

Lake Whatcom Water & Sewer District



General Facilities Charge (GFC) Update

FINAL
December 2022

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FCS GROUP
Solutions-Oriented Consulting

December 9, 2022

Jennifer Signs, Finance Manager/Treasurer
Lake Whatcom Water & Sewer District
1220 Lakeway Drive
Bellingham, WA 98229

Subject: General Facilities Charge Update

Dear Ms. Signs:

FCS GROUP is pleased to submit this report documenting the General Facilities Charge (GFC) Update conducted for the Lake Whatcom Water and Sewer District. The table below shows the calculated GFCs as documented in the rest of this report.

Calculated GFCs (2022)		
Meter Size (inches)	Water GFC	Sewer GFC
5/8 x 3/4	\$7,832	\$11,934
1	\$15,665	\$23,869
1.5	\$39,162	\$59,672
2	\$62,660	\$95,474
3	\$172,314	\$262,555

It has been a pleasure to work with you and other District staff on this effort. If you have questions or need additional information, Tage can be reached at (425) 615-6487 or TageA@fcsgroup.com.

Sincerely,



John Ghilarducci
Principal



Tage Aaker
Project Manager



Zech Hazel
Senior Analyst

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BACKGROUND AND METHODOLOGY

UTILITY BACKGROUND

The Lake Whatcom Water and Sewer District (District) provides water service to approximately 4,000 customers and sewer service to approximately 4,300 customers in an 18 square mile service area surrounding Lake Whatcom. The District charges new development both a water and a sewer general facilities charge (GFC). A GFC is a one-time fee paid at the time of development, intended to recover an equitable share of the District's system facilities and the cost of planned capital to accommodate growth.

In 2022 the District contracted with FCS GROUP to perform a water and sewer GFC update. This memo documents the assumptions and results of the update.

BACKGROUND ON GENERAL FACILITIES CHARGES

GFCs are imposed on newly connecting customers, but they should not be confused with water meter installation charges or other fees that reimburse the District for the cost of making the physical connection for a new customer. Instead, a GFC is a method of recovering from new customers a proportionate share of the utility's investment in system capacity—both the historical cost of existing capital assets and the planned cost of future capital improvements. GFCs serve two main purposes: to provide equity between existing and future customers, and to provide a source of capital funding. In addition, GFCs help ensure that growth pays for the cost of growth. The charge is imposed on both new development and redevelopment that increases demand for system capacity.

In part, the GFC functions as a “buy-in charge.” To avoid dilution of the investment of existing customers, new customers are required to buy in to the system commensurate with the cost of the assets needed to serve them.

Legal Basis for General Facilities Charges

There are a variety of approaches that are used in the industry to establish a defensible GFC. The development of such charges always occurs in the context of state law. The District is authorized to assess fees and charges in general under Section 57.08.005 of the Revised Code of Washington (RCW), which sets forth the powers of water-sewer districts in general. Paragraph 11 of that section states that among those powers is the authority to charge property owners a “reasonable connection charge.” This is what the District and many other districts refer to as a General Facilities Charge.

This paragraph also describes some conditions that must be met in calculating this charge:

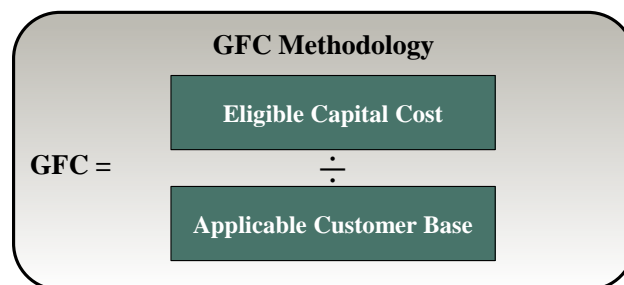
Section 57.08.005 (11) “Subject to subsection (7) of this section, to fix rates and charges for water, sewer, reclaimed water, and drain service supplied and to charge property owners seeking to connect to the district's systems, as a condition to granting the right to so connect, in addition to the cost of the connection, such reasonable connection charge as the board of commissioners shall determine to be proper in order that those property owners shall bear their equitable share of the cost of the system. For the purposes of calculating a connection charge, the board of commissioners shall determine the pro rata share of the cost of existing facilities and facilities planned for construction within the next ten years and contained in an

adopted comprehensive plan and other costs borne by the district which are directly attributable to the improvements required by property owners seeking to connect to the system. The cost of existing facilities shall not include those portions of the system which have been donated or which have been paid for by grants. The connection charge may include interest charges applied from the date of construction of the 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 district 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. . .

