

## Sewer Rate Cost Structure

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August 2021



**King County**

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## II. Proviso Text

Ordinance 19210, Section 112, Proviso P3<sup>1</sup>

Of this appropriation, \$200,000 shall not be expended or encumbered until the executive transmits a report on the shift of the sewer rate cost burden to the single-family sector from the commercial/industrial/multifamily sector, and a motion that acknowledges receipt of the report and a motion acknowledging receipt of the report is passed by the council. The motion should reference the subject matter, the proviso's ordinance number, ordinance section and proviso number in both the title and body of the motion.

The report shall include, but not be limited to, the following:

- A. A discussion of the history of, and rationale for, the sewer rate cost structure that has resulted in the shifting of the cost burden from commercial/industrial/multifamily housing sectors to single-family homeowners;
- B. Options for alternative cost structures that would distinguish multifamily ratepayers from commercial and industrial ratepayers; and
- C. A discussion of the appropriate balance of costs between the residential sector and the commercial/industrial sector in sewer rate revenues, and the criteria impacting that balance.

The executive should electronically file the report and motion required by this proviso no later than August 1, 2021, with the clerk of the council, who shall retain the electronic copy and provide an electronic copy to all councilmembers, the council chief of staff and the lead staff for the regional water quality committee and the budget and fiscal management committee, or their successors.

## III. Executive Summary

King County is a provider of wholesale wastewater treatment and regional conveyance. The Local Sewer Agencies (LSAs), made up of cities, special purpose districts, and the Muckleshoot Tribe, provide local sewer collection service and the billing and customer service for individual homes and business accounts.

King County charges LSAs for wholesale treatment based on the number of residential customer equivalent (RCE) billing units, which they report quarterly to the County's Wastewater Treatment Division (WTD). A single-family residential property is billed as one RCE. For all other customer classes, including commercial, industrial, and multifamily, reported quarterly metered water use is converted to residential equivalents by dividing by an estimated single-family monthly flow volume.. King County's monthly sewer rate is charged on a per RCE basis, meaning that the total reported single-family accounts and converted volume-based RCEs for each LSA are multiplied by the monthly sewer rate to arrive at the amount billed to each LSA.

The RCE conversion factor (750 cf / month) is the primary rate structure element that determines equity among the single-family class and the volume-based classes. The single-family equivalent flow assumption is based on data collected in 1989, before significant conservation trends in water use. While conservation efforts are reflected in the volume-based class billings through converted water use, the single-family assumed flow (750 cf) is fixed and did not change as single-family average use declined with conservation outcomes. The current conversion factor is overstating the single-family equivalent flow contribution, resulting in the single-family class subsidizing the volume-based class.

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<sup>1</sup> [Ordinance 19210](#)

The conversion factor is fixed in the sewage disposal contracts with the LSAs. Though King County Code directs that the factor be reviewed periodically to ensure that accounts pay their fair share of the cost of the system, any change based on review would require revising sewage disposal contracts with all 34 agencies.

Alternative cost structures that would distinguish multifamily ratepayers from commercial and industrial ratepayers should be evaluated based on industry guidance that includes considerations of equitable cost allocation, revenue stability, and administrative feasibility.

Multifamily properties are typically not submetered for water or sewer service.<sup>2</sup> The account and billing relationship resides between the LSA and the property owner, often a landlord, who determines how utility costs will be passed on to residents. The existing multifamily rate structure based on metered water use is more equitable than fixed charge rate structure alternatives.

While the current volume-based cost structure maximizes equity, visibility of the multifamily class could be improved if the LSAs were able and agreeable to separate reporting of multifamily metered water use. The quarterly reported water use and RCE conversion do not distinguish the flow attributable to each class (see Exhibit H – sample LSA reporting).

While the multifamily class is the focus of Proviso Section B, the customer classes share total utility costs, so that inequity in one class impacts all other classes. While the multifamily class is charged based on an equitable cost structure, the single-family cost structure provides opportunities for revisions that would improve equity to all classes. The greatest opportunity for improved equity among customer classes would be by updating the single-family flow assumption used to calculate RCE billing units to the commercial, industrial, and multifamily classes, which would require changing all 34 LSA contracts. Each LSA has a varying distribution of customer classes. Any cost shift among customer classes will have varying impacts to each agency's billing. Therefore, significant engagement with the Metropolitan Water Pollution Abatement Advisory Committee ([MWPAAC](#)) on this topic is recommended to gather feedback and create a collaborative path forward.<sup>3</sup>

## IV. Background

### Department Overview:

The Department of Natural Resources and Parks (DNRP) works in support of sustainable and livable communities and a clean and healthy natural environment. Its mission is to foster environmental stewardship and strengthen communities by providing regional parks; protecting the region's water, air, land, and natural habitats; and reducing, safely disposing of, and creating resources from wastewater and solid waste.

The Wastewater Treatment Division (WTD) of DNRP protects public health and enhances the environment by collecting and treating wastewater while recycling valuable resources for the Puget Sound region.

Distributed over a 424-square-mile service area, the King County (County) sewer system collects and treats an average of 175 million gallons a day of sewage from approximately two million residents. King

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<sup>2</sup> Submetered refers to water use that is metered at the building level. Individual water meters are not installed for each multifamily unit

<sup>3</sup> RCW 35.58.210 authorizes the formation of the Metropolitan Water Pollution Abatement Advisory Committee to advise the King County Council in matters relating to the performance of the water pollution abatement function.

County's WTD is responsible for the construction, operation, and maintenance of the regional wastewater conveyance and treatment system, which includes three major secondary treatment plants (West Point in Seattle, South Plant in Renton, and Brightwater in south Snohomish County), 397 miles of conveyance lines, 48 pump stations, and 25 regulator stations. Other WTD facilities include four combined sewer overflow (CSO) treatment plants, four CSO storage facilities, 39 CSO outfall locations, and secondary treatment plants on Vashon Island and in Carnation.<sup>45</sup>

### Key Historical Context:

Due to the wholesale nature of King County's wastewater treatment service, there is no direct customer relationship in the charging of the sewer service rate between the County and the customer. The retail relationship resides with the LSAs, who build and maintain the local collection systems (sewer pipelines that collect wastewater flows from homes and businesses) and provide billing and customer service to the individual sewer account holders. The LSAs contract with and pay WTD for regional conveyance and treatment of flows delivered to the regional system.

The sewage disposal contracts with each of the LSAs are one of three authorities that govern how wholesale wastewater treatment charges are determined. The other two authorities are the Revised Code of Washington (RCW) and King County Code (KCC).

### Revised Code of Washington (RCW)

In 1992, voters approved an amendment to the County's charter that authorized the merger of King County with the Municipality of Metropolitan Seattle (Metro), with the phased merger effective in 1994.<sup>6, 7</sup> As successor to Metro, the County assumed Metro's rights and obligations, maintaining those under RCW chapter [35.58](#) Metropolitan Municipal Corporations, and adding chapter [36.94](#) County Sewerage, Water, and Drainage Systems.

Metro authority under [RCW 35.58.200](#) includes the power *"To fix rates and charges for the use of metropolitan water pollution abatement facilities, and to expend the moneys so collected for authorized water pollution abatement activities."*

County authority under [RCW 36.94.140](#) states:

*(2) The rates for availability of service and facilities, and connection charges so charged must be uniform for the same class of customers or service and facility. **In classifying customers served**<sup>8</sup>, service furnished or made available by such system of sewerage and/or water, or the connection charges, the county legislative authority may consider any or all of the following factors:*

*(a) The difference in cost of service to the various customers within or without the area;*

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<sup>4</sup> Secondary treatment includes aeration, settling, disinfection, and discharge through an outfall. Secondary treatment in conjunction with primary treatment removes about 85 to 90 percent of suspended solids in wastewater.

<sup>5</sup> Combined sewer overflows (CSOs) are relief points in older sewer systems that carry sewage and stormwater in the same pipe. When heavy rains fill the pipes, CSOs release sewage and stormwater into rivers, lakes, or Puget Sound.

<sup>6</sup> History of the King County Charter can be found on the King County [website](#).

<sup>7</sup> [The history of King County's Wastewater Treatment Division can be found on the King County website.](#)

<sup>8</sup> Bold added to highlight customer class section.

- (b) *The difference in cost of maintenance, operation, repair and replacement of the various parts of the systems;*
- (c) *The different character of the service and facilities furnished various customers;*
- (d) *The quantity and quality of the sewage and/or water delivered and the time of its delivery;*
- (e) *Capital contributions made to the system or systems, including, but not limited to, assessments;*
- (f) *The cost of acquiring the system or portions of the system in making system improvements necessary for the public health and safety;*
- (g) *The nonprofit public benefit status, as defined in RCW [24.03.490](#), of the land user; and*
- (h) *Any other matters which present a reasonable difference as a ground for distinction.”*

RCW 36.94 includes criteria specific to customer classes, which is central to the proviso discussion of cost shift among customer classes, options to distinguish a multifamily customer class, and analyzing the appropriate balance between customer classes.

#### King County Code (KCC)

KCC [28.86.160 Financial Policy 15](#) states:

*“2. Sewer rate. King County shall maintain a uniform monthly sewer rate expressed as charges per residential customer equivalent for all customers.”*

And:

*“4. Based on an analysis of residential water consumption, as of December 13, 1999, King County uses **a factor of seven hundred fifty cubic feet per month to convert water consumption of volume-based customers to residential customer equivalents for billing purposes.** King County shall periodically review the appropriateness of this factor to ensure that all accounts pay their fair share of the cost of the wastewater system.”<sup>9</sup>*

The sewer rate section of the KCC reflects elements of the sewer service contracts. The sewer rate is set so that a single-family residence pays one unit charge, and volume-based customers are converted to units equivalent to a single-family residence unit of flow as noted in Financial Policy 15, Section 2, above.<sup>10</sup> Financial Policy 15, Section 4 includes a definition of the unit conversion factor that determines the distribution of costs among the two customer classes: single-family residential and volume-based customers. This rate structure feature is used to ensure “fair share of the cost of the wastewater system.” The LSA-reported water use for the volume-based customer class is converted to billing units (RCEs) by converting the reported water use to units of 750 cubic feet. A larger factor would result in fewer billing units and a smaller factor would result in more billing units for the same reported flow.

#### Wholesale Sewage Disposal Contracts

WTD maintains individual sewage disposal contracts with each of the LSAs that include uniform language pertaining to setting and billing sewage disposal charges (the sewer rate). The conversion

<sup>9</sup> Bold added to highlight RCE conversion factor definition.

<sup>10</sup> Volume-based customers include multifamily, commercial, and industrial properties.

factor is defined in the sewage disposal contracts with each of the 34 LSAs. The County and the 34 LSAs would have to agree on a new conversion factor and amend all 34 sewage disposal contracts with King County Council approval. The conversion factor in the contracts has not changed since the 1992 amendment that implemented recommendations from a Rate Structure Advisory Committee that was created to support development of the [Regional Wastewater Service Plan](#).

The contracts include the following recital, *“Whereas the Rate Structure Advisory Committee, following extensive research, study and deliberations, has recommended certain changes in the structure of Metro’s charges to its participants and implementation of said charges requires amendment of the Basic Agreement;”*

One of the changes relates to the single-family residential equivalent flow assumption, covered in the Residential Equivalent section below.

