2020

ANNUAL SURVEY OF WHOLESALE CUSTOMERS: SUMMARY OF RESULTS

Consumption Data for 2019
Rates Data for 2020

Seattle Public Utilities

December 2020

RESULTS OF THE 2020 SEATTLE SURVEY OF WHOLESALE CUSTOMERS

Each year, Seattle Public Utilities (SPU) asks its wholesale customers to provide information on their current water demand (both retail and wholesale), sources of supply (in addition to SPU), and their water rates. A complete set of this data by wholesale customer and by year is of critical importance in SPU's efforts to better forecast wholesale demand. Wholesale customers often find the current and historical information provided in this report useful in their own analysis and planning. It also allows them to see how they compare to other wholesale customers and Seattle in a number of areas.

This report summarizes much of the data that was collected in the 2020 wholesale customer survey and is the 27th year the report has appeared in this format. ***SPU appreciates the time and effort each wholesale customer has taken in completing and returning the survey.*** Comparative information is presented on water rates, bills and consumption patterns. Copies of current and past reports (back to 2005) can be downloaded from SPU's website.

Overview

Approximately half the water produced and treated by SPU is sold directly to customers in Seattle's retail service area. The remainder is sold wholesale to the Cascade Water Alliance and 17 neighboring cities and water districts. These wholesale customers are listed below.

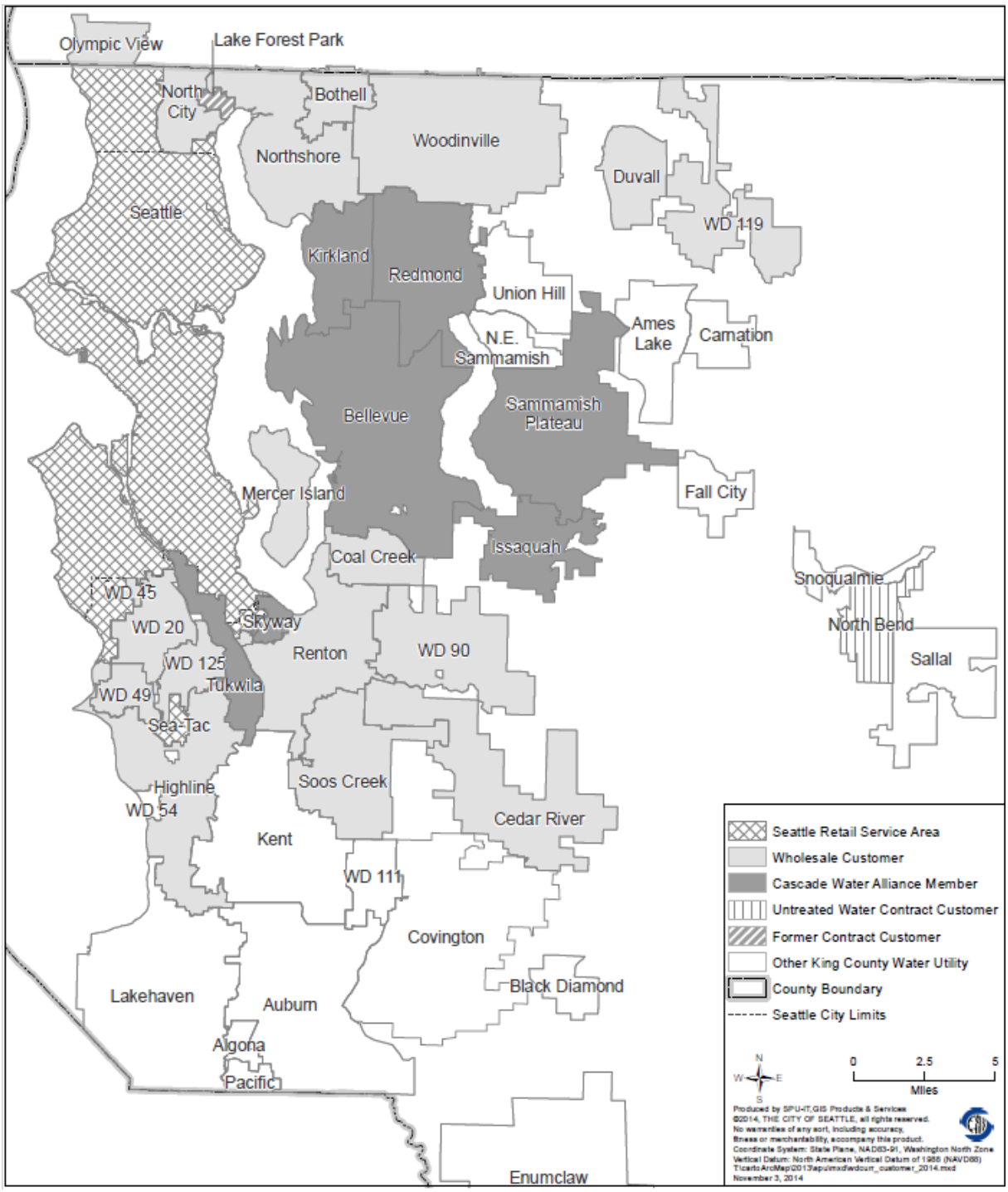
Wholesale Customers of Seattle Public Utilities

Cities	Water Districts	Cascade Water Alliance
· Bothell	·Cedar River Water & Sewer District	·City of Bellevue
· Duvall	·Coal Creek Utility District	·City of Issaquah
· Mercer Island	·Highline Water District	·City of Kirkland
· Renton	·Northshore Utility District	·City of Redmond
	·North City Water District	·City of Tukwila
	·Olympic View Water & Sewer District	·Sammamish Plateau W & S District
	·Soos Creek Water & Sewer District	·Skyway Water & Sewer District
	·Woodinville Water District	
	·Water District No. 20*	
	·Water District No. 49	
	·Water District No. 90	
	·Water District No. 119	
	·Water District No. 125	

**Effective February 2019, Water District 45 was assumed by Water District 20 and no longer exists; data for Water District 45 prior to the assumption date has been included in data for Water District 20.*

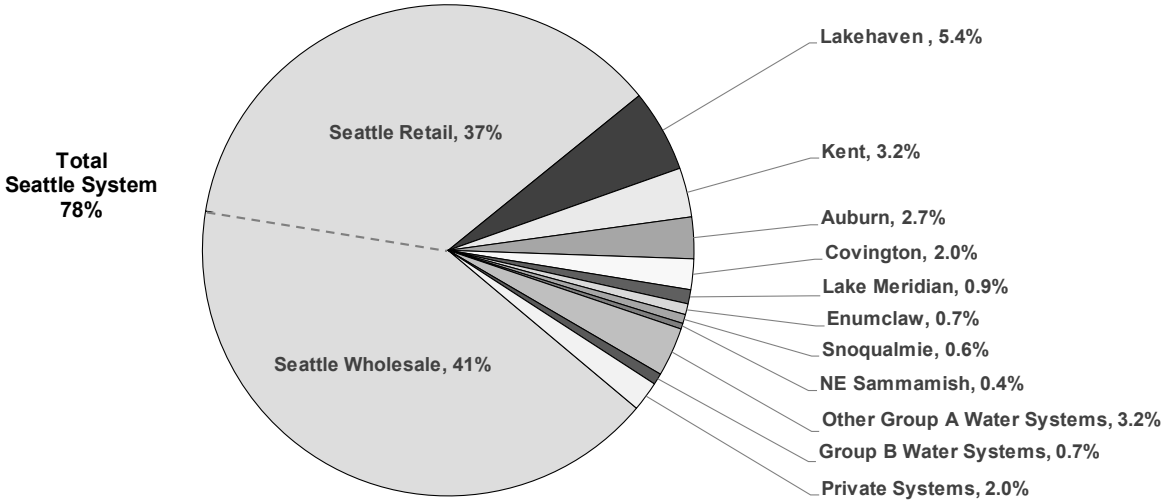
Note that the city of North Bend is not included in the survey though it has contracted with SPU to receive untreated mitigation water from the Cedar River watershed.

Water Utilities in King County



While there are almost 1,950 public water systems in King County and an estimated fourteen thousand private systems, the 32 largest water utilities serve about 94% of the county's population. Seattle and its wholesale customers alone provide water to almost 80% of the population of King County, as well as more than 15,000 people in southwest Snohomish County.

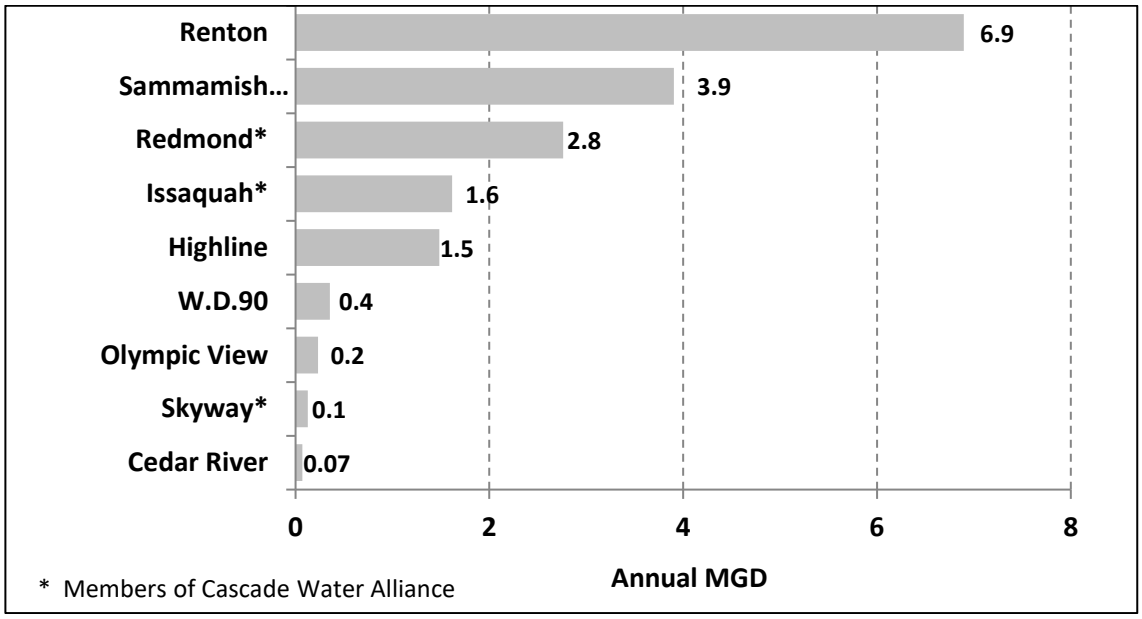
Percent of Population Served by Water Providers in King County



Supply: SPU has two surface water sources and a small ground water source: the Cedar River system, the South Fork Tolt Reservoir, and the Seattle Well Fields. Typically, the Cedar River system provides 60 to 70 percent of total supply, and the South Fork Tolt system delivers the remaining 30 to 40 percent. Seattle's two well fields are available to provide peak season and emergency water supply. Total annual average firm yield from the current system is estimated at 172 million gallons per day (mgd).

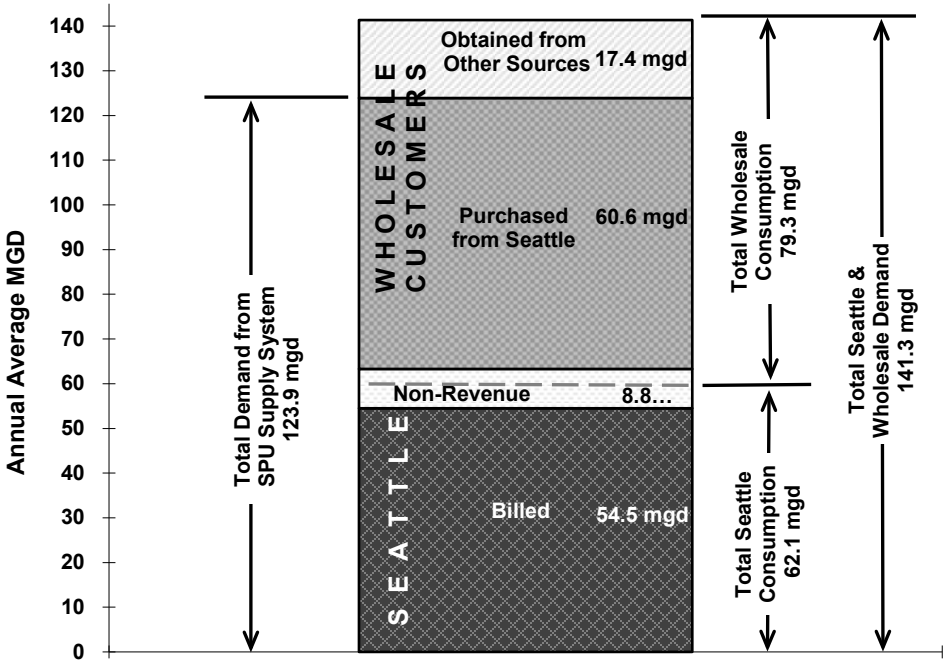
A number of Seattle's wholesale customers have their own sources of supply, which reduces their demand from the SPU supply system. As shown in the figure below, wholesale customers obtained a total of about 17 mgd from their own sources of supply.

Water Obtained from Own Sources of Supply: 2019



Demand: Seattle and wholesale water demand totaled 141.3 mgd in 2019, down by 1.5 mgd from 2018. Of the 141.3 mgd total, 123.9 mgd came from the SPU supply system and 17.4 mgd was obtained from wholesale customers' own sources of supply. Various components of Seattle and wholesale demand are shown in the chart below[1]. Seattle demand was 62.1 mgd including 7.6 mgd of non-revenue water. Total wholesale demand of 79.3 mgd consisted of 61.8 mgd from Seattle (60.6 mgd purchased and 1.2 mgd transmission losses) and 17.4 mgd obtained from other sources. Included in wholesale demand, but not shown separately on the chart, is about 6.5 mgd of non-revenue water in their distribution systems.

Components of Seattle and Wholesale Water Demand in MGD: 2019



The graph below illustrates how Seattle system water consumption has changed over time. While population has risen steadily since 1975, total water demand leveled off during the 1980s at about 170 mgd, before dropping off sharply due to the 1992 drought. During the rest of the 1990s, the combined effects of rising water rates, the 1993 plumbing code, conservation programs, and improved system operations kept total consumption at or just under 150 mgd – well below pre-drought levels. In the following decade, increasingly efficient appliances and fixtures and the impact of the regional water conservation program further extended the downward trend. By 2010, the amount of water provided by the SPU supply system bottomed out at about 118 mgd. Since then, continued conservation investment through the regional water conservation program and improvements in appliance/fixture efficiencies have been enough to offset the recent spurt in population growth. The result has been a leveling off of water demand during the current decade.