While the District has some flexibility to define an equitable share of system costs, it is important that the District follow a rational approach to consistently implement cost-based GFCs. FCS GROUP uses this language as guidance for calculating GFCs as it is likely to be used as a reference if GFCs are challenged. Since the calculated charges represent the maximum allowable charge, the District may choose to charge less but may not charge more than the calculated charge.

General Methodology

The basic approach to a GFC calculation can be shown in general terms:



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

- Existing system: These costs represent the net investment in assets that currently provide service to customers (and that presumably have some amount of capacity to serve growth).
- Future capital projects: These costs refer to capital improvement projects that the utility plans to undertake within a period of time specified in the system planning documents, but not more than ten years. These projects typically fall into one of three categories, depending on the reason for the capital expenditure. District staff helped allocate projects to these categories for this analysis.
 - 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 excluded from the GFC calculation as they are assumed to be repairing or replacing fixed assets that are already accounted for within the existing system cost.
 - 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 applicable customer base is measured in Meter Capacity Equivalents (MCEs) at system buildout.

RECOMMENDED METHODOLOGY

Under the recommended methodology, all relevant capital costs (existing assets, upgrades and expansion projects) are divided by buildout capacity. The main policy emphasis here is on intergenerational equity—there is no cost advantage for either existing or new customers. This calculation is like a simple buy-in charge (which consists of existing costs divided by existing customers), except that it is projected into a future year, after the planned capital projects are completed. The resulting GFC is generally stable over time, and we recommend this methodology, shown below, for the District.

$$\text{GFC} = \frac{\text{Existing System Cost} + \text{Future Project Costs: Upgrade / Expansion}}{\text{Existing Customer Base} + \text{Growth in Customers Served}}$$

Average Integrated Approach

Defining Existing System Costs

The existing cost basis is intended to recognize the current ratepayers' net investment in the original cost of system assets. The main provisions of the calculation include:

- **Utility Plant-In-Service:** The existing cost basis is typically comprised of the original cost of plant-in-service, as documented in the fixed asset schedules of a utility. The District's asset records were provided with replacement costs and installation year. The replacement year for those estimates range from 1971 to 2022, with the average replacement cost year being 2018. These estimates were converted into original cost estimates by using the Engineering News Record's Construction Cost Index.
- **Less: Contributed Capital:** Assets funded by developers or grants are excluded from the cost basis on the premise that the GFC should only recover costs actually incurred by the District.
- **Less: Original Cost for Water and Sewer Laterals, and for Meters:** Similar to contributed capital, water and sewer laterals and water meters are paid for by developers and the GFC should only recover costs actually incurred by the District.
- **Plus: Interest on Non-Contributed Plant:** The RCW and subsequent legal interpretations provide a guideline for GFCs which suggests that such charges can include interest on an asset at the rate applicable during the time of construction. Using the historical Bond Buyer Index for 20-year term bonds, interest can accumulate for a maximum of ten years from the date of construction for any particular asset. Conceptually, this interest provision attempts to account for opportunity costs that the District's customers incurred by supporting investments in infrastructure rather than having it available for other needs.
- **Plus: Construction Work In Progress:** The cost of construction work in progress is added to the existing cost basis to recognize investments that a utility has made in capital projects that are currently underway, despite the fact that these projects have not yet been placed into service.
- **Less: Net Debt Principal Outstanding:** Another adjustment to the existing system cost basis is to deduct the net liability of outstanding utility debt, recognizing that new customers will bear a proportionate share of annual debt service through ongoing utility service rates.

Outstanding debt represents assets that have been placed in service but that today's ratepayers have not yet paid for. However, cash reserves represent money that today's ratepayers *have* paid for, and that cash could be substituted for indebtedness if needed. So, in calculating the amount that should be subtracted from the GFC cost basis, we first deduct cash reserves from the outstanding debt (which is why it is referred to as "*net* debt principal outstanding"—that is, net of cash reserves). If the amount of cash reserves is greater than the amount of outstanding debt, the deduction for net debt principal outstanding is zero—it cannot be negative. (The term "cash reserves" includes both cash and investments.)