The contracts also specify LSA reporting requirements for purposes of the sewer rate billing:

*“For the quarterly periods ending March 31, June 30, September 30, and December 31 of each year every Participant shall submit a written report to Metro setting forth:*

- (a) The number of Residential Customers billed by such Participant for local sewerage charges as of the last day of the quarter,*
- (b) The total number of all customers billed for local sewerage charges by such Participant as of such day, and*
- (c) The total water consumption during such quarter for all customers billed for local sewerage charges by such Participant other than Residential Customers.”*

When the contract refers to “Residential Customers,” the term is limited to single-family residential, according to the definition of a Residential Customer equivalent in the contract. Multifamily residential are part of the “other than Residential Customers” class. It should be noted that utilities commonly have account relationships with a landlord since submetering water use for multifamily is generally considered cost prohibitive and billing collection procedures, such as property liens go back to the property owner. For example, SPU confirmed that all multifamily properties billed for water and sewer are landlord accounts.

### [Residential Customer Equivalent](#)

The RCE provides the distinction for two customer classes: single-family residences and all other customers.

The contracts state “The total quarterly water consumption report in cubic feet shall be divided by 2,250 to determine the number of Residential Customer equivalents represented by each Participant’s customer other than single family residences.”

The monthly equivalent of a quarterly 2,250 cubic feet (cf) is 750 cf per month. The 750 cf feet can be sourced to a June 1989 Rate Structure Advisory Committee report based on 1982 water survey data, which is attached as Appendix A. The recommendation was validated as an average single-family residence monthly water use in 1989 by Metro staff according to a letter dated October 16, 1989 attached as Appendix B.

## Exhibit A: Metro Letter Introduction – Single-family Residential Water Consumption



Exchange Building • 821 Second Ave. • Seattle, WA 98104-1598

October 16, 1989

To: Jean Baker

From: Dennis Barnes

Subject: 1989 Avg. Single-Family Residential Water Consumption

One of the recommendations made by the Rate Structure Advisory Committee to the Metro Water Quality Committee in its June, 1989 report "Findings and Recommendations On Structure of Metro Charges to Component Agencies" was that, "the residential customer equivalency value of 900 cubic feet metered water consumption, used to charge non-residential customers, should be lowered to 750 cubic feet". The recommended 750 cubic feet was based on an analysis of actual single-family residential water consumption data provided in 1982 by several sewer service agencies for which Metro provides disposal services. Due to the amount of time that has passed since the 1982 analysis was performed it was decided that a current survey and analysis of the actual single-family residential customer water consumption should be performed. The purpose of this memo is to summarize the steps performed in conducting this survey and the results of the analysis.

The study concluded with the 1989 data validation of the 750 cf recommendation and an added recommendation to review the average periodically to ensure it remains a reasonable approximation. Periodic review is required by the KCC, though it would take an amendment to the sewage disposal contract for each of the 34 LSAs to update the 750 cf conversation factor.

## Exhibit B: Metro Letter – 1989 Data Validation

### Conclusion:

Based on the analysis performed of survey data for 1988 & 1989 it appears that the 750 cubic feet recommended by the Rate Structure Advisory Committee to the Metro Water Quality Committee is a reasonable approximation of system wide average monthly consumption. I would recommend that the average be reviewed periodically to ensure that the 750 remains a reasonable approximation.

cc: Hanford Choate 82  
Bob Hirsch 82

Most of the sewage disposal contracts extend to July 1, 2036, though nine extend to July 1, 2056. Beginning in 2014, the County began negotiating extensions of the service agreements with the agencies. These negotiations are currently on hold pending until further developments, including completion of the [Clean Water Plan](#).

### **Key Current Conditions:**

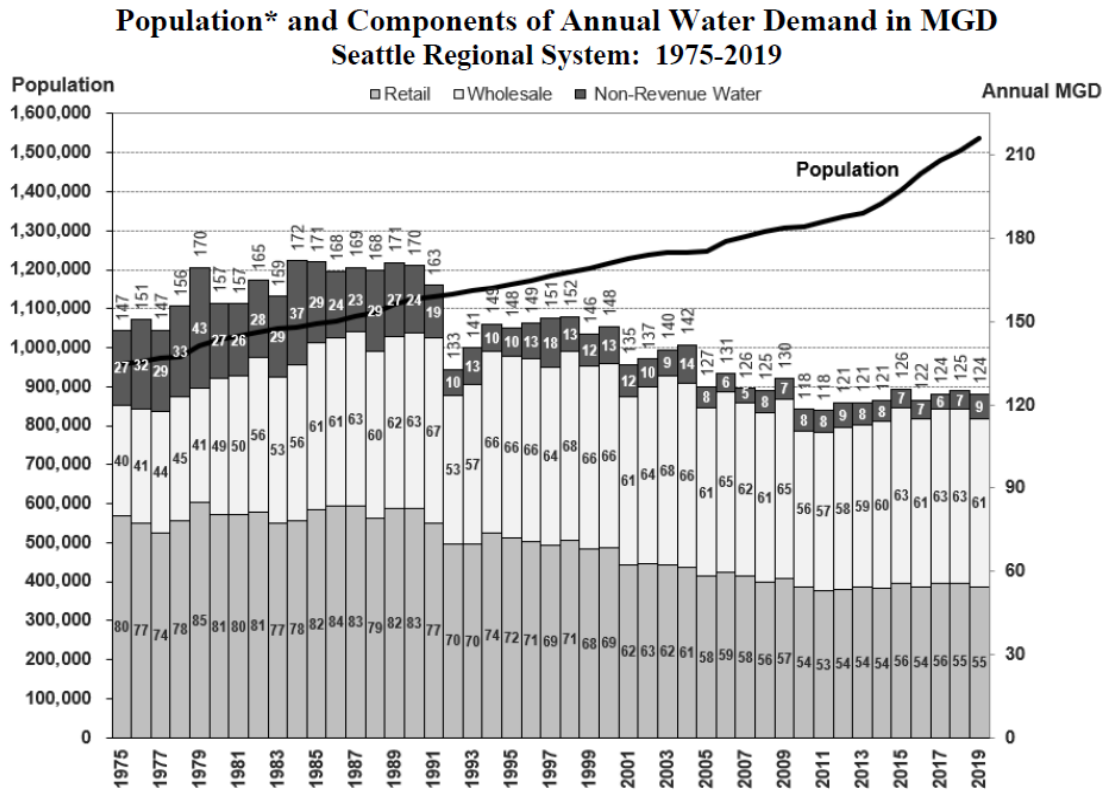
A comprehensive review and update of the RCE methodology's underlying data would reflect the significant conservation impacts to water demand in the region based on the water consumption trends provided below in this section.

Much of WTD's service area is shared with the region's largest water purveyor, SPU. To ensure sufficient water supply for the growing region, SPU conducts water demand forecasts and is in the 27<sup>th</sup> year of conducting a survey of wholesale customer water use.



The [2020 Annual Survey of Wholesale Customers](#) reports that, "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."

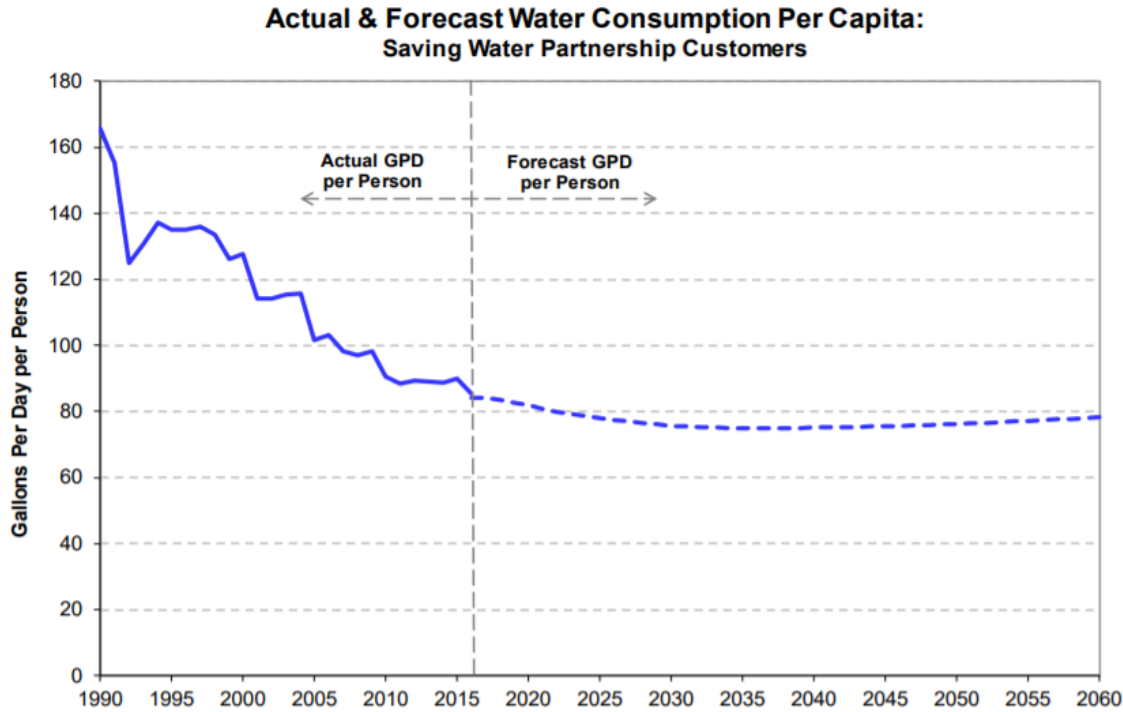
Exhibit C: SPU 2020 Survey of Water Customers – Demand vs. Population Trends



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

SPU updates its official water supply yield estimate (a water supply capacity analysis) and long-range water demand forecast when its [Water System Plan](#) is updated or when significant new information becomes available. The [official forecast](#) was most recently updated for the 2019 Water System Plan. The yield estimate shows declining per capita demand from 1990 through data year 2015.<sup>11</sup>

<sup>11</sup> [Seattle Public Utilities Official Yield Estimate and Long-Range Water Demand Forecast.](#)



The [Energy Policy Act of 1992](#), which became law in 1994, mandates a maximum flush volume of 1.6 gallons for toilets manufactured and installed after this date. Prior to enactment of the Energy Policy Act, toilets used from 3.5 to 5 gallons per flush.<sup>12</sup> Considering nearly 30 percent of the average household’s indoor water consumption is used for toilets, improvements to water efficiency of toilets have significantly reduced water consumption.<sup>1314</sup>

WTD-specific data demonstrating conservation impacts will be provided in Section A of this report.

**Report Methodology:**

WTD staff performed the research and analysis and prepared the report. An early outline and approach was shared with MWPAAC at their June 2021 [Rates & Finance Subcommittee](#) meeting. Staff communicated that any findings or next steps identified by the report would initiate a process of engagement and feedback with stakeholders.

**V. Report Requirements**

The following sections of the report are organized to align with the proviso requirements.

<sup>12</sup> SF Gate HomeGuide article on [Federal Regulations on Toilet Gallons](#).

<sup>13</sup> [EPA information](#) on residential toilets.

<sup>14</sup> [Alliance to Save Energy information on the 1992 toilet standards](#).