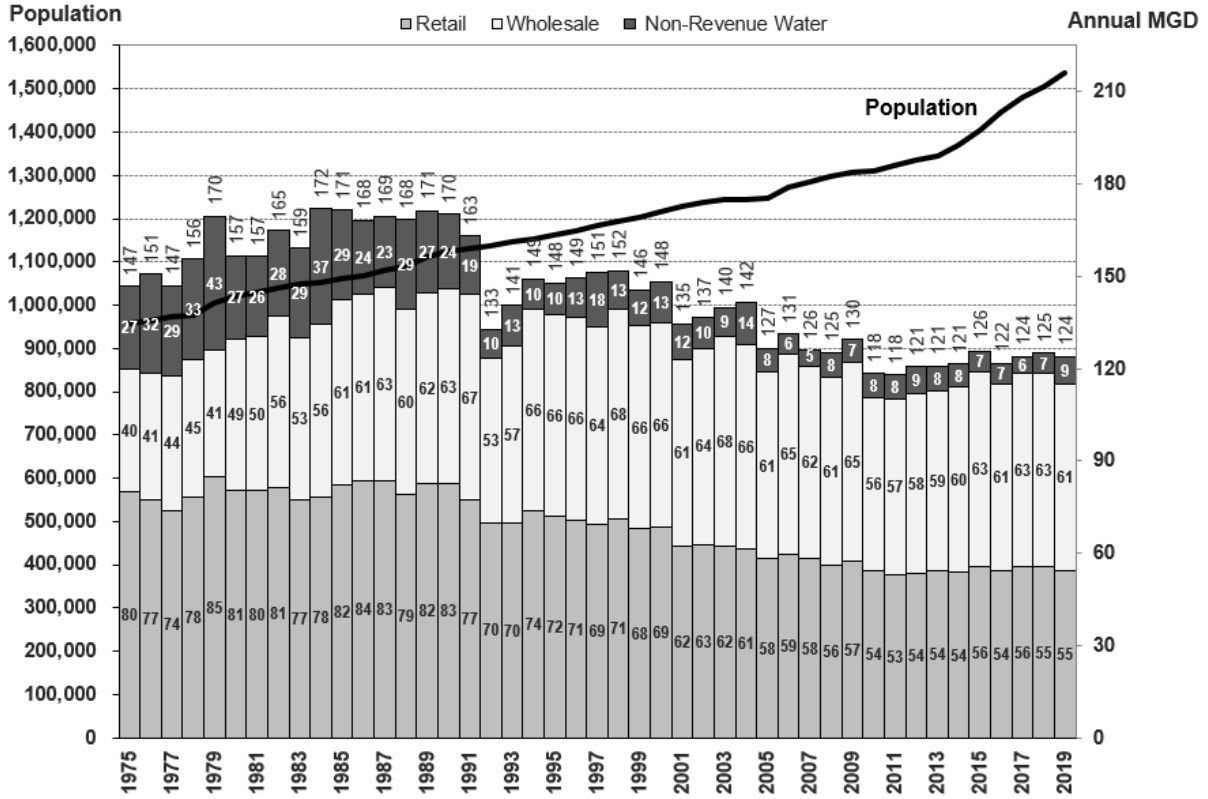
There appears to have been an uptick in water demand over the past several years that is due largely to the weather and, specifically, a spate of hot, dry summers. Every summer starting in 2013 has been warmer than average. The summer of 2015 was the hottest on record but

[1] Components may not add to total due to rounding.

others were close. Looking at daily high temperature averaged over each year's hottest 3-month period, there are only seven years on record (since 1949) with 3-month averages at 78° or higher (normal is 74.4°). Five of those seven have been in the last 7 years (2013-2018 excluding 2016). Another way to confirm the current flat demand trend is to focus on winter base consumption which eliminates summer variability. While base consumption dropped 40 mgd over the last 2½ decades, it appears to have bottomed out at approximately 100 mgd where it's been for the past several years.

In percentage terms, total Seattle system water consumption has declined 27% since 1990 while population has *increased* 37%. As a result, total consumption *per capita* is 47% less than it was in 1990. Wholesale demand from the Seattle water system grew by two thirds from 40 mgd in 1975 to 67 mgd in 1991. Following the 1992 drought though, wholesale demand leveled off (averaging 66 mgd) for the next decade and a half before dropping to around 60 mgd the last nine years. Seattle retail demand was essentially flat between 1975 and 1991 (averaging 80 mgd) but trended steadily downward before leveling off at about 55 mgd after 2010. Finally, non-revenue water was cut by more than half due to actions taken by Seattle just before and during the 1992 drought.[2] Seattle's now-completed program to cover all its in-city reservoirs further reduced non-revenue water to an average of about 7 mgd (5%).

Population* and Components of Annual Water Demand in MGD
Seattle Regional System: 1975-2019



* Population has been adjusted downwards to reflect that some wholesale customers have other sources of supply in addition to what they purchase from SPU.

[2] These actions included reducing in-city reservoir overflows, eliminating regular flushing of Green Lake, relining leaky reservoirs, changing reservoir washing practices, and rehabilitating and replacing other reservoirs.

Water Rates

Residential and commercial rates in effect during 2020 for each wholesale customer and Seattle are summarized in Tables 1.1 and 1.2. While a variety of rate levels and structures are evident, the individual rate structures do not change frequently. All wholesale customers levy a commodity charge and a fixed monthly base service charge (BSC) or meter charge which, in four cases, also includes a minimum level of consumption of 1 to 2.5 hundred cubic feet (ccf) per month. There are three basic commodity rate structures and one hybrid: uniform rates, seasonal rates, and inclined block rates, plus combination of seasonal rates with inclined blocks. Fixed monthly charges on a ¾" meter, the usual size for residential meters, average $22.33 per month with a range of $14.91 per month to $45.00 per month. The range of fixed monthly charges on 2" meters, typical of commercial accounts, is higher: $28.22 per month to $265.39 per month.

Utility Taxes: All water utilities pay a state utility tax of 5.029% applied to total revenue from providing retail water service. Almost half the wholesale customers plus Seattle are assessed additional taxes and fees by their local municipal government(s). The average local tax rate for all subject wholesale customers is 8.5% of total retail revenue. Seattle has the highest total tax rate with 20.6% of its retail revenue going to state and city taxes. Note that some wholesale customers do not include taxes and fees in their published water rates and instead itemize them separately on their customers' bills. In order to make rates and bills comparable between utilities, those taxes and fees have been added back into the rates as shown in Tables 1.1 and 1.2 and into the bill calculations.

Residential Rates: For more than 10 years, neither Seattle nor any of its *current* wholesale customers have had a uniform rate structure,[3] i.e., a single rate per ccf for all volumes and times of the year. Only one wholesale customer (Tukwila) has straight seasonal rates: a single rate in the winter and a single higher rate in the 4-month summer season. Sixteen wholesale customers have simple inclined block rates with from two to five blocks. The size of the blocks is indicated in the "Block Thresholds" column of the tables. For example, Water District 49 has three blocks: the first from 0 to 5 ccf per month, the second from 6 to 8 ccf per month and the last for 9 or more ccf per month. There is considerable variation in the number and size of the blocks and in the rates themselves. Finally, eight wholesale customers and Seattle use various combinations of seasonal and block rates. Olympic View, Woodinville, and Water Districts 90 and 119 have block structures that shift to higher rates in the summer. So does Soos Creek, except there is no higher summer rate in the first block. Similarly, Mercer Island has multiple blocks but no higher summer rates in the first two blocks. Seattle and Highline have single winter rates with blocks only in the summer.

The diversity of residential rate structures results in very different price signals to customers during the peak season. Residential customers of wholesale utilities face marginal summer rates ranging from $3.30 to $22.57 per ccf. The average summer end-block rate (including Seattle) is $8.07 per ccf. Three wholesale customers (Bellevue, Issaquah and Mercer Island) plus Seattle now have end-block rates exceeding $10 per ccf. Issaquah has the highest summer end-block rate: $22.57 per ccf for consumption exceeding 25 ccf per month.

[3] Two former wholesale customers, Lake Forest Park and Edmonds, still have uniform rates

Commercial Rates: Six wholesale customers apply the same rates and rate structures to both their commercial and residential customers. Tukwila maintains the same seasonal structure but changes the rates. Olympic View keeps the same rates but changes the block sizes. The remaining sixteen plus Seattle change rates *and* structure, usually shifting from inclined block and hybrid structures to uniform or seasonal rates, but occasionally just reducing the number of blocks. The highest rate is $10.54 per ccf and the average summer end block rate (including Seattle and uniform and seasonal rates) is $5.83 per ccf.

Customer Bills: Figures 1.1 through 1.4 and Tables 1.3 and 1.4 compare monthly residential bills across wholesale customers. Three consumption levels, defined below, are used throughout:

Monthly Consumption Levels Used in Calculating Bills

Level of Household Consumption	Winter	Summer	Average Annual
Low	3.5 ccf/mo	5 ccf/mo	4 ccf/mo
Medium	6 ccf/mo	9 ccf/mo	7 ccf/mo
High	12 ccf/mo	21 ccf/mo	15 ccf/mo

Note that as of the 2016 survey, these consumption levels have been lowered from what had been used in all previous survey reports. Medium consumption had been defined as 8 ccf/mo in the winter and 12/ccf/mo or 9.33 ccf/mo on an average annual basis. This reflected typical residential consumption in the mid-1990s for wholesale customers. However, average consumption has declined significantly since then and appears to have leveled off at about 7 ccf/mo (see Table 2-4). The new low, medium, and high consumption levels used for bill comparisons are more representative of current consumption patterns.

Figures 1.1, 1.2 and 1.3 graphically display monthly residential bills by wholesale customer at low, medium, and high levels of consumption at 2020 rates. The figures also rank wholesale customers (including Seattle) by the size of their bills revealing two interesting facts. One is that there are big differences in what households pay for water among different utilities. Monthly bills from utilities with the highest rates are more than two times as large as those from utilities with the lowest rates. Average monthly bills range from $23.28 to $58.76 at the low level of consumption and $63.04 to $135.53 at the high level of consumption.

A utility's average residential water bill is a function of both its rates *and* its average residential consumption. A problem with most comparisons of water bills across utilities (including the comparisons in Figures 1.1 through 1.3) is that the comparisons use a single level of consumption to calculate the bills. But if the chosen level of consumption is typical for one utility, it may not be for another. Consider two utilities having exactly the same rates. One could have higher average bills than the other because its average consumption is higher. To correctly compare average bills across utilities, each utility's bill should be calculated at its average level of consumption. This has been done in Figure 1.4. Average monthly residential consumption in 2019 ranged from 5.0 ccf per month in Seattle and Skyway to 7.6 ccf per month in Sammamish Plateau. In Figure 1.4, Redmond has the lowest average residential bill while Water District 119 tops the list. Water District 119's volume rates are below the average but it has the highest residential meter charge.

There are many possible explanations for the wide variation in residential rates and bills. These include utilities having:

- different financial policies,
- different levels of taxes and fees,
- different levels of investment in new and replacement infrastructure,
- different proportions of rate revenue, non-rate revenue, and debt,
- different proportions of residential and commercial customers,
- different cost allocations between customer classes,
- different customer densities,
- and different rates of customer and service area growth.

The other phenomenon revealed by the graphs is how much wholesale customer rankings can change at different levels of consumption, i.e., the wholesale customer with the highest bill at one level of consumption may be far from the highest at other levels of consumption. For example, Mercer Island has the highest bill at high consumption, but drops to sixth and eighth highest at medium and low consumption, respectively. Sammamish Plateau is a good example of the opposite pattern, moving up from the fifth *lowest* bill at high consumption to fifth *highest* bills at low consumption. Finally, others, such as Coal Creek, Water District 49 and Water District 90, are in the middle for all levels of consumption. (Table 1.4 summarizes the different rankings from Figures 1.1 through 1.3.)

There are two factors that explain the shifts in relative rankings of wholesale customer bills at different levels of consumption. One is different rate structures. For example, a steeply inclined block structure tends to favor low volume users while a flatter rate structure favors high volume users. The second factor is the relative magnitudes of the fixed and variable components of the rates. Higher meter charges relative to volume charges result in higher bills for low volume users and proportionally lower bills for high volume users. The combined impact of these factors can be seen in Table 1.4. In general, wholesale customers with relatively high meter charges and relatively low volume charges move down in the rankings (their bills get smaller compared to other wholesale customers) as consumption increases. Wholesale customers with lower meter charges and higher or steeply inclining volume charges tend to move in the opposite direction, placing higher in the rankings as consumption increases. In many cases, the "meter charge effect" offsets the "rate structure effect" so that the wholesale customer maintains its ranking across all consumption levels.

Table 1.3 displays monthly bills at the medium level of consumption (graphed in Figure 1.2) and the difference between winter and summer bills by wholesale customer. Note that the summer/winter differential is not the differential in *rates* but in *bills*. Many wholesale customers have a differential of less than 50% even though bills are calculated with 50% more consumption in summer than in winter. This means that the *average* rate charged *per ccf* by these wholesale customers is actually *less* in the summer than in the winter. This seemingly contradictory result is due to the impact of the meter charge which is spread over a greater number of ccf in the summer. This effect diminishes as the level of consumption rises and the meter charge represents a smaller and smaller proportion of the total bill. Issaquah, Woodinville, Tukwila, and Soos Creek have differentials of more than 50%, a sign that the *average* rate charged per ccf in the summer is greater than in the winter. This is because they tend to have relatively low monthly meter charges and/or very steeply inclined block structures and/or seasonal rates with significant increment between peak and off-peak rates.

Consumption Patterns

Annual Consumption: Figures 2.1 and 2.2 display annual water purchases from SPU and annual retail water sales by wholesale customer for 2019. Tables 2.1 and 2.2 provide a historical perspective by displaying 15 years of data on annual retail consumption by wholesale customer and wholesale purchases from Seattle. Note that annual purchases from SPU are often very different than wholesale customers' retail demands. Purchases from SPU are less than the actual demand of wholesale customers who have their own sources of supply or who buy from others. And while most Cascade members still obtain water directly from SPU's transmission system, they no longer purchase it directly from SPU. Instead, the Cascade Water Alliance pays SPU for what is owed and then bills its members. Some water purchased by Cascade is wheeled to members who may not have direct connections to the Seattle system such as Issaquah and Sammamish Plateau (for example, some of the water shown in Figure 2.1 as "purchased" by Bellevue ends up in Redmond, Issaquah, or Sammamish Plateau).

Consumption Trends: Figure 2.3 shows the growth, or in over half the cases, the decline in total retail water consumption for Seattle and each of the wholesale customers over the 24-year period 1995 to 2019. Six utilities, most in expanding and faster growing areas, have experienced positive water demand growth since 1995. Two utilities – Soos Creek and Kirkland – have had almost no change. The rest are using less water than they did 24 years ago. Total 2019 water demand for all wholesale customers is less than it was in 1995. The largest decreases have been in North City and Skyway, where water demand has dropped by 28% to 29% (1.2% - 1.5% a year). This indicates that for Seattle and over half of its wholesale customers, the combined effect of conservation programs, fixture and appliance codes, and rising water rates has more than offset the impact of growth in the customer base. (Note that the apparent even larger decline for Coal Creek (45%) is due to the annexation of much of its service territory by Bellevue in 2003. The decline in demand for Coal Creek and Bellevue combined is just 11.9% over the last two decades.)

