of 2008 water consumption data that the City provided for a 2009 CFC review,

- Homes with 2,400 SF of living area or less are designated "small homes" and assigned 0.67 ERUs.
- Homes with 2,401 – 3,300 SF of living area are designated "medium homes" and assigned 0.99 ERUs.
- Homes with more than 3,300 SF of living area are designated "large homes" and assigned 1.38 ERUs.

These tiers were loosely set to capture 25% of homes in the "small" category, 50% in the "medium" category, and 25% in the "large" category based on the sample of homes that the City was able to provide in 2009. In 2021,

King County revised its wastewater capacity charge to establish a tiered single-family ERU assignment based on home size. King County assigns 0.81 ERUs to homes with less than 1,500 SF of living area, 1.00 ERU to homes with 1,500 – 2,999 SF of living area, and 1.16 ERUs to homes with a total living area of 3,000 SF or more. The City has expressed interest in updating its wastewater ERU assignment policy to match the County's current methodology. Though ERU assignments for water service can justifiably differ from those made for wastewater service (customer behavior impacts water demand differently than wastewater flow), we believe that it would be appropriate to align the home size classifications for the single-family water CFCs with those that the City expects to adopt for its residential wastewater CFC structure.

For this purpose, FCS obtained records from the King County Assessor encompassing approximately 11,600 single-family properties located within the City's primary zip code (98052). The data indicated average living areas of 1,251 SF for homes with less than 1,500 SF of living area, 2,190 SF for homes with 1,500 – 2,999 SF of living area, and 3,612 SF for homes with 3,000 SF or more in total living area. Based on the average amount of living area in the dataset, the updated water CFCs reflect the following single-family ERU assignments:

- Homes with less than 1,500 SF of living area are designated "small homes" and assigned 0.57 ERUs.
- Homes with 1,500 – 2,999 SF of living area are designated "medium homes" and assigned 1.00 ERU.
- Homes with living area of 3,000 SF or more are designated "large homes" and assigned 1.65 ERUs.

The ERU assignments above rely on the premise that the expected number of occupants (which is a key indicator of expected water usage) generally increases with home size. It is worth noting that although the number of expected occupants can be used to estimate the demand for indoor water use, it does not capture peak water usage for outdoor irrigation. Balancing the goal of equitable cost recovery with the need to keep the CFC structure relatively easy to administer, we believe that this approach remains reasonable for two reasons:

1. The City can adopt a policy requiring the installation of a separate irrigation meter (which would continue to be assigned ERUs based on meter size) for properties with multiple dwelling units. This might not be needed in instances where a single-family home is adding an accessory dwelling unit (ADU) but could make sense for other types of middle-housing redevelopment.

2. To the extent that the recent middle-housing initiatives are successful in increasing housing density, irrigation will likely become less of an issue due to space constraints.

Water CFC Schedule

Exhibit 12 provides an updated schedule of charges based on the CFC components outlined in **Exhibit 11**.

Exhibit 12. Updated Water CFC Schedule

Water CFC Schedule	Total CFC	Distribution Credit	Net CFC	Existing CFC Net of Credits
Single-Family Residential[1]				
Small Home (Less Than 1,500 SF)	$4,230	$1,360	$2,870	$2,040
Medium Home (1,500 – 2,999 SF)	$5,380	$1,590	$3,790	$3,010
Large Home (3,000 SF+)	$7,130	$1,950	$5,180	$4,200
Commercial & Multi-Family				
3/4" Meter	$9,070	$2,950	$6,120	$3,050
1" Meter	$12,910	$3,750	$9,160	$7,615
1-1/2" Meter	$19,320	$5,080	$14,240	$15,230
2" Meter	$27,000	$6,670	$20,330	$24,370
3" Meter	$47,400	$10,900	$36,500	$48,740
4" Meter	$70,500	$15,700	$54,800	$76,150
6" Meter	$134,500	$29,000	$105,500	$152,300
8" Meter	$211,300	$44,900	$166,400	$243,700
Irrigation & Cooling Towers				
3/4" Meter	$14,300	$2,890	$11,410	$9,130
1" Meter	$35,760	$7,220	$28,540	$22,820
1-1/2" Meter	$71,520	$14,430	$57,090	$45,650
2" Meter	$114,430	$23,080	$91,350	$73,040
3" Meter	$228,800	$46,100	$182,700	$146,060
4" Meter	$357,600	$72,200	$285,400	$228,200
6" Meter	$715,200	$144,300	$570,900	$456,500
8" Meter	$1,144,300	$230,800	$913,500	$730,400

[1]Includes townhome and cottage housing units.