- A. A discussion of the history of, and rationale for, the sewer rate cost structure that has resulted in the shifting of the cost burden from commercial/industrial/multifamily housing sectors to single-family homeowners;*
- B. Options for alternative cost structures that would distinguish multifamily ratepayers from commercial and industrial ratepayers; and*
- C. A discussion of the appropriate balance of costs between the residential sector and the commercial/industrial sector in sewer rate revenues, and the criteria impacting that balance.*

**A. A discussion of the history of, and rationale for, the sewer rate cost structure that has resulted in the shifting of the cost burden from commercial/industrial/multifamily housing sectors to single-family homeowners**

**The history and rationale for the sewer rate cost structure, and related historical cost burden shift** are specifically related to how an RCE is measured for billing purposes.

The RCE billing unit calculation is based on a 1989 data analysis that does not reflect significant conservation impacts since that time. A barrier to updating the factor for current data is that the factor is specified in all 34 LSA contracts.

According to internal WTD historical data, the single-family share of total RCEs and revenue climbed steadily from 45 percent in 1996 to over 57 percent in 2020. RCE totals for each customer class determines the share of revenue generated from each class. Every RCE is charged one sewer rate; for example, every RCE in 2021 is charged the 2021 sewer rate of \$47.37. The equivalency assumed in the RCE calculation is where the historical cost shift can be evaluated.

The rationale for the sewer rate cost structure relates to a customer classes' cost of service, or the relative burden one classification of customer places on the system relative to other classes. Sewer systems are built to handle two primary demand elements: flows and loadings. Loading relates to the strength of the sewage flows and WTD maintains an industrial surcharge assessed to organizations or industries that generate higher strength sewage.<sup>15</sup> The industrial class represents commercial customers with higher than domestic (typical residential) strength sewage flows. All other classes are assumed to have similar domestic strength sewage discharge. That leaves flow as the demand factor to be measured as a differential for determining capacity demand placed on the system, and therefore a reasonable way to apportion proportionate cost shares.

With few exceptions, sewer flows are not metered in the same way as water use. The relationship between what comes out of the tap and goes down the drain has been established as a proxy for sewer flows. The exception to this is water that does not enter the sewer system, such as irrigation water or water used to wash a car in the driveway and enters the storm drain.

This is the historical context for the fixed RCE per single-family account. When evaluating water use by class of customer, it is the single-family class that typically exhibits the largest seasonal peak due to the addition of activities, such as irrigation and car washing, and a water use-based sewer rate would charge that class for significant capacity that does not enter the sewer system. Multifamily and commercial

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<sup>15</sup> [Industrial Surcharge - King County Wastewater Treatment Division](#)

classes tend to fluctuate less with seasonal use (e.g., summer water use is similar in scale to winter water use).

Historically, single-family has been based on a single unit fixed charge that assumes a level of indoor water use based on winter water use levels. When billing systems became software-based, options to increase equity and distinguish single-family customers became available. Many systems now establish a customer-specific winter average and use that measure as the volume basis to charge each customer for the following year. This allows greater equity among the variety of usage patterns within the single-family class, ranging from an individual to a large family.

The King County equivalency of 750 cf does not specify the basis as winter average or annual average. Records from the time of the 1989 analysis include discussion of winter average for certain systems, but do not indicate winter average was the targeted statistic or the basis for the recommended equivalency. It is possible that a current review and revision to the equivalency after thirty years would include revisions both for conservation effects as well as adjusting to a winter average rather than annual average basis.

In January 2021, WTD implemented a new capacity charge rate structure for single-family that created new customer classes based on people per household and structured based on home square footage. The capacity charge is the customer connection charge assessed to new development and paid over 15 years. The County has flexibility to make updates to the structure since it is not defined by the contracts.<sup>16</sup> Winter average data for homes of varying sized new development was surveyed and analyzed. The study found that the winter average for all surveyed single-family was 581 cf (5.81 ccf unit highlighted in table) per month, over 20 percent lower than the 750 cf equivalency currently in use to convert a volume-based customer to a single-family equivalency.

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<sup>16</sup> Updates to the capacity charge rate structure require King County Council approval.

Exhibit E: Capacity Charge Rate Structure Study – Winter Average

| Residential Data by Unit Size                    | Number of Buildings | Avg Units per Building | Total Units | Avg Usage per Building | Avg Usage Per Unit | Multiple of Medium Single Family | Living Area Square Feet per Unit | Total Living Area (square feet) | Avg Usage/1,000 s.f. Living Area |
|--|---------------------|------------------------|-------------|------------------------|--------------------|----------------------------------|----------------------------------|---------------------------------|----------------------------------|
| <b>Single Family:</b>                            |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| Large SF (>3,000 s.f.)                           | 4,599               | 1.0                    | 4,599       | 6.8 ccf/mo             | 6.79 ccf/mo        | 1.24                             | 3,645                            | 16,763,355                      | 1.86 ccf/mo                      |
| Medium SF (1,501-3,000 s.f.):                    |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| 2,801-3,000 s.f.                                 | 1,213               | 1.0                    | 1,213       | 5.9 ccf/mo             | 5.88 ccf/mo        | 1.08                             | 2,908                            | 3,526,918                       | 2.02 ccf/mo                      |
| 2,601-2,800 s.f.                                 | 1,279               | 1.0                    | 1,279       | 5.8 ccf/mo             | 5.76 ccf/mo        | 1.05                             | 2,702                            | 3,456,013                       | 2.13 ccf/mo                      |
| 2,401-2,600 s.f.                                 | 1,803               | 1.0                    | 1,803       | 5.9 ccf/mo             | 5.86 ccf/mo        | 1.07                             | 2,509                            | 4,522,523                       | 2.34 ccf/mo                      |
| 1,501-2,400 s.f.                                 | 6,128               | 1.0                    | 6,128       | 5.2 ccf/mo             | 5.21 ccf/mo        | 0.95                             | 2,007                            | 12,298,394                      | 2.60 ccf/mo                      |
| Total Medium SF                                  | 10,422              | 1.0                    | 10,422      | 5.47 ccf/mo            | 5.47 ccf/mo        | 1.00                             | 2,284                            | 23,803,848                      | 2.39 ccf/mo                      |
| <i>Grouping Options - Medium SF:</i>             |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| 2,401-3,000 s.f.                                 | 4,294               | 1.0                    | 4,294       | 5.8 ccf/mo             | 5.84 ccf/mo        | 1.07                             | 2,679                            | 11,505,454                      | 2.18 ccf/mo                      |
| 1,501-2,800 s.f.                                 | 9,209               | 1.0                    | 9,209       | 5.4 ccf/mo             | 5.41 ccf/mo        | 0.99                             | 2,202                            | 20,276,930                      | 2.46 ccf/mo                      |
| 1,501-2,600 s.f.                                 | 7,930               | 1.0                    | 7,930       | 5.4 ccf/mo             | 5.36 ccf/mo        | 0.98                             | 2,121                            | 16,820,917                      | 2.53 ccf/mo                      |
| Small SF (<=1,500 s.f.):                         |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| 1,001-1,500 s.f.                                 | 918                 | 1.0                    | 918         | 5.0 ccf/mo             | 5.0 ccf/mo         | 0.91                             | 1,294                            | 1,187,892                       | 3.84 ccf/mo                      |
| <=1,000 s.f.                                     | 131                 | 1.0                    | 131         | 4.4 ccf/mo             | 4.4 ccf/mo         | 0.80                             | 868                              | 113,708                         | 5.01 ccf/mo                      |
| Total Small SF                                   | 1,049               | 1.0                    | 1,049       | 4.9 ccf/mo             | 4.9 ccf/mo         | 0.89                             | 1,241                            | 1,301,600                       | 3.94 ccf/mo                      |
| <i>Grouping Options - Small &amp; Medium SF:</i> |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| Total Medium/Small SF                            |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| <=2,800 SF                                       | 10,258              | 1.0                    | 10,258      | 5.4 ccf/mo             | 5.36 ccf/mo        | 0.98                             | 2,104                            | 21,578,530                      | 2.55 ccf/mo                      |
| <=2,600 SF                                       | 8,979               | 1.0                    | 8,979       | 5.3 ccf/mo             | 5.30 ccf/mo        | 0.97                             | 2,018                            | 18,122,517                      | 2.63 ccf/mo                      |
| <=2,400 SF                                       | 7,177               | 1.0                    | 7,177       | 5.2 ccf/mo             | 5.16 ccf/mo        | 0.94                             | 1,895                            | 13,599,994                      | 2.72 ccf/mo                      |
| All Single Family:                               |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| Large SF   | 4,599               | 1.0                    | 4,599       | 6.79 ccf/mo            | 6.79 ccf/mo        | 1.24                             | 3,645                            | 16,763,355                      | 1.86 ccf/mo                      |
| Medium SF  | 10,422              | 1.0                    | 10,422      | 5.47 ccf/mo            | 5.47 ccf/mo        | 1.00                             | 2,284                            | 23,803,848                      | 2.39 ccf/mo                      |
| Small SF   | 1,049               | 1.0                    | 1,049       | 4.89 ccf/mo            | 4.89 ccf/mo        | 0.89                             | 1,241                            | 1,301,600                       | 3.94 ccf/mo                      |
| Total Single Family                              | 16,070              | 1.0                    | 16,070      | 5.81 ccf/mo            | 5.81 ccf/mo        | 1.06                             | 2,605                            | 41,868,803                      | 2.23 ccf/mo                      |
| All Residential:                                 |                     |                        |             |                        |                    |                                  |                                  |                                 |                                  |
| Micro-units                                      | 14                  | 67.1                   | 939         | 91.9 ccf/mo            | 1.37 ccf/mo        | 0.25                             | 321                              | 301,547                         | 4.27 ccf/mo                      |
| Multi-family excl. micro-units                   | 178                 | 22.3                   | 3,962       | 99.7 ccf/mo            | 4.48 ccf/mo        | 0.82                             | 1,007                            | 3,989,462                       | 4.45 ccf/mo                      |
| Single Family                                    | 16,070              | 1.0                    | 16,070      | 5.8 ccf/mo             | 5.81 ccf/mo        | 1.06                             | 2,605                            | 41,868,803                      | 2.23 ccf/mo                      |
| Total Residential                                | 16,262              | 1.3                    | 20,971      | 6.9 ccf/mo             | 5.36 ccf/mo        | 0.98                             | 2,201                            | 46,159,812                      | 2.43 ccf/mo                      |



The [SPU 2020 Summary of Annual Wholesale Customers](#) identifies a range of single-family monthly averages for purposes of calculating sample water bills. The text that follows cites lowered consumption assumptions as of the 2016 report. The medium customer winter average was reduced from 800 cf (8 ccf table) to 600 cf (6 ccf table) citing significant decline since the mid-1990s. The updated 600 cf assumption is in line with the winter average finding from the capacity charge study.