Non-Revenue Water: Figure 2.4 ranks wholesale customers by percent of non-revenue water in 2019, i.e., the percent of their total water purchases and production that is not sold. Percent non-revenue water for 2017, and 2018 is also shown. Table 2.3 shows annual distribution system percent non-revenue water by wholesale customer for the years 2005 through 2019 and the average for each wholesale customer over those years. Percent non-revenue water is calculated as follows:

$$(PS + PO + OS - RS - WS) \div (PS + PO + OS)$$

where

PS = Water Purchased from Seattle
PO = Water Purchased from Others
OS = Water obtained from Own Supply
RS = Water Sold Retail
WS = Water Sold Wholesale

There are many causes of non-revenue water. Some are necessary and/or beneficial such as water main flushing, reservoir cleaning and water taken from hydrants for fire-fighting, street cleaning and some construction projects. Others, however, are undesirable and represent wasted water or lost revenues. These include leaks from pipelines and reservoirs, inadvertent

reservoir overflows, theft and slow customer meters. For a newer water system efficiently operated, the percentage of non-revenue water might be expected to be near 5%. Non-revenue water above 10% should prompt some analysis of what the cause might be, and non-revenue water in excess of 15% is definitely a call to action.[4]

The average level of non-revenue water for wholesale customers was 7.8% in 2019[5]. Since 2005, average wholesale distribution system non-revenue water has varied from 5.1% to 9.9% averaging 7.6% over the whole period.

Measurement problems contribute to at least some of the year-to-year variation in non-revenue water evident in Table 2.3 and Figure 2.3. Billing lags and supply meter inaccuracies are two problems that make the precise measurement of non-revenue water difficult. Because of differences in the length of billing lags, the measure of annual wholesale water sales generally doesn't span the exact same period as the measure of annual purchases and production. These two measures of water consumption, the difference of which provides our estimate of non-revenue water, may be offset by as much as two months. Fortunately, these months are in the middle of winter when consumption tends to be relatively constant from month to month. The problem would be much worse if the end of the year coincided with the peak season.

Slow *wholesale* meters or missing meter readings have represented a much more serious problem in measuring non-revenue water by reducing the apparent difference between the amount of water entering a wholesale customer's system and the amount of water sold by that wholesale customer. Extremely low levels of non-revenue water (under 3%) suggest that there is probably some kind of metering problem. Negative non-revenue water, i.e., when metering data implies that more water has been sold than was produced and/or purchased, is a sure sign that one or more meters measuring incoming water is slow. In 2019, there were no wholesale customers with negative non-revenue water suggestive of metering issues.

Per Household and Per Account Consumption: Figures 2.5 and 2.6 rank wholesale customers and Seattle on the basis of 2019 *single-family* consumption *per household* and *total* consumption *per account*. The first measure is often used by wholesale customers in their analysis of current and projected water demand and in their calculation of Equivalent Residential Units (ERUs). The wholesale customer with the highest single-family consumption per household is Sammamish Plateau at 188 gallons per day (gpd), followed by Woodinville at 185 gpd and Mercer Island at 183 gpd. The weighted wholesale average for 2019 was 164 gpd (6.7 ccf per month). Skyway reported the lowest consumption per household with 123 gpd. The variance in per household use between wholesale customers is

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[4] The state Water Use Efficiency Rule requires water utilities to report their Distribution System Leakage (DSL) to the Department of Health annually, and to take action if the 3-year moving average exceeds 10%. Note that non-revenue water is different than DSL. All water produced or purchased but not sold is considered non-revenue water. DSL starts with non-revenue water but subtracts out all authorized uses of water that can be measured or estimated. These include water used for reservoir cleaning and overflowing, main and hydrant flushing, firefighting, and other hydrant use such as construction and street sweeping. If measured, transmission losses can also be deducted in calculating DSL. A utility's estimate of DSL will be less than its non-revenue water to the extent that authorized uses are taken into account.

[5] Percent of non-revenue water for Seattle is not included in Figure 2.3 because it is not directly comparable to wholesale non-revenue water. For wholesale customers, non-revenue water is a distribution system concept. Water lost in transmission from Seattle's sources to wholesale meters is not part of the calculation. However, Seattle non-revenue water consists of both distribution and transmission losses to Seattle plus wholesale transmission losses. Comparing Seattle and wholesale non-revenue water would be misleading unless the distribution system component of Seattle non-revenue water could be isolated. Unfortunately, that is not possible with currently available data.

due to more than just different attitudes towards water conservation. Wholesale customers at the top of the list (Sammamish Plateau, Woodinville, Mercer Island, etc.) tend to have some or all of the following characteristics associated with higher water use: larger lot sizes, higher household incomes, and higher average persons per household. Utilities (including Seattle) with consumption per household at the low end of the scale tend to have just the opposite characteristics: denser development with smaller lots, lower average household incomes, and fewer persons per household. In addition to annual average consumption per single family household, Figure 2.5 also shows peak (4 month) season consumption per household.

There is much greater variation in total consumption per account across wholesale customers as can be seen in Figure 2.6. The weighted wholesale average is 292 gpd. Total consumption per account in Seattle is 276 gpd, a little less than the wholesale average. This is *not* an indication of the relative efficiency of water use among the different utilities. Rather, higher levels of total consumption per account are closely associated with higher proportions of non-residential and multifamily customers. Wholesale customers at the bottom of the list serve predominantly single-family customers. Utilities at the top of the list with the highest consumption per account – Tukwila, Bellevue, Redmond, Bothell, Water District 125, and Renton – also have the highest proportions of non-residential and multifamily consumption, (50% or more of the total – Tukwila is 90%). Total consumption per account and percent of consumption that is *not* single family are highly correlated all the way down the line.

Finally, Table 2.4 provides some history on single family consumption per household by wholesale customer for the period 1994-2019. The overall downward trend in average consumption per household for both wholesale customers and Seattle is apparent in Figure 2.7. The average decline since 1994 has been almost 30%. The range, from low to high, of wholesale consumption per household over time is also depicted in the graph. Like Figure 2.3, this graphically illustrates the impact on single family residential water demand of conservation programs, water efficiency codes for new fixtures and appliances, and rising water and sewer rates.

TABLES AND FIGURES

Water Rates and Bills

Water Consumption Patterns

Table 1.1

A Comparison of 2020 Residential Rates

	Utility	BSC for ¾" Mtr	Season	Block Thresholds** in CCF per Month																												Block Thresholds
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	...	50	...	
1	W.D. 20	$24.20	-	$2.57					$3.30										$4.20													5/15
2	W.D. 49	$20.16	-	$3.88					$4.78		$6.57																					5/8
3	W.D. 90	$29.88	Off-Peak	$0		$3.20					4.00					4.80																7.5/12.5
			Peak			$4.00					4.90					5.70																
4	W.D. 119*	$45.00	Off-Peak	$2.74				$3.45			$4.53							5.50														3.5/7/14
			Peak	4.10				$5.17			$6.77							$8.22														
5	W.D. 125	$14.91	-	$3.92						$4.63																						6
6	Bellevue[T]	$28.36	-	$4.45					$5.65			$7.41														$10.59						5.5/8.5/22.5
7	Bothell[T]	$17.12	-	$3.36					$4.94					$6.38					$8.11									$9.27				5/10/15/25
8	Cedar River	$18.52	-	$2.82					$4.90										$5.71									$8.60				5/15/25
9	Coal Creek	$21.96	-	$3.62					$4.70										$6.01											$8.62		5/15/50
10	Duvall	$28.22	-	$0		$4.20		$5.40		$6.61		$7.81		$9.04																		4/6/8/10
11	Highline[T]	$16.46	Off-Peak	$4.05																												5
			Peak	$4.05					$4.80																							
12	Issaquah[T]	$16.88	-	$2.18		$5.18					$9.64								$15.71									$22.57				2/7/15/25
13	Kirkland[T]	$24.46	-	$0		$5.86										$7.71																12
14	Mercer Island[T]	$19.42	Off-Peak	$4.61					$7.79					$9.36					$12.59														5/10/15
			Peak											$9.47					$12.91													
15	North City[S,T]	$32.20	-		$2.69	$4.23			$5.78							$7.31																2/5/12
16	Northshore[T]	$16.43	-	$3.75					$4.84					$5.93																		5/10
17	Olympic View[T]	$22.76	Off-Peak	$2.51																				$3.69								20
			Peak	$2.81																				4.40								
18	Redmond	$15.15	-	$1.86				$3.71						$5.57										$7.43								4/10/20
19	Renton	$17.95	-	$2.59					$3.48					$4.39																		5/10
20	Sammamish Plateau	$32.03	-	$2.02						$2.46						$3.98												$7.92				6/12/19
21	Skyway	$20.71	-	$4.60				$5.83		$7.34						$9.36																4/6/12
22	Soos Creek	$15.48	Off-Peak	$1.95					$4.00					$5.00					$5.65													5/10/15
			Peak						$4.80					$6.00					$6.78													
23	Tukwila	$19.00	Off-Peak	$2.80																												-
			Peak	$3.90																												
24	Woodinville	$22.55	Off-Peak	$0		$4.93										$7.90																12.5
			Peak			$6.15										$9.19																
25	Seattle	$18.45	Off-Peak	$5.40																												5/18
			Peak	$5.55					$6.86													$11.80										
	Block Thresholds in CCF per Month			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	...	50	...	

Blocks: $0 CCF included with Base Service Charge (BSC) at no additional charge

1st Block | 2nd Block | 3rd Block | 4th Block | 5th Block

* All utilities with seasonal rates use a 4 month peak season except Water District 119 (6 month).

** Block thresholds are the number of ccf per month at which the next rate block is attained. For example, W.D. 45 charges $4.75 per ccf for the first 5 ccf consumed, $5.75 per ccf for the next 7.5 ccf per month, and $6.75 per ccf for all consumption in excess of 12.5 ccf per month.

S Base Service Charge for North City is based on both meter size and the square footage of buildings so there is no single charge that applies to all customers with a 2" meter. The charge shown in the table is the minimum charge and applies to residences with less than 1680 square feet. Larger houses pay more. The monthly charge for a 3,000 square foot home would be $38.36.

T Taxes and fees not included in the published rates of these utilities (Bellevue, Bothell, Issaquah, Kirkland, Mercer Island, North City, Northshore, and Olympic View) have been added to the rates shown in this table.

Table 1.2

A Comparison of 2020 Commercial Rates

	Utility	BSC for 2" Mtr	Season	Block Thresholds in CCF per Month	Block Thresholds
1	W.D. 20	$121.00	-	$2.57 $3.30 $4.20	5/15
2	W.D. 49	$265.39	-	$4.48	-
3	W.D. 90	$77.23	-	$0 $4.80	-
4	W.D. 119*	$79.50	Off-Peak	$2.74 $3.45 $4.53 5.50	3.5/7/14
			Peak	4.10 $5.17 $6.77 $8.22	
5	W.D. 125	$52.50	Off-Peak	$4.06	-
			Peak	$4.45	
6	Bellevue[T]	$130.47	Off-Peak	$5.61	-
			Peak	$7.68	
7	Bothell[T]	$134.91	Off-Peak	$3.78	-
			Peak	$6.47	
8	Cedar River	$72.48	-	$0 $2.82 $4.90 $5.71	5/15
9	Coal Creek	$116.81	Off-Peak	$4.17	-
			Peak	$5.44	
10	Duvall	$28.22	-	$0 $4.20 $5.40 $6.61 $7.81 •••	4/6/8/10
11	Highline[T]	$144.41	Off-Peak	$4.05	5
			Peak	$4.80 $4.80	-
12	Issaquah[T]	$150.57	-	$4.38 $6.77	32
13	Kirkland[T]	$80.58	-	$5.56	-
14	Mercer Island[T]	$155.38	Off-Peak	$4.24	-
			Peak	$10.54	
15	North City[5,T]	$141.00	-	$4.70	-
16	Northshore[T]	$120.55	-	$4.03 $4.30 $4.57	40/80
17	Olympic View[T]	$80.78	Off-Peak	$2.51 $3.69	160
			Peak	$2.81 4.40	
18	Redmond	$98.14	Off-Peak	$2.60	-
			Peak	$4.45	
19	Renton	$107.63	-	$3.55	-
20	Sammamish Plateau	$203.46	Off-Peak	$1.69	-
			Peak	$2.49	
21	Skyway	$236.37	-	$6.63	-
22	Soos Creek	$61.52	Off-Peak	$1.95 $4.00 $5.00 $5.65	5/10/15
			Peak	$4.80 $6.00 $6.78	
23	Tukwila	$115.00	Off-Peak	$5.10	-
			Peak	$6.90	
24	Woodinville	Prior Winter	-	$0 $4.83 $5.29	Prior Winter Average
25	Seattle	$32.50	Off-Peak	$5.40	-
			Peak	$6.86	
	Block Thresholds in CCF per Month			1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 ... 25 ... 32 ... 40 ... 80 ... 160...	

Blocks: $0 CCF included with Base Service Charge (BSC) at no additional charge

1st Block 2nd Block 3rd Block 4th Block 5th Block

* All utilities with seasonal rates use a 4 month peak season except Water District 119 (6 month).

** Block thresholds are the number of ccf per month at which the next rate block is attained. For example, W.D. 45 charges $4.75 per ccf for the first 5 ccf consumed, $5.75 per ccf for the next 7.5 ccf per month, and $6.75 per ccf for all consumption in excess of 12.5 ccf per month.

[5] Base Service Charge for North City is based on both meter size and the square footage of building; so there is no single charge that applies to all customers with a 2" meter. The charge shown in the table is the minimum charge and applies to buildings with less than 1680 square feet. Larger buildings pay more. The monthly charge for a 30,000 square foot building would be $279.92.

[T] Taxes and fees not included in the published rates of these utilities (Bellevue, Bothell, Issaquah, Kirkland, Mercer Island, North City, Northshore, and Olympic View) have been added to the rates shown in the table.