Defining Future System Costs

A utility capital improvement program (CIP) includes projects that address many needs, including system expansion, upgrades and the repair and replacement of infrastructure. In some cases, a single CIP project can serve more than one of these purposes. A maximum of 10-years of capital projects may be included in GFC calculations for special purpose districts, according to RCW 57.08.005, and those projects must be included in an adopted comprehensive plan. As previously noted, repair and replacement projects are excluded from the future cost basis. All costs included in the calculations are in estimated 2022 dollars. The District currently has a system reinvestment plan spanning 2022-2031, and this is used in the charge calculations.

Defining The Customer Base

A key objective in defining the customer base is to determine the number of "customer units" the system can support. In other words, "How many customer equivalents can the system serve, once the capital plan has been fully executed?" According to the District's 2018 water utility and 2020 wastewater utility comprehensive plans, the existing systems (with routine repair and replacement) can serve projected buildout. However, a 2021-22 Disinfection Analysis performed by Gray and Osborne in 2021-22 concluded that the District should consider baffling efficiency and/or larger chlorine contact basin projects to ensure adequate capacity in its water utility system through buildout. As a result of that analysis, the District is planning to add a new 300,000 gallon chlorine contact basin. That project is included in the water utility's capital program and the growth-related portion is included in the GFC update.

CALCULATION RESULTS

This section describes the results of the GFC calculation based on the recommended methodology outlined in Section I.

WATER UTILITY RESULTS

The following exhibit shows the existing charge and the updated calculation.

Exhibit 1: Results of the Water GFC Calculation

District GFC	Existing 2022	Calculated 2022
Water		
5/8 x 3/4 Meter	\$6,338	\$7,832
Increase (\$)		\$1,495
Increase (%)		24%

Defining the Customer Base

The District currently administers the water GFC based on the meter size of the new customer, using meter capacity equivalents (MCEs) as defined by the American Water Works Association (AWWA). The MCE ratios shown below represent the maximum safe operating flow capacity in gallons per minute, relative to the smallest meter size (which is a 5/8" x 3/4" meter).

However, capacity and buildout figures in the District's system plans are represented in equivalent residential units (ERUs) rather than MCEs. A reasonable effort was made to correlate those ERUs to MCEs. This helps maintain consistency with how the charge was calculated (MCEs) and how the charge is administered (MCEs).

According to the District's records, the District has a total of 3,744 meters in its system. Those meters are of various sizes, with the count by size shown in the exhibit below. By multiplying the number of meters by their relative MCE ratios and then summing the calculated MCEs, the total number of MCEs was calculated to be 3,913.

Exhibit 2: Total Current (2022) Water MCEs Calculation

Meter Size (in)	Number of Meters (2022)	MCE Ratio (from District Rate Schedule)	Water MCEs (2022)
5/8 x 3/4	3,688	1.00	3,688
1	30	2.00	60
1.5	19	5.00	95
2	6	8.00	48
3	1	22.00	22
Total	3,744		3,913

According to the Water System Comprehensive Plan, the total number of ERUs in the District’s water system will grow from 3,982 to 4,703 by buildout, a change of 18 percent. By applying that change to the number of MCEs in the District’s system, it is expected that the District will have 4,622 MCEs at buildout. These calculations are summarized in the exhibit below.

Exhibit 3: Calculation of Total Water MCEs at Buildout

	2022	Buildout
Area		
Sudden Valley ERUs	2,707	3,267
Geneva ERUs	1,147	1,239
North Shore / Eagleridge ERUs	73	120
North Shore / Wells ERUs	55	77
Total	3,982	4,703
Total Change (2022 to Buildout)		18%
		0
Estimated 2022 MCEs		3,913
Total Change		18%
Applying Total Change to Existing MCEs		4,622

Water GFC Calculation

The following exhibit shows the summary calculation for the Water GFC. The total existing cost basis is \$35.6 million plus \$561,143 in eligible capital projects, for a total cost basis of \$36.2 million. This is then divided by an estimated system capacity at buildout of 4,622 MCEs. This results in a charge of \$7,832 per MCE, as of 2022.

Exhibit 4: Summary-level 2022 Water GFC Calculation per MCE

Capital Cost Basis (\$)	
Existing Assets	\$ 35,636,596
Future Assets (Upgrade/Expansion of System)	561,143
Total Cost Basis	\$ 36,197,739
Buildout Capacity (Estimated in MCEs)	4,622
General Facilities Charge per MCE	\$7,832

SEWER UTILITY RESULTS

The following exhibit shows the existing charge and the updated calculation.