Exhibit F: SPU Household Consumption – 2020 Annual Survey

**Monthly Consumption Levels Used in Calculating Bills**

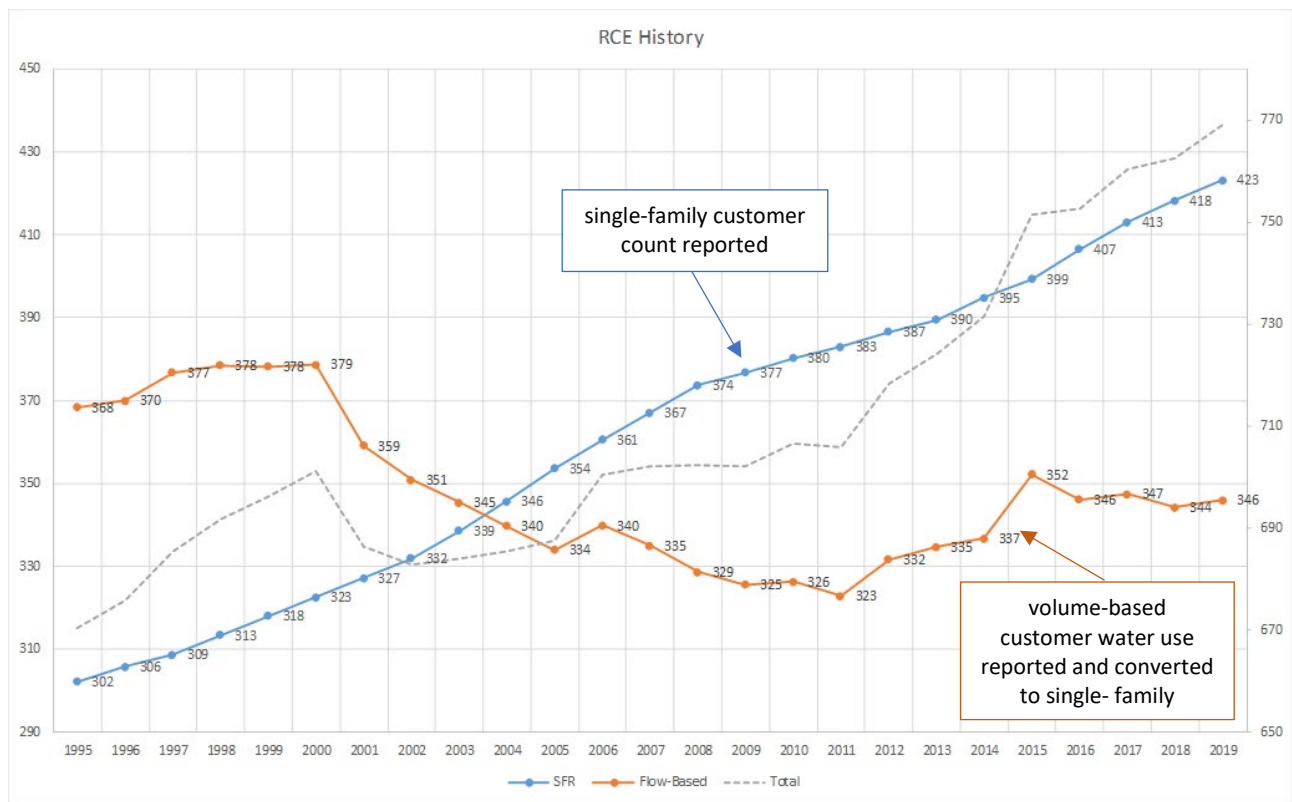
| Level of Household Consumption | Winter     | Summer    | Average Annual |
|--------------------------------|------------|-----------|----------------|
| Low                            | 3.5 ccf/mo | 5 ccf/mo  | 4 ccf/mo       |
| Medium                         | 6 ccf/mo   | 9 ccf/mo  | 7 ccf/mo       |
| 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.

King County’s history of RCEs demonstrates that the population growth from Exhibit C is reflected in the growth in single-family RCEs, since they are based on customer count rather than the 750 cf conversion factor.

The volume-based RCE history demonstrates that in the rapid growth of the 1990s, the RCE growth did not generate a steep increase slope due to significant conservation impacts related to the [Energy Policy Act of 1992](#). Even in a growing commercial economy and multifamily housing market, the net effect from 2000 through 2011 was a decline in the RCEs converted from water use.

Exhibit G: WTD RCE History Plot



The sewer rate is set on a per RCE basis, so that as a class grows in relative RCEs, it takes on more of the cost recovery through sewer rate charges. The shift in cost burden to single-family residential from the volume-based class is a result of the contracting RCE total in the volume-based class, and growing RCE total in the single-family residential class. The RCE distribution shift is primarily related to the significant impacts of conservation being reflected in the billing basis for the volume-based class, and fixed nature of the single-family residential RCE.

## **B. Options for alternative cost structures that would distinguish multifamily ratepayers from commercial and industrial ratepayers**

**Options for alternative cost structures that would distinguish multifamily ratepayers from commercial and industrial ratepayers** would be evaluated based on industry guidance that includes considerations of equitable cost allocation, revenue stability, and administrative feasibility.

The volume-based customer class includes the metered water use from all customer classes except single-family residential; therefore, multifamily residential billing data is included in the volume-based class.

This section describes ways to distinguish the multifamily customer class, as well as summarize alternative industry cost structures used to charge the multifamily customer class.

Distinguishing the multifamily class from other classes, such as commercial and industrial, would require working with LSAs to determine the feasibility of reporting multifamily water use as a separate data field in their quarterly reports to the County to distinguish this class from the aggregated reported water use.

The WTD billing system would require modification to incorporate the additional data fields for multifamily meter readings, deductions, and resulting RCEs.

Exhibit H shows a sample of the WTD online reporting system for agency billing data.

Exhibit H: Billing Data Portal – Volume-based Customer Reporting

| Residential Customer Equivalents |   |                      |
|----------------------------------|---|----------------------|
| 7.                               | Total water consumption (cu. ft.) based upon meter readings during quarter for customers billed other than single-family residential                        | 251,670              |
| Deductions                       |   |                      |
| 8.                               | Water consumption where sewerage is metered (cu. ft.)   | <input type="text"/> |
| 9.                               | Water not entering sanitary facilities of customers (cu. ft.)   | <input type="text"/> |
| 10.                              | Water consumption for customers whose sewerage is disposed of outside King County area by a government agency not under contract with King County (cu. ft.) | <input type="text"/> |
| 11.                              | Other deductions<br>Explain by attachments if necessary   | <input type="text"/> |
| 12.                              | Total deductions<br>Sum of Lines 8-11   |                      |
| 13.                              | Adjusted water consumption (cu. ft.)<br>Line 7 minus Line 12  | 251,670              |
| 14.                              | Metered sewerage flow (cu. ft.)   |                      |
| 15.                              | Total consumption for sewer charge purposes (cu. ft.)<br>Line 13 plus Line 14   | 251,670              |
| 16.                              | Residential customer equivalents<br>Line 15 divided by 2,250  | 112                  |

Rate structures are evaluated by utilities for rate setting based on a variety of measures. [The American Water Works Association \(AWWA\) Manual 1 \(M1\) Principles of Water Rates, Fees, and Charges](#) is typically referred to as the preeminent industry source for utility rate setting guidance. Regarding guidance for evaluating rate structure alternatives M1 states,

*“Rate objectives common to many utilities and their customers include*

- *Yielding necessary revenue in a stable and predictable manner*
- *Minimizing unexpected changes to customer bills*
- *Discouraging wasteful use and promoting justified uses*
- *Promoting fairness and equity*
- *Avoiding discrimination*



- *Maintaining simplicity, certainty, convenience, feasibility, and freedom from controversy*
- *Compliance with all applicable laws”*

These objectives are generally addressed by evaluating a stable revenue forecast versus equity across all members of a rate class. There is an inverse relationship between rate stability and equity, meaning that improving one often results in reducing the other.

The indirect nature of charges to multifamily residents must be a consideration in reviewing alternative cost/rate structures. While WTD as a wholesale service provider has an indirect relationship to all of the end users of the sewer system who are directly billed by the LSAs, there is an additional indirect layer for multifamily due to the LSAs typically maintaining a customer account at the landlord level and not on a per unit level for multifamily properties. For example, the SPU water rate classes distinguish separately Residential for individually metered residential customers and Master Meter Residential for multiunit residential, such as apartment buildings or duplexes that share a single meter. SPU bills all multifamily through landlord accounts in the Master Meter Residential Class.

SPU water and sewer low-income customer assistance programs are facilitated through Seattle City Light accounts, which are metered and billed at the per unit level. Water and sewer bill low-income discounts are credited to qualifying multifamily customers through their Seattle City Light bill. This SPU program represents one of the innovative ways the industry is approaching customer assistance for what is referred to as a Hard to Reach (H2R) customer subset.<sup>17</sup>

Given that LSAs are in an indirect and wholesale-like relationship with the individual multifamily unit residents, it is then the landlord that determines how the cost of water and sewer service are charged to residents in their buildings. Any cost impact to the class may not have a direct impact on an individual multifamily household.

There are three available data points to consider when determining multifamily retail rate structures: (1) the number of billed accounts, (2) the metered water use from a multifamily building, and (3) the number of units served by the billed account.

As with all customer class structures, multifamily rate structures are varying combinations of fixed charges and volume (flow) charges. Multifamily has the added fixed charge data point of number of units.

While fixed charges accomplish a key rate-setting objective well, yielding necessary revenue in a stable and predictable manner, they are not as effective at promoting fairness and equity. Equity is more tailored under a volume-based structure that ties the size of the charges to the customer-specific and time-specific demands on the system. Using metered water use as a proxy for sewage flows allows the capacity needs of the system to tie cost recovery to relative demands placed on the system. The existing volume-based structure applied to the multifamily class is the most equitable industry approach.

Alternatives include instituting a structure that in part or in total bases the multifamily sewer rate charges on a fixed measure, such as the number of units served, which is typically a standard fraction of a single-family equivalent. King County’s capacity charge utilizes the industry approach of sizing multifamily as a fraction of single-family. Though the upfront assignment of an RCE before a service relationship is established with metered water use billing history requires estimating customer capacity needs to assign an RCE. While the capacity charge must be set before customer billing data can indicate

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<sup>17</sup> Information on Hard to Reach customers is available [here](#).

capacity demand, ongoing sewer service rate billing does not have to rely on estimates once metered water use is reported.

Sewer systems are primarily fixed cost systems, meaning service requires significant investment in infrastructure and annual costs vary minimally based on actual current use of the system. This is one justification for moving toward more fixed-charge based sewer billing structures.

A fixed charge for multifamily, similar to single-family as an equivalent unit though smaller, would increase revenue stability to WTD, but would not increase measured equity in charging the multifamily class. Even if the water use assumption assumed in the per unit RCE assignment had a high degree of accuracy, the variation of multifamily unit sizes among multifamily landlord accounts would reduce equity in cost recovery when compared to the volume-based structure in place.

The evolving capability of software billing systems has allowed the sewer industry to move away from predominately fixed charge systems in implementing water use-based structures, including for single-family. The Municipal Research and Services Center ([MRSC](#)) 2017 posting, [Sewer Rate Structures for Utilities](#) highlights this topic.

*“Volumetric rates have historically been more commonly used for commercial and multifamily customers (when treated similarly to commercial customers for ratemaking purposes). Volumetric rates are applied to usage over any amount built into the base rates.*

*Single-family customers are less likely to be separately metered for fire flow or irrigation water and, as a result, their water demand less accurately represents their sewer flows. For this reason, flat sewer rates have historically been most common for these customers.*

*In recent years, an increasing number of utilities have been moving away from flat, single-family sewer rates and shifting to (or at least considering) volume-based rates. This shift is prompted by a number of reported upsides, including improved equity in cost recovery, reinforcement of conservation-oriented price signals embedded in water rates, and enhanced affordability for low users.”*

The MRSC posting further identifies the most common structure applied, relating back to the winter average measures for single family residential.