Figure 1.1

Average Monthly Residential Bills at 2020 Rates and LOW Consumption

(3.5 ccf/mo Winter and 5 ccf/mo Summer Consumption)

	Utility	Average Monthly Bill
1	W.D. 119	$58.76
2	Bellevue*	$46.16
3	North City	$46.05
4	Seattle	$40.30
5	Sammamish Plateau*	$40.11
6	Woodinville	$39.93
7	Skyway*	$39.52
8	Mercer Island	$37.87
9	Duvall	$37.02
10	Coal Creek	$36.44
11	Kirkland*	$36.18
12	W.D. 90	$35.95
13	W.D. 49	$35.68
14	W.D. 20	$34.48
15	Olympic View	$33.30
16	Highline	$32.66
17	Tukwila*	$32.03
18	Northshore	$31.43
19	W.D. 125	$30.59
20	Bothell	$30.56
21	Issaquah*	$29.88
22	Cedar River	$29.80
23	Renton	$28.31
24	Redmond*	$23.59
25	Soos Creek	$23.28
	Wholesale Average	**$35.40**

* Member of Cascade Water Alliance

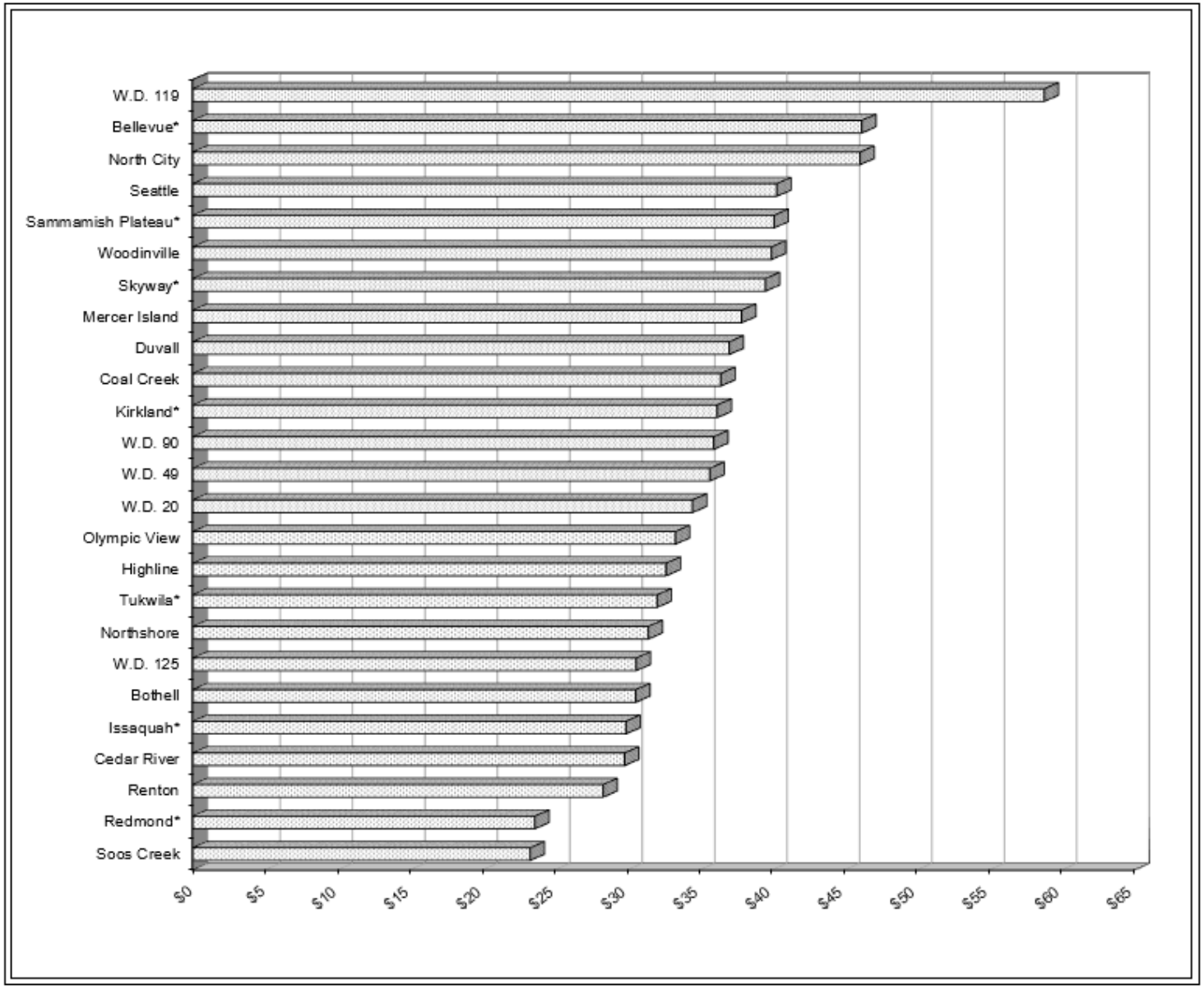

Figure 1.2

Average Monthly Residential Bills at 2020 Rates and MEDIUM Consumption

(6 ccf/mo Winter and 9 ccf/mo Summer Consumption)

	Utility	Average Monthly Bill
1	W.D. 119	$72.47
2	North City	$61.83
3	Bellevue*	$61.60
4	Seattle	$58.45
5	Skyway*	$58.11
6	Mercer Island	$58.07
7	Woodinville	$57.31
8	Duvall	$54.43
9	Kirkland*	$53.76
10	W.D. 49	$49.72
11	Coal Creek	$49.46
12	W.D. 90	$48.03
13	Sammamish Plateau*	$46.61
14	Highline	$45.81
15	Northshore	$44.86
16	Bothell	$43.80
17	W.D. 20	$43.65
18	W.D. 125	$43.06
19	Cedar River	$42.42
20	Tukwila*	$41.90
21	Olympic View	$41.23
22	Issaquah*	$38.03
23	Renton	$37.86
24	Redmond*	$34.65
25	Soos Creek	$34.29
	Wholesale Average	**$48.46**

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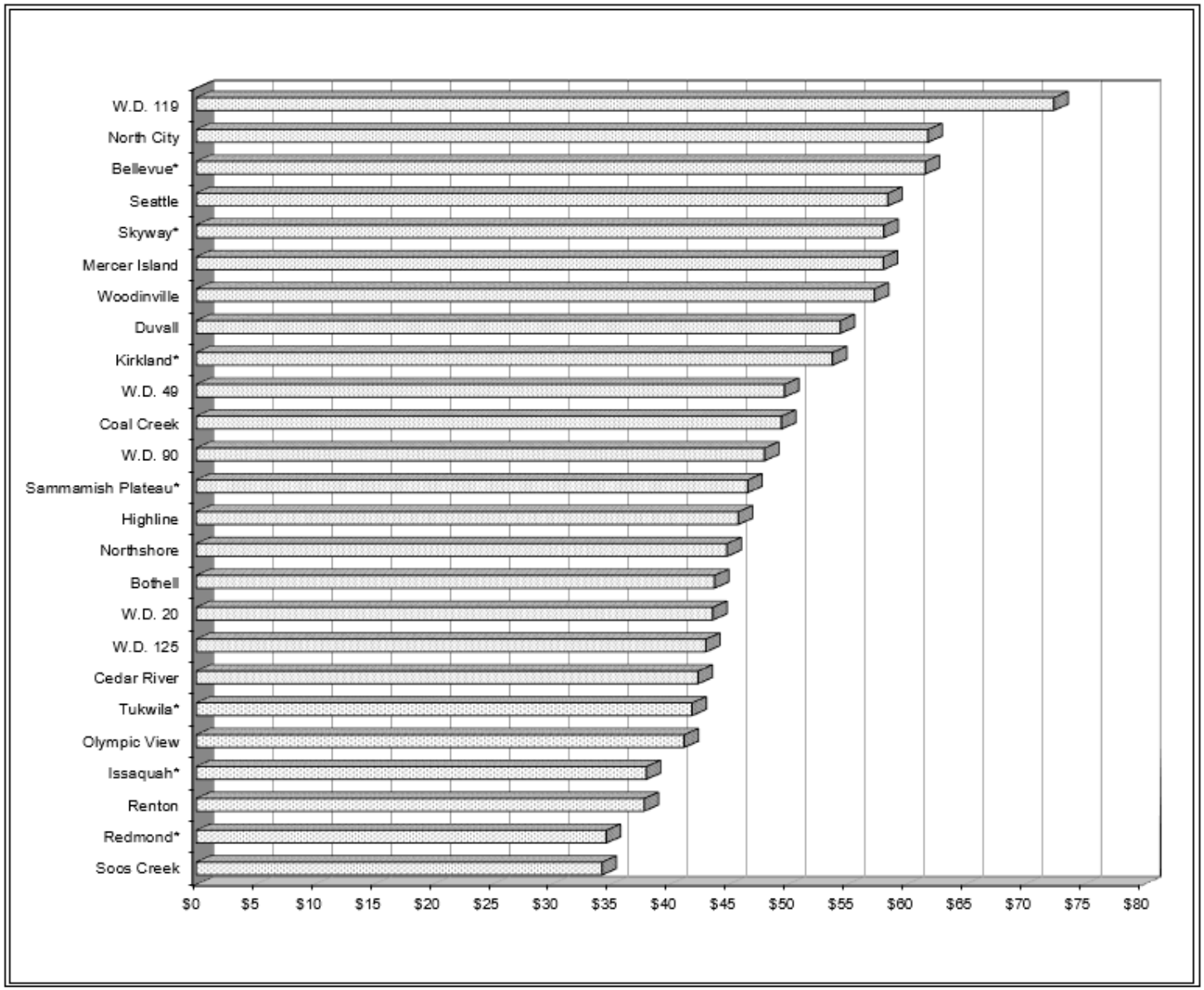

Figure 1.3

Average Monthly Residential Bills at 2020 Rates and HIGH Consumption

(12 ccf/mo Winter and 21 ccf/mo Summer Consumption)

	Utility	Average Monthly Bill
1	Mercer Island	$135.53
2	Skyway*	$122.89
3	Duvall	$121.46
4	W.D. 119	$120.34
5	Bellevue*	$117.95
6	North City	$112.66
7	Seattle	$112.43
8	Woodinville	$111.82
9	Issaquah*	$111.22
10	Kirkland*	$106.20
11	W.D. 49	$99.89
12	Bothell	$93.98
13	Coal Creek	$89.68
14	Northshore	$89.03
15	W.D. 90	$85.44
16	Cedar River	$83.24
17	Highline	$81.21
18	W.D. 125	$80.10
19	Redmond*	$77.65
20	Soos Creek	$76.79
21	Sammamish Plateau*	$73.48
22	W.D. 20	$71.85
23	Renton	$70.25
24	Tukwila*	$68.70
25	Olympic View	$63.04
	Wholesale Average	**$94.35**

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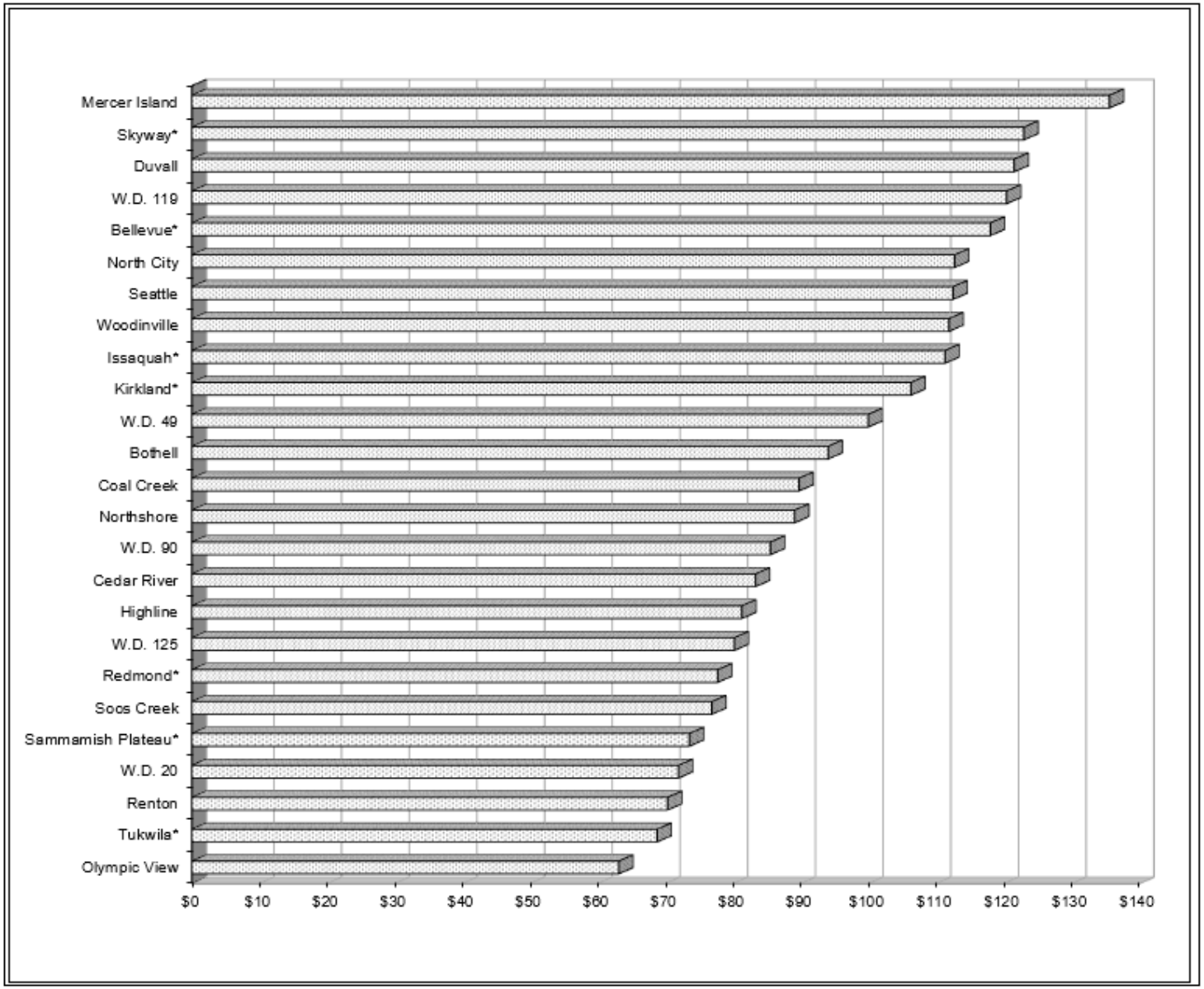

Figure 1.4

Average Monthly Residential Water Bills at Each Utility's Average Consumption

	Utility	Average Monthly CCF	Average Monthly Bill
1	W.D. 119	6.3	$72.96
2	Mercer Island	7.4	$63.93
3	Bellevue*	7.4	$63.20
4	Woodinville	7.5	$60.72
5	North City	5.3	$52.87
6	Coal Creek	7.0	$49.56
7	Kirkland*	6.7	$49.28
8	Sammamish Plateau*	7.6	$48.25
9	Duvall	5.9	$47.63
10	W.D. 90	7.0	$47.57
11	Seattle	5.0	$46.69
12	Skyway*	5.0	$44.84
13	Highline	6.6	$44.22
14	W.D. 49	5.9	$43.96
15	W.D. 125	6.9	$42.59
16	Issaquah*	5.6	$41.42
17	Olympic View	7.1	$41.33
18	Northshore	6.2	$41.09
19	Cedar River	6.7	$40.90
20	W.D. 20	5.8	$39.82
21	Bothell	6.1	$39.46
22	Tukwila*	6.1	$38.55
23	Renton	6.2	$35.04
24	Soos Creek	6.6	$32.26
25	Redmond*	6.2	$31.44
	Wholesale Average	**6.41**	**$46.38**