Exhibit 12 shows that under the updated structure, the net water CFC would increase for most new connections. Key drivers behind this outcome include:

- The net cost basis increased by $89.5 million (49%) since the water CFC was last calculated in 2017. This increase was offset somewhat by an increase in the denominator – while the prior CFC calculation based the denominator on growth projected over the planning period for the capital improvement plan, the current analysis included a deeper review of how many ERUs the water system *can* serve based on its capacity. This change intended to recognize that the existing water system and planned capital improvements will be able to serve growth beyond the planning period.

- The introduction of a CFC component for fire-suppression changed how costs are recovered from connections of different sizes. Because fire-flow and related storage requirements do not increase for customers with larger meters, costs related to fire suppression are more equitably recovered equally from

all connections within a given land-use type. Given that the existing CFC structure scales entirely with the assigned number of ERUs, this change increases what connections with smaller meters pay while decreasing what connections with larger meters pay. Because of this, **Exhibit 12** shows that commercial and multi-family connections that are larger than 1" would pay less under the updated CFC schedule than they would pay under the existing CFC schedule.

- Irrigation and cooling-tower connections have historically paid about three times the CFC that a comparably sized residential or commercial connection would pay (with differences due to rounding) based on their disproportionate contributions to the water system's peak-capacity needs. **Exhibit 10** shows irrigation and cooling-tower connections being charged 7.57 times what a single-family connection is charged for incremental peak capacity based on how they typically use the water system. The updated analysis splits the CFC into base-capacity, peak-capacity, and fire-suppression components, offsetting the increased allocation of peak-capacity costs to recognize that these connections typically use less water than other connections outside of peak-demand periods and do not require water for fire suppression.

Wastewater Capital Facilities Charge

Cost Basis

Based on City-provided documents including plant-in-service records as of year-end 2024, current construction work in progress, and capital improvement plans from 2025-2030, **Exhibit 13** summarizes the cost basis for the wastewater CFC calculation.

Exhibit 13. Wastewater CFC Cost Basis

Cost Basis Component	Cost Basis Calculation
Plant-In-Service as of Year-End 2024	$104,228,008
Plus: Construction Work In Progress	286,834
Plus: Capital Improvement Plan	
Upgrade/Expansion	24,466,088
Repair/Replacement	1,824,077
Less: Provision for Retirement of Existing Assets	(273,145)
Plus: Eligible Interest Accrual	31,240,695
Less: Costs Not Included in CFC Cost Basis	(976,832)
Total Cost Basis	**$160,795,725**

Wastewater System Capacity

The wastewater CFC calculation defines capacity units based on ERUs, which standardizes the flow of wastewater to the amount produced by a single-family residence. Similar to the water CFC, 2024 customer data was utilized to estimate the current number of ERUs as shown in **Exhibit 14**.

Exhibit 14. Existing Wastewater Customer Base (2024)

Customer Type	Number of ERUs	Source
Single Family	12,658	Water Meter Count
Multi-Family	14,087	City MF dwelling unit data[1]
Commercial	6,077	Water Meter Flow Equivalents
Cooling Towers	11	Water Meter Flow Equivalents x 15%[2]
Total ERUs	**32,833**	

[1]City records indicated a total of 22,360 multi-family dwelling units, which were assigned 0.63 ERUs each consistent with King County's current capacity charge methodology.

[2]Cooling towers were assigned 15% of the ERUs that would apply to a comparable commercial meter, given the assumption that 85% of their water usage evaporates in the cooling process and does not enter the wastewater system.

As noted above for the water CFC calculation, information provided by City staff suggested that the water system could grow by roughly 60% based on current supply capacity. Assuming new growth will generally occur as both new water customers and new wastewater customers, the estimated ERU capacity of the wastewater system was estimated by increasing the existing ERU estimate by the same amount (on a percentage basis) as the estimated potential growth in the water system. The resulting estimate of wastewater system capacity was 52,647 ERUs.