*“**Tailored Fixed Rate:** This is the most common approach. In it, a utility calculates winter-average usage for each customer on an annual basis and uses that calculated volume to determine the fixed rate to apply to the customer for the following year. The winter-average usage is usage that occurs during a defined “winter” period when a customer is unlikely to use irrigation. Utilities that use this approach typically update a customer’s winter-average volume on an annual basis and will use a system-average volume for new customers that have yet to establish a demand history.*

Highlighting single-family rate structure alternatives informs the discussion of multifamily customer class equity since equity is a relative measure. While the existing multifamily class rate structure includes a high degree of equity, if another class is not as equitably measured, cost shifts can occur that are not based on equitable cost sharing.

**C. A discussion of the appropriate balance of costs between the residential sector and the commercial/industrial sector in sewer rate revenues, and the criteria impacting that balance**

**The appropriate balance of costs between the residential sector and the commercial/industrial sector in sewer rate revenues** could be assessed based on updating the RCE flow assumption to reflect current single-family water use data for the WTD service area.

While volume-based customer classes are charged based on a structure that prioritizes equity, utilizing metered water use to generate a pro rata share of use of system capacity, the single-family residential class assumed flow assumption may no longer create the intended equivalency as it uses a data point that predates significant conservation changes to water use.<sup>18</sup> This section will summarize what the appropriate balance of costs could look like and potential outcomes if the equivalency were updated. Any changes would require significant stakeholder engagement and revisions to the sewage disposal contracts, so the content of this section will be limited to analysis and summary of potential impacts.

The historical shift of cost to the single-family class relates to the fixed nature of the way that RCEs in the system are calculated. While the flow-based classes have seen their billing basis contract with conservation, the single-family billing basis assumes a fixed usage level that predates conservation in sizing their equitable share of systems costs.

In order to test potential impacts, a placeholder of 600 cubic feet is utilized to calculate key outcomes, including total system RCEs, the sewer rate, and customer impacts.

The sewer rate is a function of two data points: 1) the total annual revenue requirement of the sewer system (\$) divided by 2) the total RCEs that will be billed. A revision downward to the conversion factor from 750 cf to 600 cf increases the denominator (total RCEs), lowering the cost per RCE (the sewer rate). For a commercial establishment, or multifamily building with metered water use of 3,000 cubic feet in a month, King County would bill the LSA for four RCEs under the current conversion of 750 cf per month. If the conversion were revised to 600 cf, the LSA would be billed for five RCEs. Applying the RCE impacts to system-wide reported water use, using rounded estimates of 2020 RCEs, Exhibit I shows the distribution of RCEs and costs based on the sample updated measure of a single-family flow unit. The sewer rate is based on collecting the same total revenue, i.e. it is determined based on a revenue neutral change to the RCE conversion. The balance of costs to the single-family class shifts from 57 percent to 51 percent.

Exhibit I: Sample RCE Conversion Revision – Total RCEs and Sewer Rate Impact

| Sample Conversion Update Impact | RCEs @ 750 cf | Rate    | RCEs @ 600 cf | Rate    | change       |
|---------------------------------|---------------|---------|---------------|---------|--------------|
| <b>2020 RCEs and Rate</b>       | 740,000       | \$45.33 | 819,550       | \$40.93 | -\$4.40 -10% |
| Single Family Residential       | 57% 421,800   | \$45.33 | 51% 421,800   | \$40.93 |              |
| Flow-based                      | 43% 318,200   | \$45.33 | 49% 397,750   | \$40.93 |              |

Under this sample conversion factor correction, the sewer rate goes down by ten percent. Since single-family customers are one RCE and pay one sewer rate, this sample would indicate that single-family customers are currently subsidizing the volume-based class at a ten percent payment over their equitable share. While volume-based customers would also be charged a lower sewer rate, it would be applied to a larger converted RCE measure. For example, a 3,000 cf reported water use would be converted to four (3,000/750 cf) RCEs times the 2020 sewer rate of \$45.33 with a billing equal to \$181.

<sup>18</sup> Pro rata is a term used to describe a proportionate allocation. It essentially translates to "in proportion," which means a process where whatever is being allocated will be distributed in equal portions.

The updated conversion factor would result in conversion to five RCEs (3,000/600 cf) times the lower sewer rate of \$40.93 with a billing equal to \$205. This change represents a 13 percent bill increase to begin paying their equitable share and correct the subsidy from the single-family class. Of note, not all LSAs pass-through the WTD sewer rate structure. Some LSAs, including SPU, treat the WTD billing as a line item in the total utility costs, and set sewer rates for their customer classes based on the agency's evaluation of equitable cost allocation to their own customer classes. Any rebalancing among WTD classes would not have a direct impact to an SPU commercial customer.

Each LSA has a varying distribution of customer classes. Any cost shift among customer classes will have varying impacts to each agency's billing. Exhibit J compares the Quarter 4, 2020 year-end RCE totals for each agency at 750 cf, to the equivalent RCEs under a 600 cf factor.<sup>19</sup> It also includes the estimated LSA bill impact reflecting the lower sewer rate per RCE. Potential shifts among agencies vary by share of single-family versus volume-based RCEs.

The largest percentage increases include Cross Valley Water District with all volume-based RCEs and Tukwila with 84 percent volume-based RCEs. The largest decreases include multiple Districts and the City of Black Diamond. While Exhibit J provides an estimated impact, volume-based customers are billed based on average RCEs reported over the previous year, meaning any impacts from a change to the factor would phase in over a year. Additional policy-based phase-in strategies would likely be considered as well.

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<sup>19</sup> RCEs are reported by LSAs and billed by WTD quarterly.

Exhibit J: LSA Cost Shifts under Sample Conversion Factor Revision

| Sample Conversion Factor Revision<br>Agency Cost Shift  | 2020 RCEs<br>750 cf | % of RCEs<br>& Revenue | 2020 RCEs<br>600 cf | % of RCEs<br>& Revenue | Net LSA Bill<br>Change % |
|---|---------------------|------------------------|---------------------|------------------------|--------------------------|
| <b>Local Sewer Agencies - Cities</b>                    |                     |                        |                     |                        |                          |
| Algona  | 1,421               | 0.2%                   | 1,514               | 0.2%                   | -3.7%                    |
| Auburn  | 30,056              | 4.1%                   | 34,246              | 4.2%                   | 3.0%                     |
| Bellevue  | 60,345              | 8.2%                   | 67,299              | 8.2%                   | 0.8%                     |
| Black Diamond   | 1,329               | 0.2%                   | 1,345               | 0.2%                   | -8.5%                    |
| Bothell   | 7,833               | 1.1%                   | 8,594               | 1.1%                   | -0.8%                    |
| Brier   | 1,814               | 0.2%                   | 1,877               | 0.2%                   | -6.5%                    |
| Carnation   | 1,168               | 0.2%                   | 1,239               | 0.2%                   | -4.1%                    |
| Issaquah  | 12,945              | 1.8%                   | 14,466              | 1.8%                   | 1.1%                     |
| Kent  | 37,130              | 5.0%                   | 43,106              | 5.3%                   | 5.0%                     |
| Kirkland  | 15,237              | 2.1%                   | 16,531              | 2.0%                   | -1.9%                    |
| Lake Forest Park  | 4,048               | 0.5%                   | 4,161               | 0.5%                   | -7.1%                    |
| Mercer Island   | 8,696               | 1.2%                   | 9,078               | 1.1%                   | -5.6%                    |
| Pacific   | 2,710               | 0.4%                   | 3,001               | 0.4%                   | 0.1%                     |
| Redmond   | 30,112              | 4.1%                   | 33,830              | 4.1%                   | 1.6%                     |
| Renton  | 30,106              | 4.1%                   | 33,589              | 4.1%                   | 0.9%                     |
| Seattle   | 284,918             | 38.5%                  | 317,776             | 38.9%                  | 0.9%                     |
| Tukwila   | 6,719               | 0.9%                   | 8,138               | 1.0%                   | 9.5%                     |
| <b>Subtotal</b>   | <b>536,587</b>      | <b>72.6%</b>           | <b>599,787</b>      | <b>73.3%</b>           | <b>1.1%</b>              |
| <b>Local Sewer Agencies - Sewer Districts and Tribe</b> |                     |                        |                     |                        |                          |
| Alderwood Water & Wastewater District                   | 50,649              | 6.8%                   | 54,637              | 6.7%                   | -2.5%                    |
| Cedar River Water & Sewer District                      | 5,489               | 0.7%                   | 5,832               | 0.7%                   | -3.9%                    |
| Coal Creek Utility District                             | 4,371               | 0.6%                   | 4,673               | 0.6%                   | -3.3%                    |
| Cross Valley Water District                             | 384                 | 0.1%                   | 480                 | 0.1%                   | 13.0%                    |
| Highlands Sewer District                                | 106                 | 0.0%                   | 106                 | 0.0%                   | -9.4%                    |
| Lakehaven Utility District                              | 1,053               | 0.1%                   | 1,054               | 0.1%                   | -9.5%                    |
| Muckleshoot Indian Tribe                                | 366                 | 0.0%                   | 378                 | 0.0%                   | -6.5%                    |
| NE Sammamish Sewer & Water District                     | 4,822               | 0.7%                   | 4,846               | 0.6%                   | -9.1%                    |
| Northshore Utility District                             | 29,834              | 4.0%                   | 32,293              | 3.9%                   | -2.1%                    |
| Olympic View Water & Sewer District                     | 207                 | 0.0%                   | 207                 | 0.0%                   | -9.6%                    |
| Ronald Wastewater District                              | 19,674              | 2.7%                   | 20,792              | 2.5%                   | -4.4%                    |
| Sammamish Plateau Water & Sewer District                | 16,364              | 2.2%                   | 17,530              | 2.1%                   | -3.1%                    |
| Skyway Water & Sewer District                           | 5,375               | 0.7%                   | 5,736               | 0.7%                   | -3.5%                    |
| Soos Creek Water & Sewer District                       | 38,472              | 5.2%                   | 39,915              | 4.9%                   | -6.2%                    |
| Valley View Sewer District                              | 14,909              | 2.0%                   | 16,858              | 2.1%                   | 2.2%                     |
| Vashon Sewer District                                   | 913                 | 0.1%                   | 1,036               | 0.1%                   | 2.6%                     |
| Woodinville Water District                              | 5,701               | 0.8%                   | 6,408               | 0.8%                   | 1.6%                     |
| <b>Subtotal</b>   | <b>198,689</b>      | <b>26.9%</b>           | <b>212,781</b>      | <b>26.0%</b>           | <b>-3.2%</b>             |
| <b>Non-Municipal Participants and Other Customers</b>   |                     |                        |                     |                        |                          |
| <b>Other Customers</b>                                  | 4,206               | 0.6%                   | 5,258               | 0.6%                   | 13.0%                    |
| <b>Total</b>  | <b>739,482</b>      | <b>100.0%</b>          | <b>817,825</b>      | <b>100.0%</b>          | <b>0.0%</b>              |

## VI. Conclusion/Next Steps

The RCE conversion factor is the primary rate structure element that determines equity among customer classes. It is based on data collected in 1989 before significant conservation trends in water use.

The conversion factor is fixed in the sewage disposal contracts with the agencies and despite KCC language directing that it be reviewed periodically to ensure that accounts pay their fair share of the cost of the system, any change based on review would require revising sewage disposal contracts with all 34 agencies.