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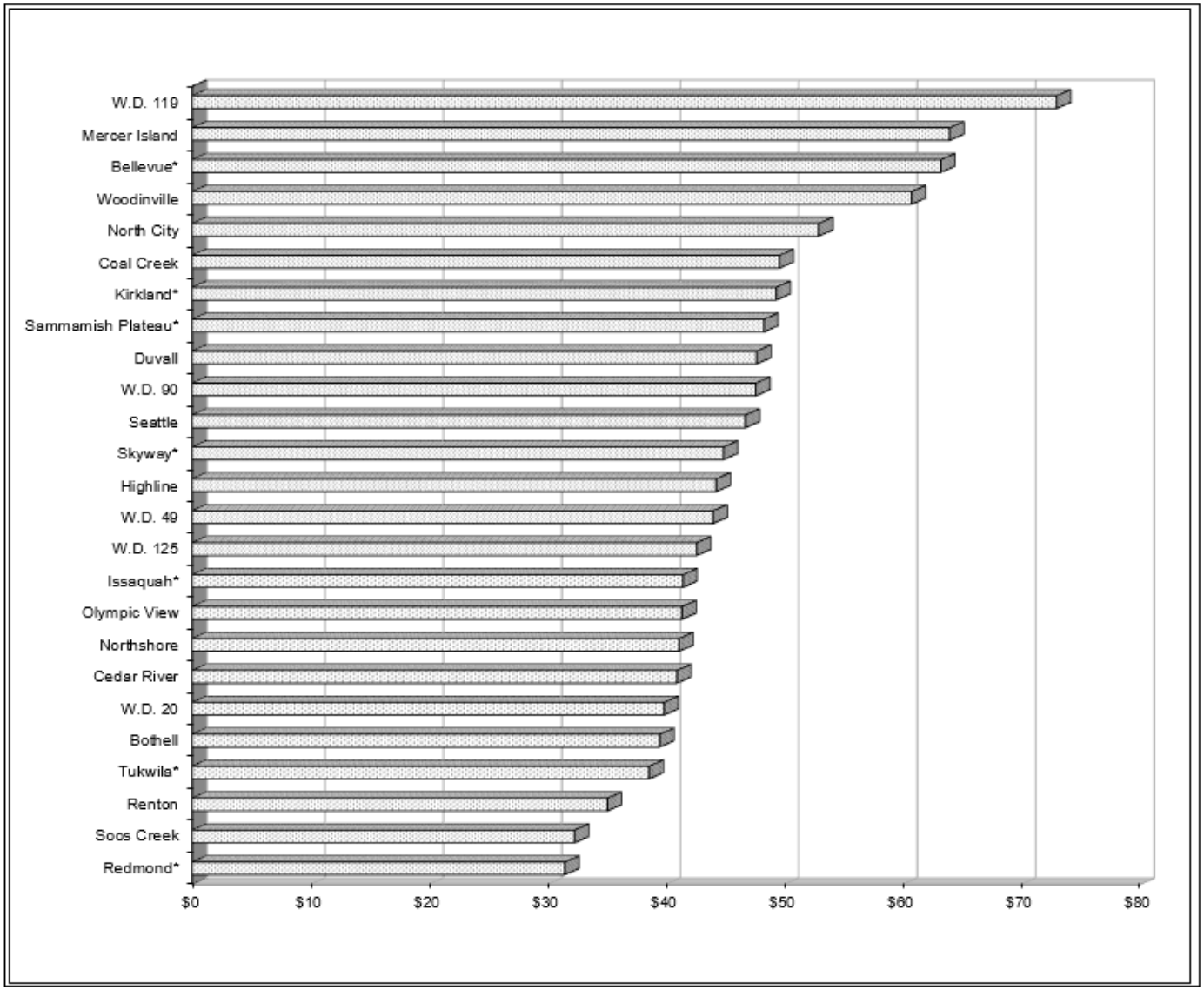

Table 1.3

AVERAGE ANNUAL, WINTER, AND SUMMER RESIDENTIAL BILLS
with 2020 Rates & Medium Consumption: 6 ccf/mo Winter, 9 ccf/mo Summer
Ranked from Highest to Lowest

Rank	Utility	Monthly Residential Bills			Summer/Winter
		Avg. Annual	Winter	Summer	Differential**
1	W.D. 119	$72.47	$63.22	$90.99	43.9%
2	North City	$61.83	$56.05	$73.38	30.9%
3	Bellevue*	$61.60	$55.66	$73.49	32.0%
4	Seattle	$58.45	$50.85	$73.64	44.8%
5	Skyway*	$58.11	$50.77	$72.79	43.4%
6	Mercer Island	$58.07	$50.28	$73.65	46.5%
7	Woodinville	$57.31	$48.65	$74.63	53.4%
8	Duvall	$54.43	$47.42	$68.45	44.3%
9	Kirkland*	$53.76	$47.90	$65.49	36.7%
10	W.D. 49	$49.72	$44.34	$60.47	36.4%
11	Coal Creek	$49.46	$44.76	$58.86	31.5%
12	W.D. 90	$48.03	$42.30	$59.48	40.6%
13	Sammamish Plateau	$46.61	$44.15	$51.53	16.7%
14	Highline	$45.81	$40.76	$55.92	37.2%
15	Northshore	$44.86	$40.02	$54.54	36.3%
16	Bothell	$43.80	$38.86	$53.68	38.1%
17	W.D. 20	$43.65	$40.35	$50.25	24.5%
18	W.D. 125	$43.06	$38.43	$52.32	36.1%
19	Cedar River	$42.42	$37.52	$52.22	39.2%
20	Tukwila*	$41.90	$35.80	$54.10	51.1%
21	Olympic View	$41.23	$37.82	$48.05	27.0%
22	Issaquah*	$38.03	$31.61	$50.89	61.0%
23	Renton	$37.86	$34.38	$44.82	30.4%
24	Redmond*	$34.65	$30.01	$41.14	37.1%
25	Soos Creek	$34.29	$29.23	$44.43	52.0%
WHOLESALE AVERAGE		**$48.46**	**$42.93**	**$59.40**	**38.4%**

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**Note that the summer/winter differential is not the differential in rates but in bills. Almost all utilities have a differential of less than 50% even though bills are calculated with 50% more consumption in summer than in winter. This means that the average rate charged per ccf by these utilities is actually less in the summer than in the winter. This seemingly contradictory result is due to the impact of the meter charge which is spread over a greater number of ccf in the summer.

Table 1.4

Ranking of Bills at Different Levels of Consumption

Ranking at Low Consumption*		Ranking at Medium Consumption		Ranking at High Consumption	
1	W.D. 119	1	W.D. 119	1	Mercer Island
2	Bellevue*	2	North City	2	Skyway*
3	North City	3	Bellevue*	3	Duvall
4	Seattle	4	Seattle	4	W.D. 119
5	Sammamish Plateau*	5	Skyway*	5	Bellevue*
6	Woodinville	6	Mercer Island	6	North City
7	Skyway*	7	Woodinville	7	Seattle
8	Mercer Island	8	Duvall	8	Woodinville
9	Duvall	9	Kirkland*	9	Issaquah*
10	Coal Creek	10	W.D. 49	10	Kirkland*
11	Kirkland*	11	Coal Creek	11	W.D. 49
12	W.D. 90	12	W.D. 90	12	Bothell
13	W.D. 49	13	Sammamish Plateau*	13	Coal Creek
14	W.D. 20	14	Highline	14	Northshore
15	Olympic View	15	Northshore	15	W.D. 90
16	Highline	16	Bothell	16	Cedar River
17	Tukwila*	17	W.D. 20	17	Highline
18	Northshore	18	W.D. 125	18	W.D. 125
19	W.D. 125	19	Cedar River	19	Redmond*
20	Bothell	20	Tukwila*	20	Soos Creek
21	Issaquah*	21	Olympic View	21	Sammamish Plateau*
22	Cedar River	22	Issaquah*	22	W.D. 20
23	Renton	23	Renton	23	Renton
24	Redmond*	24	Redmond*	24	Tukwila*
25	Soos Creek	25	Soos Creek	25	Olympic View

Definition of Consumption Levels:**

	Winter	Summer	Average
Low	3.5 ccf/mo	5 ccf/mo	4 ccf/mo
Medium	6 ccf/mo	9 ccf/mo	7 ccf/mo
High	12 ccf/mo	21 ccf/mo	15 ccf/mo

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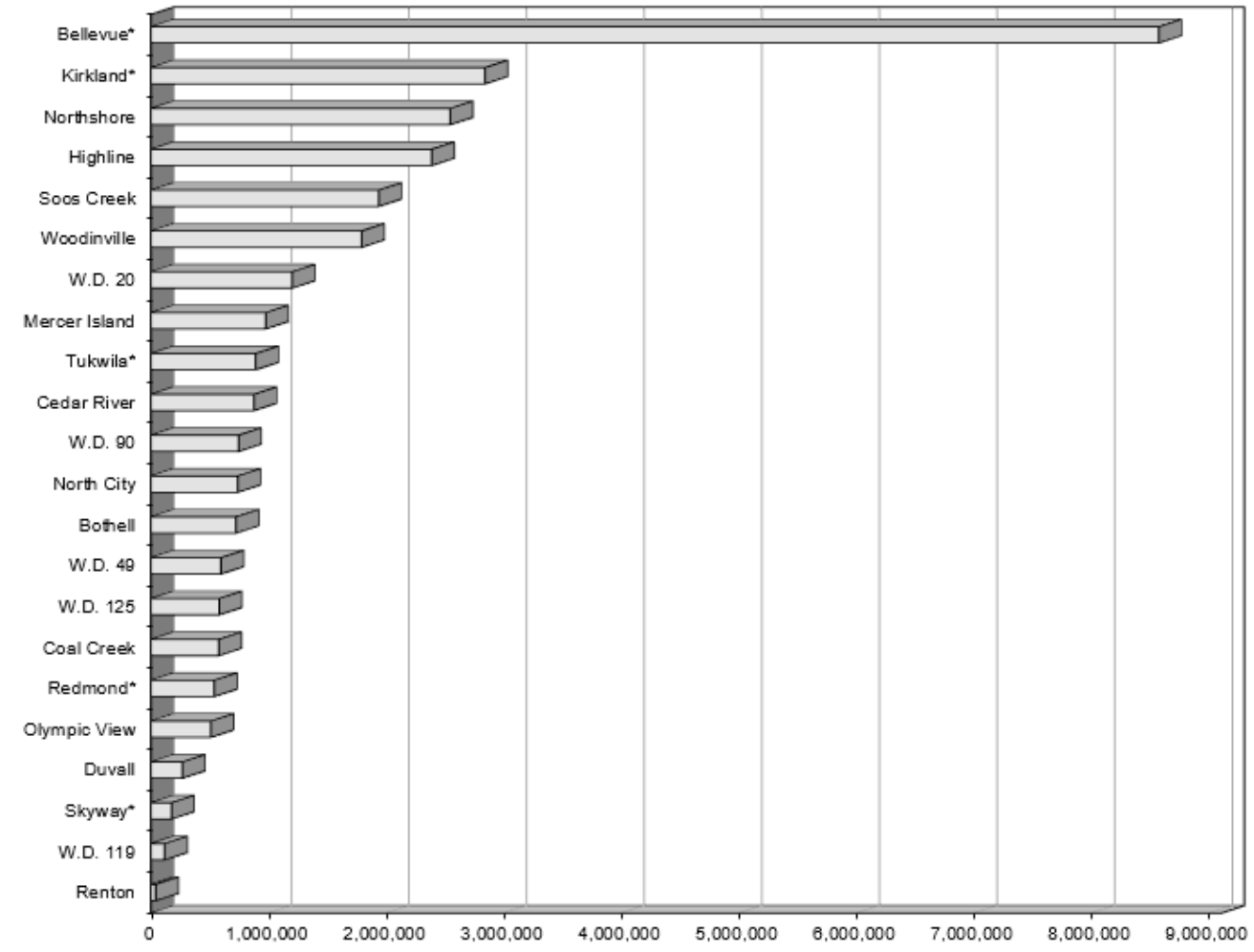
** Note that consumption levels have been revised downwards to reflect the long term decline in average consumption per single family household from 9.3 ccf/mo in the mid-1990s to about 7.0 ccf/mo currently.

Figure 2.1

WHOLESALE CUSTOMERS RANKED BY 2019 ANNUAL DIRECT PURCHASES FROM SPU[1]

	Wholesale Customer	Direct Purchases from SPU (ccf)
1	Bellevue*	8,565,565
2	Kirkland*	2,838,223
3	Northshore	2,542,597
4	Highline	2,385,145
5	Soos Creek	1,935,341
6	Woodinville	1,789,421
7	W.D. 20	1,199,881
8	Mercer Island	973,875
9	Tukwila*	888,727
10	Cedar River	874,495
11	W.D. 90	743,654
12	North City	737,191
13	Bothell	721,410
14	W.D. 49	593,724
15	W.D. 125	578,921
16	Coal Creek	575,463
17	Redmond*	537,443
18	Olympic View	508,637
19	Duvall	265,875
20	Skyway*	173,768
21	W.D. 119	115,562
22	Renton	39,003
TOTAL		29,583,921



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1. "Direct purchases from SPU" may be different than a utility's full supply for their customers if they have their own supply, purchase water from another utility, or receive/send wheeled water from/to another utility.