Wastewater CFC Calculation

Dividing the total eligible cost of $160,795,725 by the total capacity of 52,647 ERUs results in a maximum wastewater CFC of $3,054 per ERU.

Wastewater Collection Credits

Consistent with the previous CFC calculation, donated assets and future capital projects that are intended to be grant funded were built into a wastewater collection CFC credit to recognize the value of sewer mains, manholes, and pump stations that (a) a developer constructs to serve the property, (b) are funded through a local improvement district, or (c) for which reimbursement fees are paid. Based on a review of the updated wastewater CFC cost basis, the wastewater collection credit was revised to equal 38.9% of the wastewater CFC.

Residential ERU Definition

As noted above in the water CFC calculation, King County revised its wastewater capacity charge in 2021 to establish a tiered single-family ERU assignment based on home size. King County assigns 0.81 ERUs to homes with less than 1,500 SF of living area, 1.00 ERU to homes with 1,500 – 2,999 SF of living area, and 1.16 ERUs to homes with a total living area of 3,000 SF or more. In addition, the County assigns 0.81 ERUs per unit to multi-unit structures with between two and four dwelling units, 0.63 ERUs per unit to multi-unit structures with five or more dwelling units, 0.59 ERUs per accessory dwelling unit, and 0.35 ERUs to microunits. Recognizing that the City has historically linked its residential wastewater CFC structure to King County's structure, the updated wastewater CFC structure incorporates the updated ERU assignments.

Wastewater CFC Schedule

Exhibit 15 provides an updated schedule of wastewater CFCs, comparing the net CFC payable by most connections to the existing charges.

Exhibit 15. Updated Wastewater CFC Schedule

Wastewater CFC Schedule	Total CFC	Collection Credit	Net CFC	Existing CFC Net of Credits
Single-Family Residential[1]				
Small Home (Less Than 1,500 SF)	$2,470	$960	$1,510	$1,160
Medium Home (1,500 – 2,999 SF)	$3,050	$1,190	$1,860	$1,160
Large Home (3,000 SF+)	$3,540	$1,380	$2,160	$1,160
Other Residential				
Duplex	$4,940	$1,920	$3,020	$1,850
Triplex	$7,420	$2,890	$4,530	$2,770
Fourplex	$9,890	$3,850	$6,040	$3,700
More Than Four Units (Per Unit)	$1,920	$750	$1,170	$740
Mobile Homes (Per Space)	$3,050	$1,190	$1,860	$1,160
Residential Suites (Per Unit)	$1,060	$410	$650	$370
Commercial				
3/4" Meter	$3,050	$1,190	$1,860	$1,160
1" Meter	$7,630	$2,970	$4,660	$2,890
1-1/2" Meter	$15,270	$5,940	$9,330	$5,780
2" Meter	$24,430	$9,500	$14,930	$9,240
3" Meter	$48,800	$19,000	$29,800	$18,480
4" Meter	$76,300	$29,700	$46,600	$28,880
6" Meter	$152,700	$59,400	$93,300	$57,760
8" Meter	$244,300	$95,000	$149,300	$92,440
Cooling Towers				
3/4" Meter	$450	$170	$280	$170
1" Meter	$1,140	$440	$700	$430
1-1/2" Meter	$2,290	$890	$1,400	$870
2" Meter	$3,660	$1,420	$2,240	$1,390
3" Meter	$7,300	$2,900	$4,400	$2,760
4" Meter	$11,400	$4,400	$7,000	$4,320
6" Meter	$22,900	$8,900	$14,000	$8,680
8" Meter	$36,600	$14,200	$22,400	$13,880

[1]Includes townhome and cottage housing units.

Exhibit 15 generally shows an increase of around 60% in the wastewater CFCs. This increase is largely explained by an increase of $70.5 million (78%) in the cost basis due to a net of approximately $38.1 million in existing infrastructure investments, $10.4 million in additional interest accrued on existing assets, and an increase of $22.0 million in planned future capital projects. Given the wastewater utility's recent investments in infrastructure, the maximum wastewater collection credit decreased from 60% to 38.9% of the wastewater CFC. Offsetting these factors was an increase in the estimated ERU capacity of the wastewater system that resulted from estimating how many ERUs the City can add to its water and wastewater systems based on system capacity.