Exhibit 5: Results of the Sewer GFC Calculation

District GFC	Existing 2022	Calculated 2022
Sewer		
5/8 x 3/4 Meter	\$8,528	\$11,934
Increase (\$)		\$3,406
Increase (%)		40%

Defining the Customer Base

The District also administers the sewer GFC based on water meter size and the equivalent meter capacity ratio. The sewer utility customer data did not have the number of accounts by meter size—rather the data consisted of just the number of accounts since the service charges are not based on meter size like they are for the water utility.

To estimate the number of sewer MCEs for the GFC calculation, we took the proportion of sewer accounts to water accounts and applied that factor to the number of water MCEs. As of 2022, there are 4,293 sewer accounts compared to 3,950 water accounts—or 9 percent more sewer accounts than water accounts. This 9 percent factor was applied to the estimated number of water MCEs in 2022 to arrive at an estimated number of 2022 sewer MCEs: 4,253 MCEs. This methodology assumes the same meter size composition for the portion of the sewer service area that does not overlap with the water utility.

Exhibit 6: Calculation of the Current (2022) Number of Sewer MCEs

Total Water Accounts in 2022	3,950
Total Sewer Accounts in 2022	4,293
Sewer ÷ Water	109%
Water MCEs in 2022	3,913
Adjusting Water MCEs by Sewer to Water Account ratio	109%
Estimated Sewer MCEs in 2022	4,253

As in the Water System Comprehensive Plan, system capacity in the District’s Sewer System Comprehensive Plan is estimated in ERUs. Following the same calculations as in the water section of this report, sewer ERUs are expected to grow from 4,391 in 2022 to 5,180 at buildout, an increase of 18 percent. By applying that growth percentage to the estimated 2022 sewer MCEs, the expected number of sewer MCEs at buildout is 5,017. These calculations are summarized in the exhibit below.

Exhibit 7: Calculation of Total Sewer MCEs at Buildout

	2022	Buildout
Area		
Sudden Valley/ Geneva ERUs	3,997	4,657
North Shore ERUs	394	523
Total	4,391	5,180
Total Change (2022 to Buildout)		18%
Estimated 2022 MCEs		4,253
Total Change		18%
Applying Total Change to Existing MCEs		5,017

Sewer GFC Calculation

The following exhibit shows the summary calculation for the Sewer GFC. The total existing cost basis is \$59.9 million. Planned capital projects are all replacement, so there is no future cost basis. The total of \$59.9 million is then divided by an estimated system capacity at buildout of 5,017 MCEs. This results in a charge of \$11,934 per MCE, as of 2022.

Exhibit 8: Summary-level 2022 Sewer GFC Calculation per MCE

Capital Cost Basis (\$)	
Existing Assets	\$ 59,879,971
Future Assets (Upgrade/Expansion of System)	-
Total Cost Basis	\$ 59,879,971
Buildout Capacity (Estimated in MCEs)	5,017
General Facilities Charge per MCE	\$11,934

SUMMARY

The following exhibit shows the existing GFCs by utility, the updated GFC calculation in 2022, and the forecasted charges through 2026, assuming an annual Construction Cost Index (CCI) inflation factor of 3.0 percent per year. The District is allowed to increase the calculated 2022 charge by the annual increase in the Engineering News Record’s CCI.

If the District wants to adopt a multi-year schedule, as they currently do for customer service rates, we believe the 3.0 percent per year used in Exhibit 9 is conservative and defensible (the five-year annual historical average is 3.3 percent and the ten-year average is 3.0 percent).

Exhibit 9: Summary of GFC Calculation plus Projected Charges

District Existing GFCs			Update	Forecasted GFCs with Estimated CCI Inflation (3.0% / yr.)			
Meter Capacity							
Meter Size (inch)	Ratio	Existing 2022	Calculated 2022	2023	2024	2025	2026
Water							
5/8 x 3/4	1	\$6,338	\$7,832	\$8,067	\$8,309	\$8,559	\$8,815
1	2	\$12,675	\$15,665	\$16,135	\$16,619	\$17,117	\$17,631
1.5	5	\$31,688	\$39,162	\$40,337	\$41,547	\$42,794	\$44,077
2	8	\$50,701	\$62,660	\$64,539	\$66,476	\$68,470	\$70,524
3	22	\$139,427	\$172,314	\$177,483	\$182,808	\$188,292	\$193,941
Sewer							
5/8 x 3/4	1	\$8,528	\$11,934	\$12,292	\$12,661	\$13,041	\$13,432
1	2	\$17,056	\$23,869	\$24,585	\$25,322	\$26,082	\$26,864
1.5	5	\$42,640	\$59,672	\$61,462	\$63,306	\$65,205	\$67,161
2	8	\$68,224	\$95,474	\$98,339	\$101,289	\$104,327	\$107,457
3	22	\$187,616	\$262,555	\$270,431	\$278,544	\$286,901	\$295,508

While the District may adjust the GFC at any time, we suggest allowing enough time for public outreach and communication before the new, higher charge goes into effect.