Table 2.1

Direct Purchases from SPU (in CCF) 2005-2019[1]

	Utility	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	Bellevue*	7,864,907	8,474,731	8,336,308	8,314,028	8,573,043	7,714,349	7,912,285	8,440,512	8,671,870	8,468,924	9,056,491	8,872,628	9,226,813	8,905,462	8,565,565
2	Bothell	710,804	791,591	745,144	725,123	732,256	640,359	637,415	656,581	670,069	751,608	724,782	708,236	734,017	711,256	721,410
3	Cedar River	985,386	1,071,615	947,745	872,814	924,524	800,755	758,691	701,387	809,005	827,277	910,094	853,281	898,592	903,816	874,495
4	Coal Creek	525,361	598,753	526,420	516,395	597,952	485,859	493,533	525,773	521,259	555,475	602,575	595,446	600,015	609,914	575,463
5	Duvall	236,868	242,851	230,852	222,695	253,521	224,298	233,390	232,947	235,508	243,416	260,014	249,931	260,769	261,715	265,875
6	Highline	2,559,715	2,565,923	2,517,632	2,473,927	2,351,174	2,143,580	2,126,929	2,105,391	1,900,457	2,159,022	2,401,204	2,331,523	2,284,771	2,757,935	2,385,145
7	Kirkland*	2,833,027	3,150,078	2,954,510	2,980,975	3,009,442	2,670,036	2,660,037	2,658,078	2,664,624	2,834,762	3,008,403	2,849,305	2,953,527	2,969,746	2,838,223
8	Mercer Island	1,072,336	1,139,931	1,087,304	1,039,660	1,032,966	855,678	924,062	992,386	1,003,892	1,041,934	1,080,492	1,060,012	1,049,915	1,061,191	973,875
9	North City	866,334	917,711	871,042	850,414	860,299	771,973	650,376	669,971	838,799	848,588	831,093	807,225	797,314	768,266	737,191
10	Northshore	2,556,349	2,698,337	2,555,901	2,441,109	2,574,352	2,394,673	2,463,963	2,451,174	2,486,656	2,541,588	2,623,056	2,526,863	2,552,095	2,573,525	2,542,597
11	Olympic View	414,859	549,538	406,617	406,802	496,479	361,712	348,497	374,499	385,411	402,010	427,550	428,769	428,901	496,246	508,637
12	Redmond*	471,211	668,574	452,805	504,742	1,242,852	499,676	705,173	652,641	473,834	474,702	553,274	389,216	564,176	533,616	537,443
13	Renton	51,841	48,314	51,959	38,125	42,490	59,904	88,749	51,086	43,815	47,775	54,951	47,067	56,131	57,192	39,003
14	Skyway*	226,417	212,135	201,841	177,990	185,047	165,814	174,797	146,535	157,344	167,003	172,648	163,683	162,762	163,586	173,768
15	Soos Creek	2,126,144	2,205,083	2,126,508	1,981,264	2,119,629	1,873,183	2,008,295	1,945,924	1,922,452	1,949,246	2,002,945	1,963,028	2,013,964	1,993,197	1,935,341
16	Tukwila*	1,069,148	1,068,642	1,060,170	993,747	986,705	920,469	942,999	943,018	952,619	967,875	1,001,737	961,845	929,710	828,712	888,727
17	Woodinville	1,873,605	2,032,328	1,996,289	1,956,618	2,184,773	1,781,785	1,759,518	1,740,966	1,915,528	1,922,760	1,987,587	1,830,139	1,903,717	1,863,406	1,789,421
18	W.D. 20	1,325,298	1,416,165	1,339,902	1,358,086	1,386,645	1,237,668	1,233,990	1,215,151	1,245,419	1,264,750	1,240,865	1,172,367	1,177,081	1,177,316	1,199,881
19	W.D. 45	116,943	105,832	95,913	94,013	95,912	100,229	106,783	107,679	111,838	112,930	113,495	110,107	112,601	113,911	Assumed by WD 20
20	W.D. 49	587,490	599,956	636,898	585,791	589,113	556,683	638,260	610,235	562,840	606,746	625,497	631,025	602,751	623,686	593,724
21	W.D. 90	452,581	539,675	542,270	550,935	521,397	433,468	493,819	536,673	540,180	594,651	621,453	592,318	628,548	679,943	743,654
22	W.D. 119	126,416	131,697	121,176	117,871	132,998	115,579	110,073	111,287	108,192	150,749	122,240	111,629	129,592	121,757	115,562
23	W.D. 125	603,604	623,262	597,401	549,107	587,539	514,478	495,650	495,315	481,332	458,505	495,718	533,392	553,383	560,243	578,921
	Total	**29,656,646**	**31,852,728**	**30,402,609**	**29,752,240**	**31,481,128**	**27,322,218**	**27,967,343**	**28,365,209**	**28,702,943**	**29,392,493**	**30,918,362**	**29,789,035**	**30,621,145**	**30,735,637**	**29,583,921**

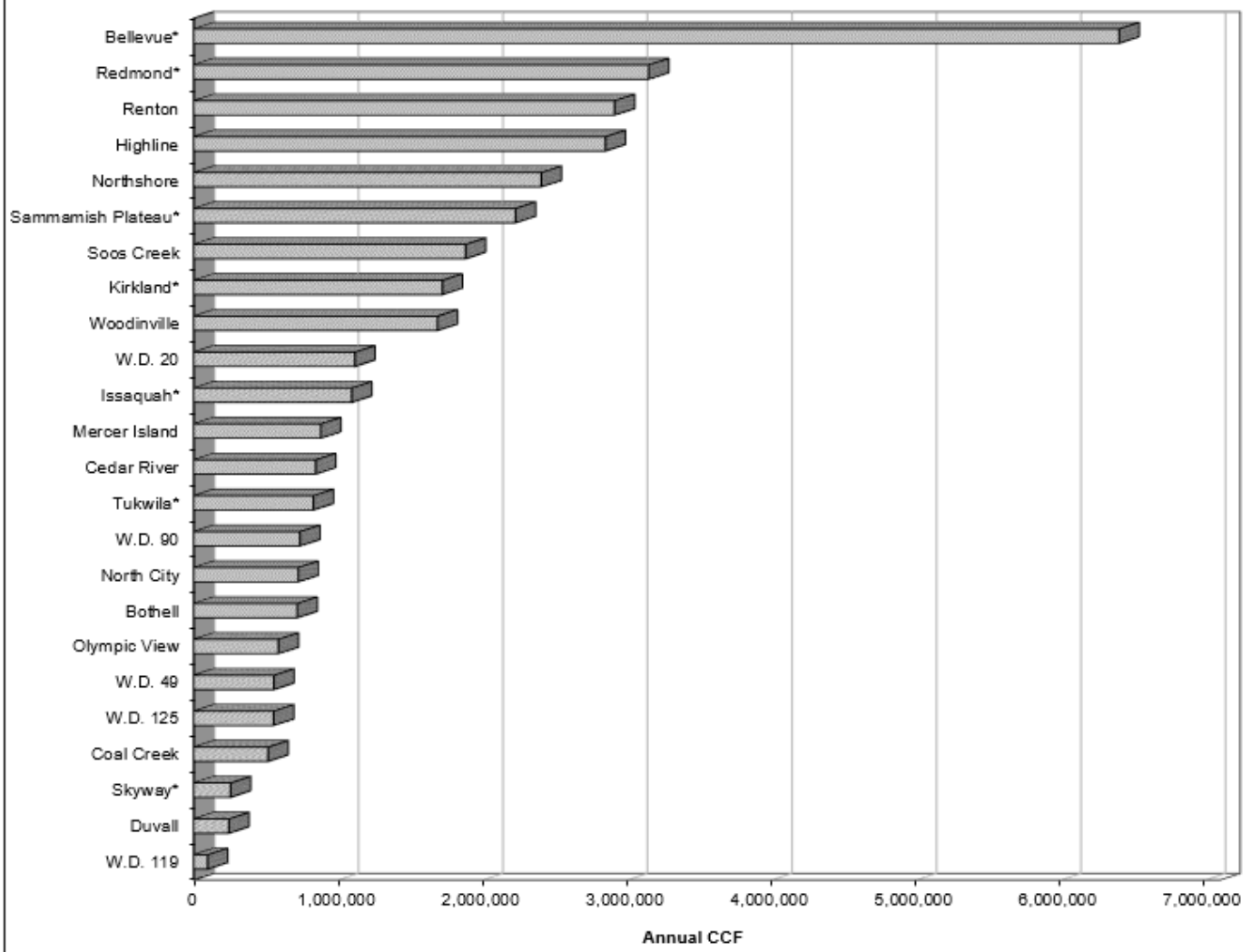
* Members of Cascade Water Alliance. Water shown as "purchased" by Cascade members reflects consumption measured through their meters with SPU. However, individual Cascade members are not billed directly by SPU.

1. "Direct purchases from SPU" may be different than a utility's full supply for their customers due to factors such as utilities that have their own supply or wheel water to another utility.

Figure 2.2

WHOLESALE CUSTOMERS RANKED BY 2019 ANNUAL RETAIL SALES[1]

	Wholesale Customer	Retail Sales (ccf)
1	Bellevue*	6,401,318
2	Redmond*	3,146,423
3	Renton	2,911,372
4	Highline	2,847,942
5	Northshore	2,404,209
6	Sammamish Plateau*	2,225,557
7	Soos Creek	1,879,929
8	Kirkland*	1,719,358
9	Woodinville	1,685,040
10	W.D. 20	1,114,723
11	Issaquah*	1,092,068
12	Mercer Island	878,100
13	Cedar River	842,859
14	Tukwila*	826,463
15	W.D. 90	733,208
16	North City	722,107
17	Bothell	714,905
18	Olympic View	584,802
19	W.D. 49	553,946
20	W.D. 125	552,137
21	Coal Creek	514,115
22	Skyway*	254,741
23	Duvall	242,548
24	W.D. 119	95,928
TOTAL		34,943,799



* Member of Cascade Water Alliance

1. "Retail water sales" may include water that was not a "direct purchase from SPU" if they have their own supply, purchase water from another utility, or receive water wheeled from another utility.

Table 2.2

Retail Sales (in CCF) 2005-2019[1]

Utility	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1 Bellevue*	6,783,981	**No Data**	6,851,810	6,612,399	6,908,439	6,276,954	**No Data**	6,652,102	6,622,564	6,776,081	7,068,290	6,853,901	6,828,709	6,779,446	6,401,318
2 Bothell*	577,806	656,619	693,484	711,427	726,962	681,145	627,483	645,746	663,539	715,943	738,030	756,659	749,566	711,283	714,905
3 Cedar River	855,114	964,037	904,362	855,210	941,306	816,633	791,574	845,321	837,278	856,402	920,373	867,483	911,155	906,155	842,859
4 Coal Creek	488,466	563,705	491,502	473,088	554,686	439,423	443,453	479,094	472,781	491,909	560,980	502,896	542,719	547,773	514,115
5 Duvall	205,341	223,653	220,032	216,704	239,872	200,987	215,895	216,172	213,225	229,374	228,157	231,285	240,887	225,971	242,548
6 Highline	3,029,761	3,066,659	2,976,073	2,840,910	2,920,652	2,661,812	2,644,611	2,659,258	2,703,065	2,779,089	2,847,534	2,850,950	2,868,973	2,933,283	2,847,942
7 Issaquah*	**No Data**	**No Data**	**No Data**	806,842	892,875	809,031	821,652	881,251	872,886	984,285	973,085	937,721	1,111,339	1,100,421	1,092,068
8 Kirkland*	1,833,509	1,843,186	1,729,375	1,657,408	1,801,406	1,574,869	**No Data**	1,566,695	1,698,294	1,773,444	1,804,311	1,746,056	2,177,462	2,017,755	1,719,358
9 Mercer Island	984,570	996,235	978,013	931,806	1,000,468	866,165	891,529	897,230	900,575	966,483	959,114	930,888	956,501	955,383	878,100
10 North City	815,594	849,559	813,161	856,562	843,675	746,571	709,027	731,780	746,917	754,150	750,242	754,789	756,651	741,914	722,107
11 Northshore*	**No Data**	2,630,374	2,501,954	2,394,514	2,512,510	2,334,511	2,266,068	2,362,615	2,427,789	2,452,293	2,505,023	2,384,959	2,430,100	2,433,274	2,404,209
12 Olympic View	627,376	659,836	612,943	600,568	683,135	585,617	575,861	558,421	586,950	603,319	618,309	597,300	608,778	606,324	584,802
13 Redmond*	**No Data**	**No Data**	**No Data**	3,085,835	3,165,854	2,969,511	2,832,871	2,996,495	3,005,475	3,105,651	2,967,794	3,288,969	3,581,110	3,467,236	3,146,423
14 Renton*	**No Data**	**No Data**	3,083,313	2,900,725	3,035,983	2,789,845	2,830,862	2,955,165	2,867,155	2,859,392	3,007,726	2,940,561	3,048,079	3,102,042	2,911,372
15 Sammamish Plateau*	**No Data**	**No Data**	No Data	2,113,475	2,310,814	1,976,398	1,984,468	2,070,994	2,053,303	2,150,767	2,386,234	2,260,752	2,451,686	2,404,829	2,225,557
16 Skyway	280,643	292,983	285,914	275,432	277,182	257,760	257,921	252,642	252,760	268,745	273,221	257,206	263,956	260,042	254,741
17 Soos Creek	1,870,978	2,003,456	1,972,069	1,832,233	1,903,844	1,693,450	1,737,069	1,867,566	1,861,518	1,896,792	1,903,748	1,899,834	1,927,781	1,938,356	1,879,929
18 Tukwila*	1,043,575	**No Data**	918,957	883,576	888,759	843,254	836,866	869,865	884,564	914,889	932,015	876,305	932,099	899,332	826,463
19 Woodinville	1,867,062	2,044,244	1,884,117	1,789,966	1,987,478	1,679,587	1,696,919	1,724,180	1,739,578	1,848,832	1,897,607	1,717,238	1,811,486	1,768,412	1,685,040
20 W.D. 20	1,144,053	1,196,913	1,141,240	1,099,170	1,115,278	1,034,602	1,005,816	1,013,874	994,177	1,035,187	1,029,163	1,028,520	1,002,558	1,049,658	1,114,723
21 W.D. 45	108,416	99,325	90,092	89,336	90,799	97,857	100,065	105,855	104,627	107,942	111,737	104,755	105,375	104,153	Assumed by WD 20
22 W.D. 49	616,020	620,546	602,572	576,403	586,525	549,063	548,355	548,241	537,628	558,191	572,646	567,597	566,205	577,452	553,946
23 W.D. 90	602,173	694,640	664,617	652,558	720,856	634,419	638,859	667,072	694,406	706,094	764,579	709,933	762,857	757,774	733,208
24 W.D. 119*	105,277	126,326	109,394	109,449	116,871	102,606	**No Data**	113,957	112,750	**No Data**	127,510	**No Data**	**No Data**	99,809	95,928
25 W.D. 125	611,276	636,882	637,662	616,905	654,841	574,180	559,617	570,319	555,828	573,455	582,314	571,481	570,541	572,130	552,137
TOTAL[2]	**M I S S I N G D A T A**			**34,982,501**	**36,881,070**	**33,196,250**	**Missing Data**	**34,251,910**	**34,409,632**	**Missing Data**	**36,529,742**	**Missing Data**	**Missing Data**	**36,960,206**	**34,943,799**
26 **Seattle**	**28,340,298**	**29,114,620**	**28,490,213**	**27,538,310**	**28,015,569**	**26,561,023**	**25,824,242**	**26,279,721**	**26,429,190**	**26,190,327**	**27,150,842**	**26,539,995**	**27,155,436**	**27,049,608**	**26,589,304**

1. "Retail water sales" may include water that was not a "direct purchase from SPU" in the case of utilities that have their own supply or receive water wheeled from another utility.