The conversion factor is potentially overstating the single-family equivalent flow contribution, and therefore likely requiring single-family customers to bear a portion of the costs of the system attributable to other customer classes' system capacity demands.

The multifamily class is not submetered for water or sewer service. The account and billing relationship resides with the property owner/landlord, who then determines how utility costs will be passed on to residents. The existing multifamily cost/rate structure based on metered water use is more equitable than the fixed charge rate structure alternatives. However, the multifamily class could be distinguished from the other volume-based classes if the LSAs agreed to separately reporting multifamily metered water use.

There are opportunities to improve equity within the single-family rate structure, in particular a study of the current single-family winter average water use in the WTD service area to evaluate a current equitable conversion factor, and pursuing a contract amendment to revise the conversion factor when sewer contract negotiations resume pending completion of the Clean Water Plan. A significant engagement effort with MWPAAC on this topic is recommended to gather feedback and input and develop a collaborative path forward.

## VII. Appendices

Appendix A: Findings and Recommendations on Structure of Metro Charges to Component Agencies – Rate Structure Advisory Committee, June 1989

Appendix B: October 1989 Metro Letter – 1989 Avg. Single-Family Residential Water Consumption

# Findings and Recommendations On Structure of Metro Charges to Component Agencies



**Rate Structure Advisory Committee**

**An Ad Hoc Committee Appointed by  
the Chairman of the Metro Council**

**June 1989**





# Memo

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## STATEMENT OF COMMITTEE CHAIRMAN

TO: Water Quality Committee

FROM: Paul Barden, Chairman  
Rate Structure Advisory Committee

SUBJECT: Findings and Recommendations on Structure  
of Metro Charges to Component Participants

We are pleased to present, for Committee consideration, Findings and Recommendations of the Rate Structure Advisory Committee.

These findings and recommendations are the product of months of effort and study by a broadly based committee of component agency elected officials and management personnel.

Committee intent is to spread the capital cost of the system equitably to all ratepayers, both present and future, and to distribute the impact of Metro operating costs to component participants so that each pays its proportionate share of the true cost of transportation, treatment and disposal of wastewater in the metropolitan area.

Meeting reports, background papers and study documents used by the Committee to reach these recommendations are on file in the Metro Library.

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## EXECUTIVE SUMMARY OF RATE STRUCTURE ADVISORY COMMITTEE RECOMMENDATIONS

In 1986 the Rate Structure Advisory Committee (RSAC) was reconvened for the purpose of reevaluating its 1984 recommendations in the context of the 1985 decision to proceed with secondary treatment. Some council members thought the assumptions that led to the 1984 recommendations might be affected by the cost and nature of the secondary treatment program. RSAC had made recommendations regarding a connection charge to help offset the "cost of growth," a change in the residential customer equivalency value used to charge non-residential customers and reduction of infiltration and inflow from local systems.

In July 1986, the Metro Council also charged the RSAC with developing recommendations regarding future Snohomish County service and sewer rate relief for low income elderly ratepayers.

The RSAC formulated its draft report and recommendations in June 1987 and circulated that report to local agencies, industry groups and citizens committees for comment. This final report reflects comments received from that review. In May 1989, the committee met again to complete its assignment, following enactment of enabling legislation.

Following are the current RSAC recommendations:

1. **Connection Charge.** New customers to the Metro system at the time of connection, should pay a capacity charge to recover a portion of the capital cost of capacity designed into the system to serve future customers.
2. **Residential Customer Equivalency Value.** The residential customer equivalency value of 900 cubic feet metered water consumption, used to charge non-residential customers, should be lowered to 750 cubic feet. This change would reduce the share of Metro's costs borne by single family residences and would increase the share borne by non-residential users.

Implementation of this change would require amendment of all existing agreements for sewage disposal.

3. **Infiltration and Inflow (I/I)/CSO Control/Flow Reduction.** Existing sewage disposal agreements should be amended to remove the I/I surcharge exemption for pre-1961 sewers and require each agency to commit to a program of sewer rehabilitation equal to two (2) cents per inch-diameter/foot (excluding force mains) each year. This commitment would not apply to the City of Seattle's combined system.

Metro should also participate financially in local agency projects to control I/I when the cost of Metro's participation is less than the cost of continued treatment of the excess flows.

Seattle and Metro have undertaken separate CSO control programs. CSO control solutions most cost-effective for the region should be selected regardless of who pays. Seattle should support Metro's efforts to secure the most cost effective CSO control program that meets the requirements of state law.

Seattle should also pay Metro an amount equal to 50 percent of the rate relief they realize from the connection charge until those payments equal 100 percent of the cost of Metro's CSO control program. If a higher level of CSO control is subsequently required, Seattle's payments would resume until they again total 100 percent.

Seattle should pay Metro for the incremental operating costs of transporting and treating additional stormwater from city CSO storage facilities constructed after implementation of these recommendations.

4. **Low Income Elderly Customers Rate Relief.** Local agencies should reevaluate and update their sewer rate discount programs for low income elderly. Those agencies not offering discounts are encouraged to do so.
5. **Snohomish County Service.** Consideration of extension of contracts with Snohomish County agencies should be deferred, pending final design of secondary treatment facilities and resolution of the RSAC capacity charge recommendation.

RSAC recommendations are interdependent. They represent compromises that, in total, achieve a balance of benefits among local agencies. It is not anticipated that any individual recommendation regarding the capacity charge, residential customer equivalency value or I/I and CSO control could be implemented separately.

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## BACKGROUND OF THE ISSUES

Over the past several years, concern has been expressed that Metro's current service charge to component participants results in inequities for some customers. Metro charges component participants--city, county, agency, sewer/water district--for sewage transmission, treatment and disposal services based on the number of single-family residential customers and total water consumption for non-residential customers. Metro's monthly charge to components is based on a flat fee for each single-family residential customer and the same amount for each residential customer equivalent, which is based on 900 cubic feet of water consumption. It is estimated that Metro sewer charges will increase from \$10.45 per month in 1989 to approximately \$21.00 per month in 1995 for each single-family residential customer or equivalent. The magnitude of this rate increase is largely the result of Metro's capital improvement program, a part of which is to provide capacity for future customers.

Two previous committees reviewed the overall rate structure and made recommendations on several amendments to current contracts. These recommendations were adopted by the Metro Council in 1984 but not implemented due to need for legislative authority. In October 1986, the current Rate Structure Advisory Committee was reconvened for the purpose of updating the recommendations in light of expensive capital improvements, changed standards and new concerns for related rate impacts.

Issues addressed by the committee include:

1. **Connection Charges.** Some agencies believe that new customers to the Metro system should pay a capacity charge to recover a portion of their pro rata share-of the capital cost of capacity designed into the system to serve future customers at the time of connecting future customers.
2. **Customer Equivalency.** Based on studies performed in 1958 and 1960, 900 cubic feet per month was established as an average residential water consumption figure for purposes of charging non-residential customers for sewage disposal service. Those studies assumed that (1) average family size would grow and (2) use of water-intensive appliances would increase.

Recent studies indicate that per capita water use has not increased. Participants think that 900 cubic feet is no longer appropriate and should be reduced because of smaller family size and conservation in water use. This customer equivalency value may change again over time and should be reviewed periodically.

3. **Combined Sewer Overflows (CSO's).** The City of Seattle sewerage system is made up of about one-third separated sewers (completely separate sanitary sewers and storm sewers), one-third partially separated sewers (combined sewers from which street drains have been removed), and one-third combined sewers. Storm and surface waters collected in the combined sewer system require additional Metro capital and operating expenses that are borne by all Metro ratepayers.

Seattle pays no extra payment for treatment of this storm water, under provisions of the 1961 contract. Seattle's combined sewer system also frequently overflows, causing environmental impacts.

When the Metro System was first built, Seattle ratepayers constituted 89 percent of Metro's rate base. During the early years, most construction was focused on removing discharges from Lake Washington. The Eastside Interceptor and the Renton Treatment Plant were the first major construction projects. All collection systems of local jurisdictions were accepted as they existed at that time.

Suburban jurisdictions, where the greatest growth is expected to occur, have expressed the view that since the bulk of capacity charge revenue is expected to be generated in their areas, Seattle should be expected to correct combined sewer overflow problems both in the city's collection system and in the Metro system.

Under current contracts, the bulk of the flow from Seattle's combined system into the Metro system is exempt from surcharges in Metro's rules and regulations for excess infiltration and inflow because the system was constructed prior to January 1, 1961. Correction of CSOs by storing peak flows and releasing that volume into the Metro system later when capacity is available requires treatment of an additional portion of Seattle's storm flows. The additional costs of that treatment should affect the decision by Seattle whether the flows should be stored or separated.

4. **Infiltration and Inflow (I&I).** Some sewage collection systems leak groundwater into pipes due to broken pipe, leaky joints or of yard, basement, roof or street drains, or other unauthorized connections to the sanitary sewer. Agencies with construction and maintenance policies, which minimize such infiltration and inflow, have expressed the view that infiltration and inflow in agencies with lax construction and maintenance policies creates an inequity against rate payers of agencies with little infiltration and inflow.



5. **Service to South Snohomish County.** Metro provides service on a contractual basis to the Alderwood Water District and the City of Brier, both located in Snohomish County. Flows from these high-growth areas are transported to West Point for treatment. Depending on final plant configuration resulting from secondary treatment planning, cost to transport and treat their flows after 2016 may exceed rate revenues. Current contracts for service expire in 2016.
6. **Rate Relief for Low Income Elderly Ratepayers.** Costs of the existing and planned capital improvements for system expansion, secondary treatment and CSO control are shared equally by all customers regardless of ability to pay. These rising costs particularly affect elderly citizens with low incomes.
7. **Relationship to Existing Contracts.** All agencies are obligated by uniform contracts developed at the time of Metro's inception. These contracts reflect conditions that existed at that time. Some conditions have changed substantially and costs have increased. The costs used in the discussion for this report are based on construction of "Core 4" secondary treatment facilities. It is recognized that future contract amendments may be required. Future changes in the terms for sewage disposal and/or payment therefore, as may be proposed by Metro and agreed to by participants that shall represent, in total, not less than 90% of the number of Residential Customers and Residential Customer equivalents then served by the Metropolitan Sewerage System, should be binding on all participants.



## STATEMENT OF TASKS

The reconvened committee was charged by the chairman of the Metro Council with accomplishing the following tasks:

1. Reaffirm or modify prior recommendations. In regard to connection charges, prior recommendations may not consider all implications of Metro's vastly increased capital program resulting from secondary treatment requirements at Puget Sound plants. Issues the committee could consider include:
  - a. Is a connection charge still appropriate?
  - b. If so, what level is appropriate? What level is politically acceptable?
  - c. What percentage of capital costs should be recovered? Or should no attempt be made to tie the connection charge to a percentage of the capital program?
  - d. How, when, and by whom should the charge be collected?
  - e. How should connection charge revenue be used?
2. Establish a work plan and prioritize tasks.
3. Consider new items mandated by the Metro Council:
  - a. Whether to continue service to south Snohomish County agencies after expiration of existing contracts.
  - b. Ways to provide rate relief to low-income elderly ratepayers, if deemed appropriate.
4. Consider possible new items, if any, suggested by committee members.