APPENDIX A: WATER GFC CALCULATION

Existing Cost Basis		Notes
PLANT-IN-SERVICE		
Utility Capital Assets	\$ 27,261,061	Fixed Assets as of June 30, 2021, Estimated Original Cost from Replacement Cost
less: Contributed Capital	(185,444)	Donated Assets at Original Cost and Interest on such Assets
less: Original Cost for Meters and Laterals	(2,489,510)	Estimated Original Cost from Replacement Costs for Meters and Laterals
plus: Interest on Non-Contributed Plant	13,305,429	Interest on assets up to a maximum 10-year period
less: Interest for Meters and Laterals	(1,519,050)	Interest on Meters and Laterals up to a maximum 10-year period
plus: Construction-Work-in-Progress	475,805	
Year-end Estimated Cash Balances	\$ 1,515,026	Projected Year Ending 2021
less: Debt Principal Outstanding	<u>(2,726,720)</u>	Projected Year Ending 2021
less: Net Debt Principal Outstanding	\$ (1,211,694)	Debt principal outstanding, net of cash reserves
TOTAL EXISTING COST BASIS	\$ 35,636,596	

Future Cost Basis		Notes
CAPITAL IMPROVEMENT PLAN (2022-2031)		
Total Projects	\$ 11,530,762	
less: R&R Projects	<u>(10,969,619)</u>	
Growth Related Projects	\$ 561,143	
TOTAL FUTURE COST BASIS	\$ 561,143	

Resulting Charge				Notes
Charge Components	Cost Basis	MCEs	Charge	
Component for Existing Assets	\$ 35,636,596	4,622	\$7,711	
Component for Future Assets	<u>\$ 561,143</u>	4,622	<u>\$121</u>	
	\$ 36,197,739	4,622	\$7,832	
TOTAL GFC PER MCE			\$7,832	
Existing GFC per MCE			\$6,338	Jan 1, 2022 GFC per Master Fee Schedule
Increase (%) - Calculated Above Existing GFC			24%	
Increase (\$) - Calculated Above Existing GFC			\$1,495	

APPENDIX B: SEWER GFC CALCULATION

Existing Cost Basis		Notes
PLANT-IN-SERVICE		
Utility Capital Assets	\$ 55,092,919	Fixed Assets as of end of 2021, Estimated Original Cost from Replacement Cost
less: Contributed Capital	(860,560)	Donated Assets at Original Cost and Interest on such Assets
less: Original Cost for Sewer Laterals	(12,742,968)	Estimated Original Cost from Replacement Costs for Laterals
plus: Interest on Non-Contributed Plant	26,333,853	Interest on assets up to a maximum 10-year period
less: Interest for Sewer Laterals	(7,769,923)	Interest on Laterals up to a maximum 10-year period
plus: Construction-Work-in-Progress	2,109,678	
Year-end Estimated Cash Balances	\$ 2,886,972	Projected Year Ending 2021
less: Debt Principal Outstanding	(5,170,000)	Projected Year Ending 2021
less: Net Debt Principal Outstanding	\$ (2,283,028)	Debt principal outstanding, net of cash reserves
TOTAL EXISTING COST BASIS	\$ 59,879,971	

Future Cost Basis		Notes
CAPITAL IMPROVEMENT PLAN (2022-2031)		
Total Projects	\$ 18,902,944	
less: R&R Projects	\$ (18,902,944)	
Growth Related Projects	\$ -	
TOTAL FUTURE COST BASIS	\$ -	

Resulting Charge				Notes
Charge Components	Cost Basis	MCEs	Charge	
Component for Existing Assets	\$ 59,879,971	5,017	\$11,934	
Component for Future Assets	\$ -	5,017	\$0	
	\$ 59,879,971	5,017	\$11,934	
TOTAL GFC PER MCE			\$11,934	
Existing GFC per MCE			\$8,528	Jan 1, 2022 GFC per Master Fee Schedule
Increase (%) - Calculated Above Existing GFC			40%	
Increase (\$) - Calculated Above Existing GFC			\$3,406	