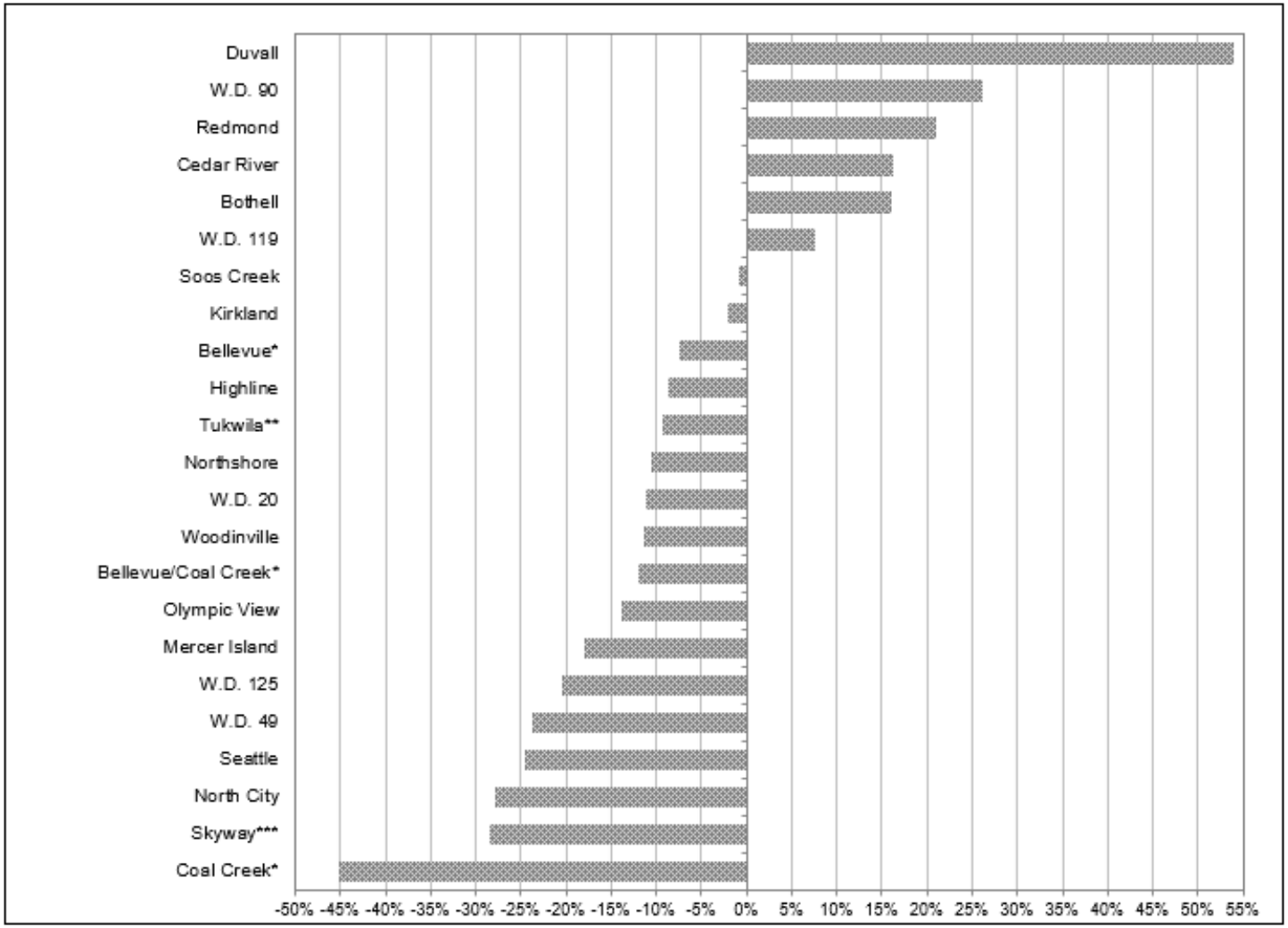
2. Consumption data is missing for Bothell in 2004 and Northshore in 2005. Redmond did not provide data for 2004, 2005, 2006, and 2007. Bellevue and Tukwila did not provide data for 2006. Historical data is not available for Renton prior to 2007 nor available for Issaquah and Sammamish Plateau prior to 2008. Bellevue, Kirkland and WD 119 did not provide data for 2011, and WD 119 did not provide data for 2014, 2016, and 2017.

* Member of Cascade Water Alliance.

Figure 2.3

PERCENT CHANGE IN RETAIL DEMAND BY UTILITY 1995-2019

Utilty	Percent Change	
	1995-2019	Average Annual
Duvall	53.9%	2.2%
W.D. 90	26.2%	1.0%
Redmond	20.9%	0.9%
Cedar River	16.2%	0.7%
Bothell	16.1%	0.7%
W.D. 119	7.5%	0.3%
Soos Creek	-0.9%	0.0%
Kirkland	-2.2%	-0.1%
Bellevue*	-7.5%	-0.3%
Highline	-8.7%	-0.4%
Tukwila**	-9.3%	-0.4%
Northshore	-10.6%	-0.4%
W.D. 20	-11.1%	-0.5%
Woodinville	-11.3%	-0.5%
Bellevue/Coal Creek*	-11.9%	-0.5%
Olympic View	-13.8%	-0.6%
Mercer Island	-17.9%	-0.7%
W.D. 125	-20.4%	-0.8%
W.D. 49	-23.8%	-1.0%
Seattle	-24.5%	-1.0%
North City	-27.8%	-1.2%
Skyway***	-28.5%	-1.5%
Coal Creek*	-45.1%	-1.9%

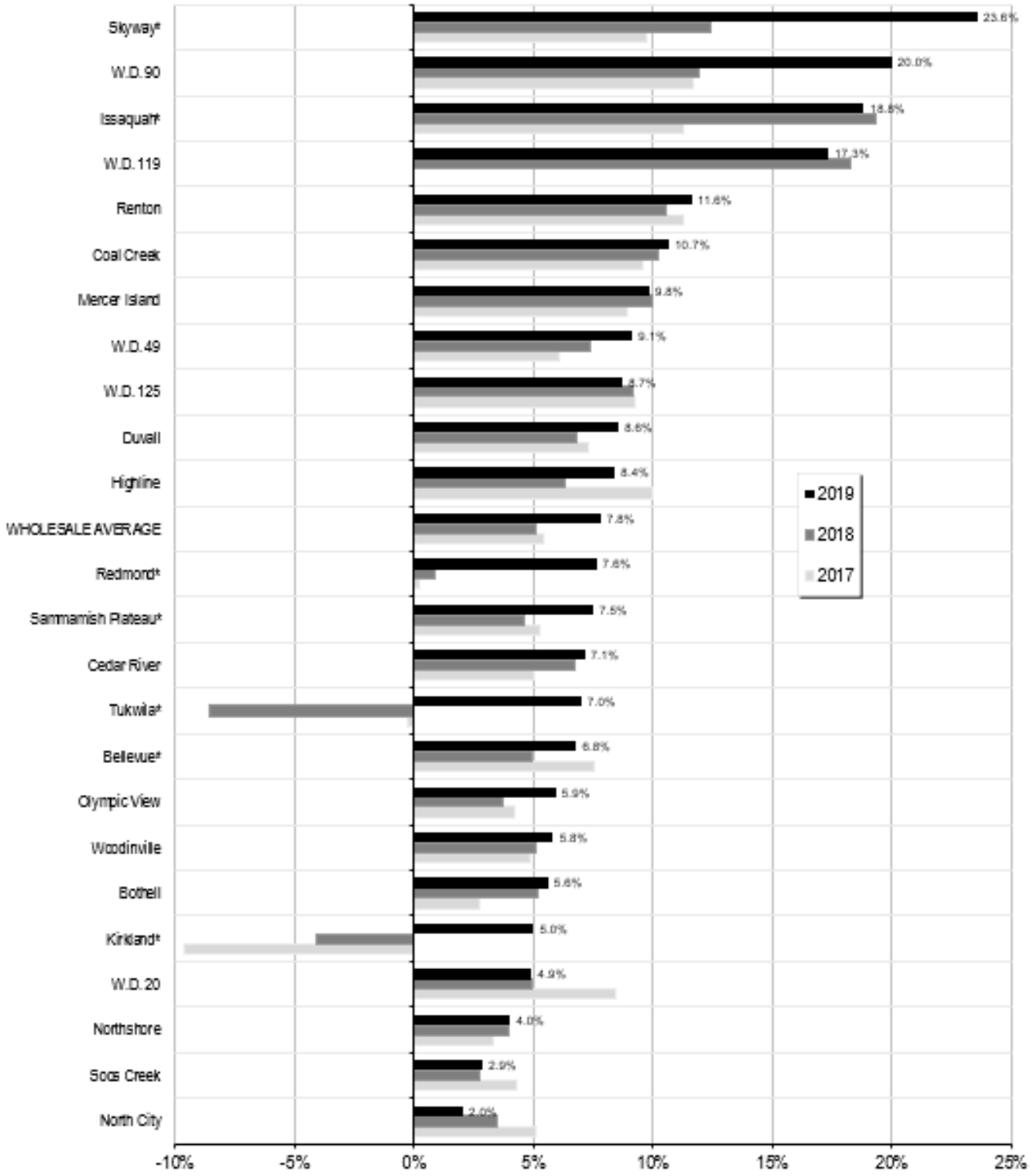


* Growth rates for Bellevue and Coal Creek reflect the impact of the annexation of a large portion of Coal Creek by Bellevue in 2003. Much of the 42% decline in Coal Creek's consumption is due to their transfering more than half their customers to Bellevue. The change in demand for the combined Bellevue/Coal Creek service area is also shown.

** Growth rate for Tukwila is measured from 1996, the year after a large area, including Boeing, was transferred from Seattle's retail service area to Tukwila.

*** Growth rate for Skyway is measured from 2000, due to a significant change (increase) in their sales in 2000.

Figure 2.4
Non-Revenue Water as Percent of Total Water Use 2019
(Two Previous Years Shown in Gray)



* Members of Cascade Water Alliance
** Water District 119 did not provide consumption data for 2016 and 2017

Table 2.3
Non-Revenue Water as Percent of Total Water Use 2005-2019

	Utility	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2005-2019 Average
1	Bellevue*	4.3%	NA	9.2%	12.5%	10.3%	10.9%	NA	3.5%	17.4%	2.6%	4.4%	3.9%	7.5%	5.0%	6.8%	7.6%
2	Bothell	18.7%	18.8%	4.6%	5.5%	4.7%	0.1%	6.6%	5.8%	5.0%	8.0%	2.2%	-2.9%	2.8%	5.2%	5.6%	6.0%
3	Cedar River	14.1%	10.0%	4.6%	1.9%	3.0%	3.9%	2.1%	-11.0%	3.9%	3.7%	4.5%	5.1%	5.0%	6.7%	7.1%	4.3%
4	Coal Creek	7.0%	5.9%	6.6%	8.4%	7.2%	9.6%	10.1%	8.9%	9.3%	11.4%	6.9%	15.5%	9.5%	10.2%	10.7%	9.2%
5	Duvall	13.1%	7.7%	4.5%	2.5%	5.2%	10.2%	7.3%	7.0%	9.3%	5.6%	12.1%	7.3%	7.3%	6.8%	8.6%	7.6%
6	Highline	7.8%	3.2%	7.2%	10.1%	8.2%	8.8%	8.1%	8.8%	6.4%	10.1%	12.0%	10.6%	9.9%	6.3%	8.4%	8.4%
7	Issaquah*	NA	NA	NA	13.0%	10.9%	11.8%	12.7%	9.9%	15.1%	6.6%	17.5%	19.6%	11.3%	19.3%	18.8%	13.9%
8	Kirkland*	0.7%	0.9%	4.5%	10.3%	7.0%	5.9%	NA	8.6%	10.3%	3.2%	4.0%	5.6%	-9.6%	-4.1%	5.0%	3.7%
9	Mercer Island	8.2%	7.4%	10.1%	10.4%	3.1%	-1.2%	3.5%	9.6%	10.3%	7.2%	11.2%	12.2%	8.9%	10.0%	9.8%	8.0%
10	North City	5.9%	7.4%	6.6%	-0.7%	1.9%	3.3%	-13.2%	-9.2%	11.0%	11.1%	9.7%	6.5%	5.1%	3.5%	2.0%	3.4%
11	Northshore	NA	2.5%	1.9%	0.8%	1.2%	0.9%	6.7%	2.4%	1.2%	2.5%	3.3%	4.4%	3.3%	3.9%	4.0%	2.8%
12	Olympic View	7.8%	8.5%	7.0%	5.8%	4.4%	6.1%	8.3%	8.5%	6.4%	7.5%	3.8%	4.8%	4.2%	3.7%	5.9%	6.2%
13	Redmond*	NA	NA	NA	7.2%	19.1%	26.1%	-2.5%	5.0%	5.2%	8.3%	19.0%	2.9%	0.2%	0.9%	7.6%	8.3%
14	Renton	14.3%	17.0%	20.2%	18.6%	16.9%	14.7%	13.0%	6.2%	9.4%	12.4%	13.3%	12.4%	11.3%	10.5%	11.6%	13.5%
15	Samm Plateau*	NA	NA	NA	9.5%	3.2%	7.8%	-1.9%	6.9%	9.5%	8.9%	7.3%	6.6%	5.3%	4.6%	7.5%	6.3%
16	Skyway*	20.0%	7.6%	5.1%	0.7%	4.4%	2.0%	8.1%	3.8%	6.7%	6.4%	8.5%	9.9%	9.7%	12.4%	23.6%	8.6%
17	Soos Creek	12.0%	9.1%	7.3%	7.5%	10.2%	9.6%	13.5%	4.0%	3.2%	2.7%	5.0%	3.2%	4.3%	2.8%	2.9%	6.5%
18	Tukwila*	2.4%	NA	13.3%	11.1%	9.9%	8.4%	11.3%	7.8%	7.1%	5.5%	7.0%	8.9%	-0.3%	-8.5%	7.0%	6.5%
19	Woodinville	0.3%	-0.6%	5.6%	8.5%	9.0%	5.7%	3.6%	1.0%	9.2%	3.8%	4.5%	6.2%	4.8%	5.1%	5.8%	4.8%
20	W.D. 20	5.5%	7.6%	5.4%	7.1%	10.2%	7.1%	9.6%	6.4%	10.0%	7.4%	6.0%	4.2%	8.4%	4.9%	4.9%	7.0%
21	W.D. 49	-4.9%	-3.4%	5.4%	1.6%	0.4%	1.4%	14.1%	10.2%	4.5%	8.0%	8.4%	10.1%	6.1%	7.4%	9.1%	5.2%
22	W.D. 90	11.4%	7.7%	7.0%	11.0%	7.9%	8.6%	6.8%	12.7%	7.2%	12.1%	11.4%	15.5%	11.7%	11.9%	20.0%	10.9%
23	W.D. 119**	17.0%	4.4%	10.0%	7.4%	12.4%	11.5%	NA	7.4%	10.0%	NA	9.5%	NA	NA	18.3%	17.3%	11.4%
24	W.D. 125	14.4%	12.7%	12.7%	13.8%	8.5%	8.8%	7.6%	7.9%	8.6%	3.5%	7.9%	9.0%	9.3%	9.2%	8.7%	9.5%
	Wholesale Avg	7.3%	7.0%	8.6%	9.7%	9.0%	9.9%	7.9%	5.3%	9.6%	6.3%	8.2%	6.8%	5.4%	5.1%	7.8%	7.6%

* Members of Cascade Water Alliance. No history available for Issaquah, and Sammamish Plateau prior to 2008.