# FINDINGS AND RECOMMENDATIONS OF THE RATE STRUCTURE ADVISORY COMMITTEE

## REGIONAL PERSPECTIVE

### Findings

1. To a great extent, Metro's accomplishments in dealing with water quality issues can be attributed to the regional approach adopted by the various local jurisdictions in the Metro service area. Those jurisdictions agreed to cooperate in a mutual effort to clean up local waters.
2. A continuation of regional cooperation is necessary to continue Metro's record of accomplishment in the future.
3. In looking at costs and benefits of the metropolitan sewerage system, it is possible to identify different subunits of the metropolitan system in which costs or benefits of sewerage services are higher or lower than the system wide average. However, attributing differential costs and benefits to subregional units to allocate responsibility for financing costs of the system could jeopardize the regional consensus that has been responsible for so much of Metro's success.
4. While regional perspective is vital, Metro's actual jurisdiction is perceived to be King County. Service to agencies in Snohomish County is by mutual agreement.

### Recommendation

The metropolitan sewerage system should be viewed from a regional perspective when costs and benefits of sewerage services are analyzed. Costs and benefits of the system should be considered as distributed uniformly across all parts of the Metro service area.

## CUSTOMER EQUIVALENCY VALUE

### Findings

1. The residential customer equivalency value of 900 cubic feet per month, which is used to convert water consumption of volume-based customers to residential customer-equivalents for Metro billing purposes, may be higher than the average water consumption of single family residences in the Metro area. Both a special task force on rate equity in 1981 and the Rate Structure Advisory Committee in 1982 studied the issue, and each

independently concluded that average single-family residential water consumption in the Metro area is between 700 and 800 cubic feet per month.

2. If average residential water consumption is significantly less than 900 cubic feet per month, then the use of 900 cubic feet per month as the equivalency value results in residential customers bearing a disproportional share of the cost of the sewerage system. By the same token, commercial and multifamily accounts pay less than their fair share if the equivalency value is overstated.

### **Recommendation**

1. Metro/agency contracts (Section 5-1) should be amended to change the customer-equivalency value to 750 cubic feet per month.
2. The customer equivalency value should be reviewed by the Metro Council every 10 years thereafter to determine if the equivalency value should be changed. If future contract amendments are required, agreement to proposed contract amendment by participants representing not less than 90 percent of the residential customers and residential customer equivalents then served by the Metropolitan sewerage system should be binding on all participants.
3. Metro should move toward cost allocation methodology which avoids excessive administrative costs and reduces reasons for disputes between jurisdictions as to proper allocation of treatment costs. A volume-of-sewage-flow basis of cost allocation has been suggested in the past and could be considered in the future.

### **INFILTRATION AND INFLOW/CSO CONTROL/FLOW REDUCTION**

#### **Findings**

1. Large volumes of water other than sanitary wastewater regularly enter local collection systems and the Metro system because of groundwater infiltration resulting from broken pipes, leaky pipe joints and manhole structures or improperly constructed systems. Inflow of storm and surface water into noncombined collection systems is the result of improperly designed and/or constructed facilities or from routing of storm sewers, roof drains, yard drains, basement drains or other unauthorized connections to the sewer system.

2. In the City of Seattle, combined sewers are responsible for large numbers of combined sewer overflows as well as increased flow through trunk sewers, pumping stations and treatment plants to which the Seattle system is tributary. Seattle's combined sewers collect surface waters from streets, yards, roof drains and storm sewers in about one-third of the city's collection system. Sewers are separated or partially separated in the rest of the city.

However, significant flows from roof drains and yard drains continue to be routed into the wastewater sewer system in areas where partially separated sewers exist.

3. As part of the regional effort to maintain and enhance water quality, each agency should be encouraged to (1) remove excessive infiltration and inflow sources and (2) control combined sewer overflows in accordance with regulations of Metro, the State of Washington and the federal government.

Goals of infiltration and inflow correction are to reduce flow through trunk lines and treatment plants, where cost effective, to reduce transportation and treatment facilities expansion requirements.

4. Exemption of systems constructed prior to January 1, 1961, from surcharge provisions of Metro's Rules and Regulations (Section 10-03) is no longer appropriate for sanitary, separated and partially separated systems.
5. The City of Seattle should be encouraged to enter into an ongoing program to reduce flows to Metro by systematically separating portions of its collection system that currently remain combined.

### **Recommendations**

1. Contracts with agencies (Section 5-3,c) and Metro Rules and Regulations (Section 10) should be amended to remove the surcharge exemption for sanitary, separated, and partially separated sewer systems constructed prior to January 1, 1961. It is intended that programmatic commitment recommendations below shall identify the level of each agency's required expenditure for control of storm or ground waters entering the Metro system from sanitary, separated and partially separated sewer systems.
2. Metro/agency contracts should be amended to require each agency to commit to a program of sewer collection system rehabilitation equal to two (2) cents per inch-diameter/foot, in

1987 dollars--excluding force mains--each year, averaged over five (5) years. The programmatic commitment shall not apply to Seattle's combined sewer system.

### **Description**

The goal of the program is to encourage reduction of infiltration and inflow through actual replacement or rehabilitation of existing facilities. Metro will evaluate each agency's program to confirm compliance with criteria adopted by the Metro Council.

Each agency shall determine its own program priorities.

Flow monitoring by local agencies shall not be a requirement of the contract; however, a certain amount of monitoring might be necessary to identify needs.

Metro will provide counseling, technical assistance, training and guidance for agency personnel to ensure general uniformity of equipment and practices, as appropriate (see Recommendation #4).

### **Eligible Costs**

To be considered part of the total programmatic commitment, costs charged against projects must be consistent with specific criteria to be developed. Such criteria may include costs of:

- Monitoring sufficient to determine problem areas.
- Sewer System Evaluation Study (SSES) or equivalent.
- Engineering costs directly associated with infiltration inflow correction projects.
- Cost for rehabilitation of existing facilities or installation of new facilities designed for the purpose of infiltration/inflow correction. Capacity improvement costs would not be eligible.
- Maintenance and inspection that specifically relate to infiltration/inflow problem identification and control would be eligible costs, including manhole sealing, repairing leaking pipes, plugging abandoned side sewers and eliminating other inflow sources. Those costs would need to be demonstrable, however, to avoid including unrelated maintenance and operation costs. Normal maintenance unrelated to infiltration/inflow control such as routine



inspection, rodding or flushing would not be eligible costs.

- Other services and agency overhead directly related to infiltration/inflow correction.

3. Metro's flow monitoring program should be continued to identify larger-than-normal flows as they enter Metro interceptors. Metro should participate with local agencies in projects to control significant infiltration and inflow sources if the cost of Metro's participation would be less than the cost of Metro's continuing transportation and treatment of the additional flow.

Metro should monitor flows sufficiently and regularly to evaluate effectiveness of the programmatic commitment in reducing infiltration and inflow. Such evaluation may include monitoring within local agency collection systems. An agency may become exempt from programmatic commitment participation by providing flow monitoring records which substantiate that flow levels in all parts of its collection system are within allowable limits identified in Metro Rules and Regulations. Metro shall verify flow data and rule on exemption requests.

If any agency does not implement its programmatic commitment, Metro shall have the authority to require that the agency prove, by providing flow data acceptable to Metro, that excess flow as identified in Metro Rules and Regulations does not exist. If an agency fails or refuses, Metro shall require implementation of the commitment.

If after a minimum of one year's notice the commitment is not implemented, an amount equal to the commitment shall be imposed as a surcharge to the rate. Any such surcharge shall be imposed at the end of the first 5-year period and annually thereafter, with such funds becoming general revenue of the system.

4. Metro should conduct workshops for agency personnel regarding the best available techniques for identification and elimination of infiltration and inflow in local collection systems as well as to provide training on inspection and rehabilitation practices.

Other areas of Metro assistance may include:

- Financial consultation, insofar as it relates to an agency's performance of its programmatic commitment.
  - Consultation to assist an agency to establish priorities and select projects.
  - Evaluation of matters peculiar to a particular agency, limited to the agency's programmatic commitment.
  - Cooperation with agencies in public meetings to inform the general public and users of the system regarding reduction of discharges into the sewer system.
5. Seattle and Metro should each perform separate CSO control programs, as required by state law.
- a. Both Metro and Seattle should select CSO control solutions which are cost effective for the region, regardless of who pays the cost of the selected solutions. Seattle should support Metro's efforts to secure the most cost effective CSO control program which meets requirements of state law.
  - b. Seattle should pledge 50 percent of connection charge benefits, as received, to pay for Metro's CSO control program and should continue such payments until they reach and remain equal to 100 percent of Metro's CSO costs. Thereafter, payments would cease. However, if subsequently a higher level of CSO control is required by regulation, Seattle's payments would resume and continue until they again equal 100 percent of Metro's CSO control costs.
  - c. Seattle should pay Metro an amount equal to the incremental operational cost of transporting, treating and discharging additional storm water from CSO storage facilities constructed by Seattle after implementation of these recommendations.
6. The following definition should be added to Metro Rules and Regulations (Section 1-01): "Partially Separated Sewer" shall mean a combined sewer from which street drains have been removed.

## CONNECTION CHARGE

### Findings

1. Metro is nearing completion of capital improvement projects in the Water Quality Program which required the expenditure of more than \$500 million. In addition, the Metro Council has approved a new capital program to upgrade all of Metro's effluent discharges into receiving waters to secondary treatment level. Estimated cost of these additional improvements is in the range of \$900 million and \$1.2 billion, depending on council resolution of remaining variable issues.
2. All facilities constructed by Metro since inception have included capacity to serve future customers. Metro contracts with local agencies require that Metro accept all the flow which results from growth in local jurisdictions.
3. It is appropriate that all customers of the Metro system should pay their pro rata share of the cost of the system which serves them.
4. A capacity charge levied against new connections, reconnections or establishment of a new service in the Metro service areas would accomplish the objective of requiring that new customers pay a portion of the capital cost of excess capacity built to serve future customers.

The committee recognizes that existing customers have received the benefit of that portion of capital facilities which accommodated customers existing at the inception of Metro. Two expansions of capacity have occurred at the Renton Treatment Plant and a third expansion of capacity is planned.

Improvements are currently underway to achieve secondary treatment of all Metro effluent discharges, provide capacity to serve future growth, and significantly reduce combined sewer overflows.

5. In some portions of the Metro area there are homes and businesses that use on-site sewage disposal systems or for other reasons are not connected to a local collection system that is a component participant of the Metro system.

Some of these customers currently pay penalty charges, equal to regular service charges, including the Metro rate. Participants include such customers on their regular quarterly reports and pay to Metro the regular residential rate for each of such customers.