Stormwater Capital Facilities Charge

Cost Basis

Unlike the water and wastewater CFC calculations, only utility-funded costs are included in the stormwater CFC (as opposed to calculating a credit). Based on City-provided documents including plant-in-service records as of year-end 2024, current construction work in progress, and capital improvement plans from 2025-2030, **Exhibit 16** summarizes the cost basis for the stormwater CFC calculation.

Exhibit 16. Stormwater Cost Basis by Area

Cost Basis Component	Citywide	Overlake	Downtown	Total
Plant-In-Service as of Year-End 2024	$128,465,313	$41,731,625	$22,918,327	$193,115,265
Less: Contributed/Grant-Funded Assets	(34,537,394)	(1,075,725)	(2,083,646)	(37,696,764)
Plus: Construction Work In Progress	1,302,509	5,445,495	188,366	6,936,371
Plus: Capital Improvement Plan				
Upgrade/Expansion	33,479,576	15,475,895	-	48,955,471
Repair/Replacement	10,185,726	272,665	-	10,458,391
Less: Provision for Retirement of Existing Assets	(896,059)	(26,874)	-	(922,934)
Less: Grants/Developer Contributions	(480,393)	(1,578,000)	-	(2,058,393)
Plus: Eligible Interest Accrual	33,743,160	11,451,561	7,717,064	52,911,784
Total Cost Basis	**$171,262,438**	**$71,696,641**	**$28,740,111**	**$271,699,190**

As shown in Exhibit 16, the cost basis is split into Citywide and sub-basin (Overlake/Downtown) components to support the calculation of the sub-basin CFCs provided for in RMC 13.20.045 and RMC 13.20.047. The sub-basin CFCs apply in lieu of requirements to construct onsite stormwater detention and water quality facilities that apply elsewhere in the City.

Stormwater System Capacity

The stormwater CFC calculation defines capacity units based on impervious units (IUs), which intent to quantify the "impervious footprint" on a typical single-family parcel (RMC 13.18.040 defines an IU as 2,000 SF of impervious surface area). All single-family parcels are assigned 1 IU while other parcels are assigned IUs based on measured impervious area.

Citywide

The IU capacity for the Citywide portion of the charge was developed using 2021 billing data provided by the City and buildable-land estimates from King County's 2021 Urban Growth Capacity Report.

2021 billing data indicated that the City billed $13,455,299 for stormwater service – at the 2021 rate of $16.56 per month per IU, the 2021 billing equated to 67,710 billed impervious units.

The Urban Growth Capacity Report indicated that as of 2021, the City had 91.73 acres of vacant land and 277.31 acres of land available for redevelopment. Converting the acres into square feet, conservatively assuming 80% of that land would be impervious, and dividing the resulting estimate of future impervious area by the City's definition of 2,000 SF per IU, we calculated that the buildable land in the City could support an additional 6,430 IUs before the City reaches buildout.

Adding the 2021 IUs and the potential new IUs by buildout results in an estimated IU capacity of 74,140 IUs for the Citywide CFC.

Overlake and Downtown

City staff estimated that the Overlake sub-basin could accommodate 6,993 IUs and the Downtown sub-basin could accommodate 8,558 IUs before reaching buildout.

Stormwater CFC Calculation

Exhibit 17 shows the calculation of the stormwater CFC by area.

Exhibit 17. Stormwater CFC Calculation by Area

Cost Basis Component	Citywide	Overlake	Downtown
Total Cost Basis	$171,262,438	$71,696,641	$28,740,111
System Capacity in IUs	74,140	6,993	8,558
Charge per IU	**$2,310**	**$10,253**	**$3,358**
Existing Charge per IU	***$1,342***	***$10,929***	***$5,979***

Key drivers of the changes in the charges are described below:

- Citywide CFC: The Cost basis increased by approximately 74% since the last update due to the addition of assets, the accrual of interest of existing assets, and the incorporation of the most recent capital plan, while the total estimated IU capacity remained comparable (74,140 versus 73,421 IUs).

- Overlake CFC: While the cost basis remained relatively similar to the estimate used in the last study, the estimated number of IUs that could be served increased by about 6%.

- Downtown: The cost basis decreased by approximately 27% as previously planned capital costs were removed from the upcoming capital plan. Additionally, the number of IUs that could be served by the region increased by approximately 30% due to an updated estimate provided by City staff.