** Water District 119 did not provide consumption data for 2011, 2014, 2016 and 2017 .

Figure 2.5

Single Family Use per Household 2019

In Gallons per Day (CCF per Month)

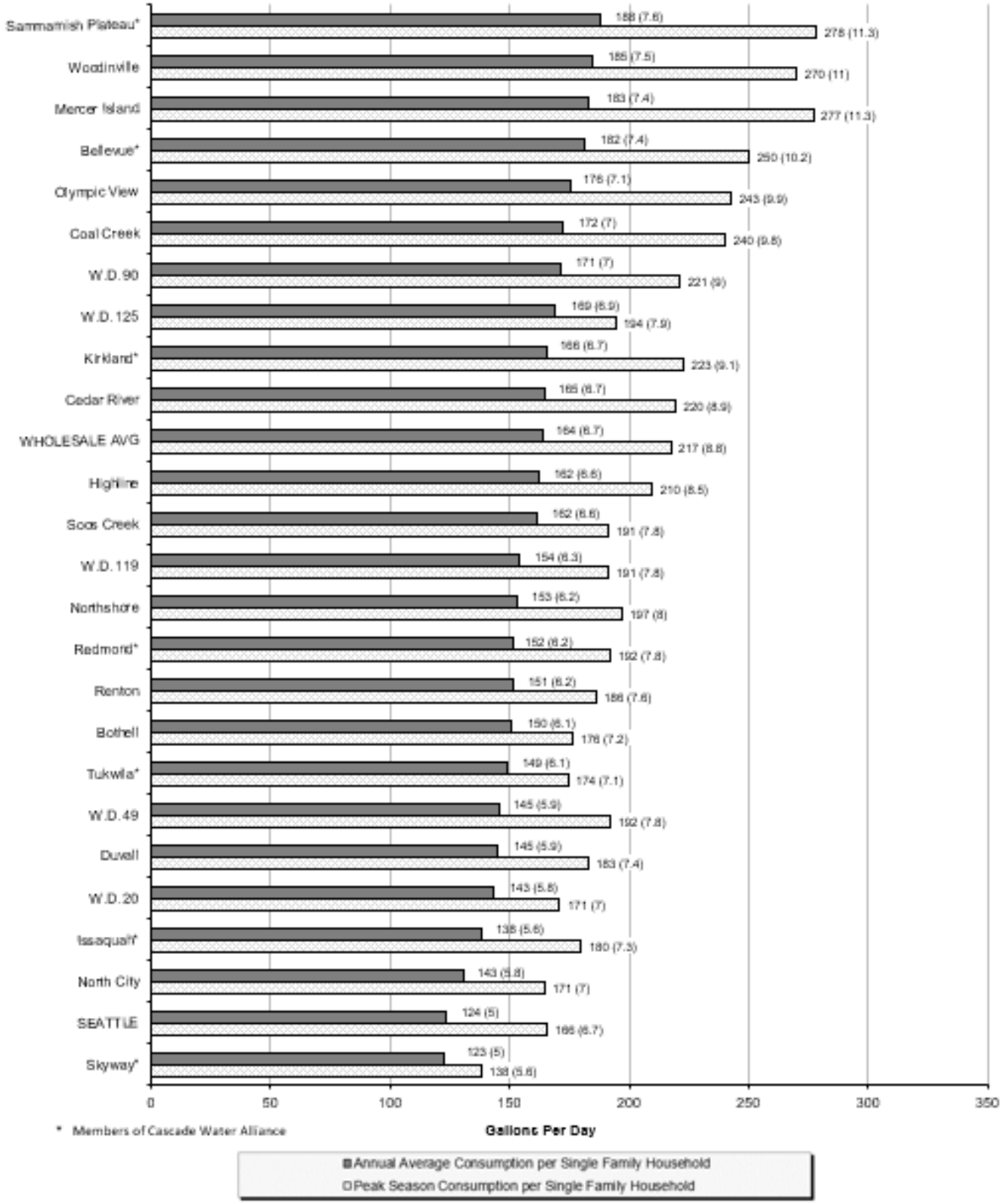


Figure 2.6

Total Billed Use per Account 2019

in Gallons per Day (CCF per Month)

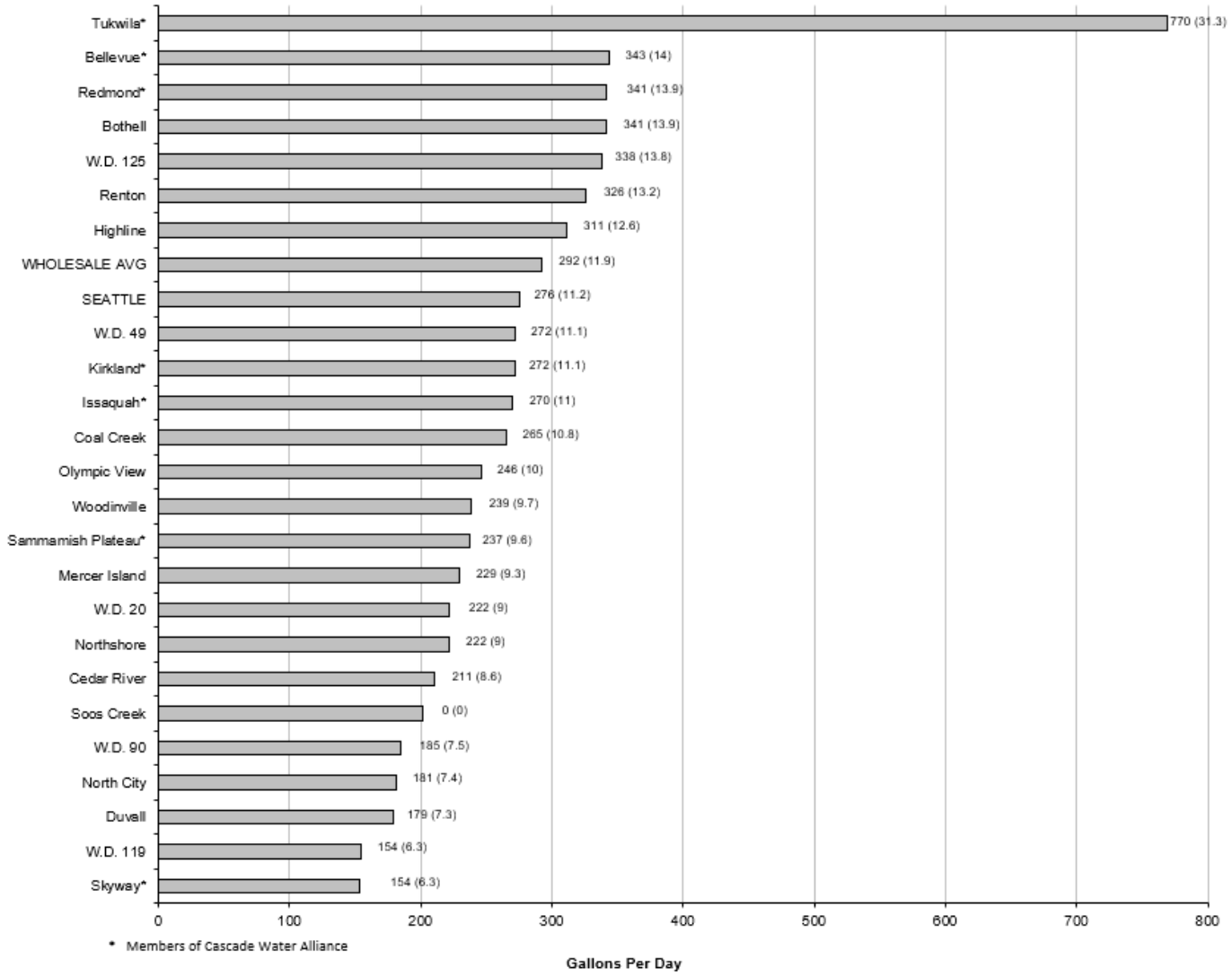


Table 2.4

Single Family Use per Household 1994-2019

(in CCF per Household per Month)

	Utility	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	Bellevue*	10.4	10.0	9.8	9.4	10.0	9.6	9.7	8.9	9.1	9.7	10.4	8.5	NA	8.5	7.5	8.6	7.6	NA	7.7	7.6	7.8	8.1	7.8	7.9	7.8	7.4
2	Bothell	8.5	7.9	8.1	7.9	8.4	7.6	8.0	7.5	7.6	8.0	NA	5.7	5.7	9.1	7.2	7.3	7.2	6.1	6.3	6.4	7.2	6.4	6.1	6.6	6.2	6.1
3	Bryn Mawr	NA	NA	NA	NA	NA	7.5	Merged with Skyway																			
4	Cedar River	9.9	9.7	9.7	9.1	9.6	8.9	9.5	8.0	8.6	9.1	8.6	7.8	8.5	7.9	7.4	8.3	7.1	6.8	7.2	7.1	7.1	7.6	7.1	7.5	7.3	6.7
5	Coal Creek	10.1	9.5	9.4	9.2	9.9	9.1	9.1	8.0	8.6	9.3	9.4	8.2	8.9	7.9	7.7	8.5	7.1	7.0	7.2	7.3	7.3	7.7	7.3	7.3	7.5	7.0
6	Duvall	NA	8.6	8.3	8.9	9.7	8.1	8.8	7.1	7.2	8.4	7.6	6.8	7.4	6.4	6.9	7.6	6.6	6.7	6.1	6.1	6.5	6.6	6.6	6.8	6.8	5.9
7	Highline	9.2	9.0	8.6	9.0	8.8	8.3	8.5	7.6	8.1	8.2	7.9	7.5	7.6	7.3	7.0	7.5	6.6	6.5	6.5	6.4	6.5	6.7	6.6	6.7	6.8	6.6
8	Issaquah*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7	6.1	5.5	5.4	5.7	5.2	5.7	5.9	5.5	6.1	5.9	5.6
9	Kirkland*	8.8	8.6	8.5	8.5	8.6	8.2	9.3	7.5	8.0	8.9	7.8	10.4	7.8	7.8	7.3	7.8	6.8	NA	6.9	7.0	7.5	7.3	7.1	9.3	7.6	6.7
10	Mercer Island	NA	10.7	9.9	9.8	11.0	10.0	10.5	9.2	10.0	10.6	10.5	9.9	9.8	8.9	8.5	9.0	7.8	8.0	8.0	7.9	8.4	8.5	8.0	8.2	8.2	7.4
11	North City	8.3	7.9	7.8	7.5	7.9	NA	7.7	6.7	7.0	7.4	7.0	6.5	6.5	6.3	6.8	6.7	5.8	5.7	5.7	5.8	5.7	5.9	5.6	5.7	5.6	5.3
12	Northshore	9.6	9.2	9.0	8.6	9.8	8.7	8.5	8.1	8.4	8.9	8.4	NA	8.4	7.6	6.9	7.4	6.8	6.5	6.8	6.7	6.2	6.8	6.4	6.6	6.5	6.2
13	Olympic View	9.9	9.8	9.5	8.9	9.5	9.0	9.3	8.1	9.0	9.7	9.2	8.3	9.0	8.4	8.0	8.7	7.5	7.5	7.3	7.6	7.7	7.7	7.4	7.5	7.4	7.1
14	Redmond*	9.4	9.0	9.1	8.7	9.1	8.6	8.3	7.7	7.7	8.2	NA	NA	NA	NA	6.5	6.6	6.4	6.1	6.3	6.2	6.3	5.2	6.3	6.8	6.4	6.2
15	Renton	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8	7.0	6.4	6.6	6.4	6.5	6.3	6.6	6.2	6.4	6.4	6.2
16	Sammamish Plateau	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.7	9.7	8.2	8.1	8.3	8.1	8.4	9.2	8.5	8.9	8.6	7.6
17	Skyway*	7.5	7.2	7.3	7.0	7.2	6.8	7.8	6.3	7.0	7.1	6.7	6.0	6.3	6.0	5.9	5.9	5.4	5.3	5.2	5.1	5.2	5.3	5.0	5.2	5.1	5.0
18	Soos Creek	8.7	8.4	8.4	7.7	8.2	7.8	7.8	7.0	7.5	8.5	8.1	6.8	6.9	7.2	7.0	7.2	6.5	6.6	7.1	7.1	7.0	6.7	7.0	7.1	7.3	6.6
19	Tukwila*	7.5	6.4	7.7	7.4	7.4	7.2	7.0	6.7	6.9	7.2	6.2	5.8	NA	6.6	6.2	6.7	6.1	5.8	5.9	6.0	6.1	6.1	5.8	6.2	5.9	6.1
20	Woodinville	12.0	11.1	11.3	10.5	11.7	10.7	11.1	10.8	10.4	11.6	10.4	9.1	10.2	8.9	8.6	9.5	7.9	7.9	8.1	8.2	8.9	8.7	7.8	8.3	8.0	7.5
21	W.D. 20	8.3	8.2	8.0	7.7	8.5	8.1	7.9	7.0	7.1	7.7	7.4	6.9	7.2	6.8	6.7	6.8	6.3	6.0	6.1	6.0	6.2	6.1	6.1	6.1	6.1	5.8
22	W.D. 45	NA	8.9	NA	NA	NA	6.8	7.5	6.8	7.6	6.9	6.4	6.2	6.4	6.3	6.0	6.2	5.9	5.7	5.7	5.5	5.5	5.6	5.4	5.4	5.1	#
23	W.D. 49	9.1	9.6	8.7	8.5	8.4	8.2	7.9	7.2	7.7	8.1	7.7	7.2	8.0	7.1	6.8	7.3	6.6	6.5	6.5	6.2	6.3	6.4	6.3	6.2	6.2	5.9
24	W.D. 85	NA	NA	NA	NA	NA	9.9	9.7	6.9	7.2	Merged with WD 20																
25	W.D. 90	NA	NA	NA	NA	NA	8.4	9.5	8.5	8.8	8.7	8.5	7.5	8.2	7.7	7.4	8.0	6.8	6.9	7.0	7.1	7.1	7.5	7.0	7.4	7.3	7.0
26	W.D. 119	NA	NA	NA	NA	NA	8.1	8.2	7.7	8.1	9.1	8.2	7.5	9.0	7.6	7.6	8.1	7.1	NA	7.9	7.8	NA	8.8	NA	NA	6.6	6.3
27	W.D. 125	8.4	8.3	8.3	8.2	8.3	8.1	8.3	8.5	9.4	8.5	8.1	7.8	8.0	8.0	7.5	7.9	7.1	7.0	7.0	6.9	7.1	7.4	7.1	7.2	7.2	6.9
	Wholesale Average	9.7	9.4	9.2	8.9	9.5	8.9	9.1	8.1	8.4	9.0	8.7	7.9	8.0	7.8	7.3	7.9	6.9	7.0	7.0	7.0	7.1	7.2	7.0	7.3	7.0	6.7
28	Seattle	7.9	7.6	7.4	7.1	7.1	7.1	7.3	6.5	6.7	6.6	6.4	6.0	6.2	5.9	5.7	5.9	5.4	5.2	5.3	5.3	5.3	5.3	5.1	5.3	5.1	5.0

* Members of Cascade Water Alliance. No history is available for Issaquah, and Sammamish Plateau prior to 2008.

No history is available for Renton prior to 2008. More recently, Bellevue and Kirkland did not provide data for 2011 and WD 119 did not provide data for 2011, 2014, 2016, and 2017.

WD 45 merged with WD 20 in 2019.

Figure 2.7

Single Family Use per Household 1994-2019