## Recommendations

1. Metro/agency contracts should be amended to require each agency to notify Metro of the name and address of the owner of each new single-family residential connection and the name and address of the owner of each new non-single-family residential connection and the number of residential customer equivalents in each new non-single-family residential connection. Metro should impose a capacity charge on users of the Metropolitan system when the user connects, reconnects, or establishes a new service in the metropolitan service area, including connections to the collection systems of component participants. The capacity charge, which may be collected over a period of fifteen (15) years, shall not exceed:
  - a. seven dollars (\$7.00) per month per residential customer equivalent for connections prior to January 1, 1996;
  - b. ten dollars and fifty cents (\$10.50) per month per residential customer equivalent for connections occurring on or after January 1, 1996 and prior to January 1, 2001.
  - c. fifty percent (50%) of the basic sewer rate per residential customer equivalent, established by the Metropolitan Municipal Corporation at the time of connection, for each connection occurring on or after January 1, 2001. Metro should establish procedures by which capacity charges will be paid. Customers should be allowed to pre-pay capacity charges, at any time after connection, by paying the present value of the charge as determined by the Metro Council.
2. Customers not connected to the Metro system but that on or before a date stipulated by the Metro Council are paying penalty charges equal to regular service charges, including an amount equal to the regular Metro single-family monthly rate or equivalent, should be considered customers of the system and not subject to the capacity charge.
3. The Metro Council should review implementation of connection charge procedures during the first five (5) years of implementation and periodically thereafter to confirm that equity among ratepayers is being achieved. If future contract modifications are appropriate, agreement to proposed contract amendments by participants representing not less than

90 percent of residential customers and residential customer equivalents then served by the metropolitan sewerage system should be binding on all participants.

## **SNOHOMISH COUNTY SERVICE**

### **Findings**

1. Continued sewage disposal service to Alderwood Water District and the City of Brier after 2016 may require construction of facilities estimated to cost \$195 million in 1988 dollars between now and 2030. Facilities in the Plan for Secondary Treatment adopted July 1986 that could be avoided if service to Alderwood and Brier were discontinued after expiration of the current agreements in 2016 include a second expansion of the West Point Treatment Plant, the Kenmore lake-line parallel and upgrades to various pumping stations. Those facilities are scheduled to be on line by 2026. Reconfiguration of existing facilities at West Point during the first expansion in 1995 necessary to make room for a second expansion could also be avoided.
2. Metro revenues from customers in Alderwood and Brier under Metro's current contract are projected not to adequately offset the cost of the Metro facilities necessary to serve them after 2016. These projections may change when the Rate Structure Advisory Committee recommendations have been implemented and capital facilities plans have been refined.
3. Land use planning is necessary to enable accurate projection of wastewater flows for purposes of sizing wastewater conveyance and treatment facilities.

### **Recommendation**

Consideration of extension Metro's sewage disposal agreements with Alderwood Water District and the City of Brier beyond 2016 should be deferred pending final design of secondary treatment facilities and resolution of the Rate Structure Advisory Committee capacity charge recommendation. At that time, Metro should enter into further discussions with Brier and Alderwood Water District regarding any remaining impacts on King County ratepayers from continued service to them beyond 2016.

## SEWER RATE ASSISTANCE FOR LOW INCOME ELDERLY RATEPAYERS

### Findings

1. In 1981, a Metro Council subcommittee examined alternatives for discounting the Metro sewer rate to low income elderly ratepayers. That subcommittee determined that as many as 30,000 households were likely to participate in a sewer rate discount program. The subcommittee also determined that Metro's agreements for sewage disposal and EPA regulations significantly restricted the agency's ability to develop any Metro rate discount program. After examining several alternative approaches the subcommittee recommended that Metro inform local agencies that they could discount a portion of their retail customers rates as long as they continued to pay Metro in the manner described in the agreements. This recommendation was adopted by the Metro Council.
2. Local agencies in the Metro service area constituting more than 70 percent of Metro's ratepayer base now provide sewer rate discounts to low income elderly ratepayers.

### Recommendation

The approach to low income elderly rate discounts adopted by the Metro Council in 1981 should be maintained. In light of the significant rate increases that are anticipated commencing in 1990, component agencies offering discounts to low income elderly ratepayers are encouraged to reevaluate and update their programs. Those agencies not currently offering discounts are encouraged to do so.

## APPENDIX

Appointment of Committee and Charge by Chairman of the Metro Council

Committee Roster

Metro Staff Support

Meeting Schedule

Future Actions Required and Estimated Schedule

Comments Received on Draft Report

Committee Response to Comments Received

Legislation Approved during 1989 Session





## APPOINTMENT OF COMMITTEE AND CHARGE BY CHAIRMAN OF THE METRO COUNCIL

Members of the Reconvened Rate Structure Advisory Committee were appointed during October 1986 by Metro Council Chairman Gary A. Zimmerman.

Selection of committee members was based on each persons general knowledge of the rate-making process, experience with local agency policy-making and participation in agency and community activities. Appointments were made to give diversified representation from elected officials, agency management and staff personnel and the Citizens' Water Quality Advisory Committee.

Dr. Zimmerman charged the reconvened committee to examine recommendations made in 1984 by the previous committee and to reaffirm, modify, or reject previous recommendations. The committee was charged with two additional tasks:

1. Determine whether to continue service to south Snohomish County agencies after expiration of existing contracts.
2. Determine ways to provide rate relief to low income elderly ratepayers, if deemed appropriate.

At the conclusion of deliberations, the committee is to report its recommendations to the Water Quality Committee.



Municipality of Metropolitan Seattle

Exchange Building • 821 Second Ave. • Seattle, WA 98104-1598

November 12, 1986

Dear RSAC Member:

Gary Zimmerman, Ph.D., has informed me that you have agreed to serve on the reconvened Rate Structure Advisory Committee. I am pleased to know you will be a committee member. I believe the RSAC decisions are even more important now than they were two years ago. I will be relying on your knowledge and perspective to help guide us to a regional consensus on the basic issues.

I have prepared the attached status report and statement of work as I currently see it. If you need more detailed information, I suggest that you phone Hanford Choate (684-1261).

Our first meeting will be 11:30 am-1 pm, Thursday, November 20, 1986, in Conference Room 8A of the Exchange Building. Bring your brown bag lunch and help get the Rate Structure Advisory Committee off to a good start.

Very truly yours,

A handwritten signature in cursive script that reads "Paul Barden".

Paul Barden, Chairman  
Rate Structure Advisory Committee

PB:hcs  
RSAC:024

Enclosures: Current Status Report  
RSAC Roster  
Univ. Seminar Notice

## COMPOSITION OF COMMITTEE

### A. COMMITTEE ROSTER

|  |   |
|--|---|
| The Honorable Paul Barden, Chairman          | King County Council                                       |
| The Honorable Nan Campbell (Geoff Ethelston) | Bellevue City Council                                     |
| The Honorable C.W. "Chip" Davidson           | Commissioner, NE Lake<br>Washington S/WD                  |
| Mr. Grant Degginger                          | Citizens' Water Quality<br>Committee                      |
| The Honorable Virginia Galle                 | Seattle City Council                                      |
| The Honorable Dan Kelleher                   | Mayor, City of Kent                                       |
| The Honorable Betty Lunz                     | Commissioner, Va Vue<br>Sewer District                    |
| The Honorable Henry McCullough               | Commissioner, King Co.<br>Sewer/Water District<br>No. 107 |
| The Honorable Darlene McHenry                | Issaquah City Council                                     |
| The Honorable Lois North                     | King County Council                                       |
| Mrs. Sydell Polin                            | Manager, Ronald Sewer<br>District                         |
| The Honorable Norm Rice                      | Seattle City Council                                      |
| The Honorable Charles Royer (Kevin Clark)    | Mayor, City of Seattle                                    |
| The Honorable Bob Yelland                    | Commissioner, Soos Creek<br>Sewer/Water District          |

#### Ex-Officio Members:

|                                 |                         |
|---------------------------------|-------------------------|
| The Honorable Bruce Laing       | King County Council     |
| The Honorable Gary A. Zimmerman | Chairman, Metro Council |

**B. METRO STAFF SUPPORT**

|                   |   |
|-------------------|---|
| Hanford.B. Choate | Manager, Management Services                              |
| Mary L. Donaldson | Management Systems Support Assistant, Management Services |
| Bob Hirsch        | Local Agency Affairs Administrator, Management Services   |
| Joshua Smith      | Metro Comptroller   |
| Gunars Sreibers   | Supervisor, Facilities Planning                           |

**C. RATE STRUCTURE ADVISORY COMMITTEE MEETING SCHEDULE**

|              |  |
|--------------|--|
| <u>1982:</u> | June 25<br>July 8, 15, 22, 29<br>August 5, 12, 19, 26<br>September 9, 16, 30<br>October 14, 21, 28<br>November 18<br>December 2, 9 |
| <u>1983:</u> | January 13<br>February 3, 10, 17, 24<br>March 10<br>June 30<br>July 14, 28<br>August 10  |
| <u>1984:</u> | August 28<br>September 10 - Joint Meeting with RSTAC   |
| <u>1985:</u> | July 25<br>August 15, 29<br>December 5   |

**1986 - Reconvened:**

November 20  
December 16

**1987:**

January 6, 13, 27  
February 10, 24  
March 24  
April 14, 28  
May 12  
June 23  
August 18

**1989:**

May 26

**D. FUTURE ACTIONS AND ESTIMATED TIME SCHEDULE**

1. Water Quality Committee Consideration June 1989
2. Metro Council Action June 1989
3. Amend agency contracts 1989
4. Estimate of earliest probable implementation date January 1990-1991



**COMMENTS RECEIVED ON DRAFT REPORT**







City of Issaquah

Post Office Box 1307  
Issaquah, WA 98027-1307

(206) 391-1000

July 20, 1987

METRO Rate Structure Advisory Committee  
Attn: The Honorable Paul Barden, Chairman  
821 Second Avenue  
Seattle, WA 98104-1598

RE: Draft Report--"Findings and Recommendations on Structure of Metro  
Charges to Component Agencies" June 1987

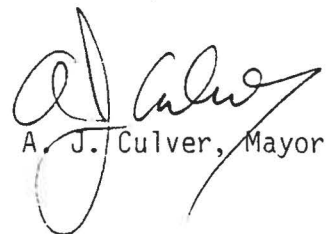
Dear Councilman Barden:

Your memo accompanying distribution of the referenced report invited discussion and comments. As representative of those King County cities with less than 15,000 population, here are our comments.

- 1) Connection Charge--the thought of an additional wholesale connection charge on top of the amount most of us presently charge for hookup is fairly onerous to us. We do, however, understand the logic and fairness. Support or opposition depends on other factors in what your Committee describes as a "package compromise."
- 2) Lowering Residential Equivalency to 700 ft<sup>3</sup> is acceptable and applauded.
- 3) The proposed solution to the I/I problem is unclear. Most of my constituent cities are fairly suspicious that we are paying for a great deal of oversizing to handle Seattle's combined storm/sanitary sewer system. We, on the other hand, have separate systems and have spent hundreds of thousands upgrading our older systems. Further proof that Seattle is rectifying the problem they create is required.
- 4) Low income/elderly rate relief--the twenty municipalities in King County with populations under 15,000 each have elected policymakers from their numbers who are earnest, sensitive, and dedicated individuals intent on doing what is best for their individual communities. For a special-purpose government agency (METO) to "encourage" a rate structure to their general government customers is presumptuous and definitely out-of-line. We have the capability to make those decisions without benefit of interference from our sewage processing wholesaler.

I trust the comments in this correspondence will help the Committee with their objective of an equitable rate structure to the METRO member/users.

Sincerely,

  
A. J. Culver, Mayor

AJC:lt

A-11



# King County Water and Sewer District No. 82

1510 229th Ave. S.E. • Issaquah, Washington 98027 • 392-6256 • 392-6961 • 883-9333

July 14, 1987

87-07-14

Rate Structure Advisory Committee  
METRO, MS/82  
821 Second Avenue  
Seattle, Washington 98104

Attention: Paul Earden, Chairman

Re: Comments on RSAC report

Gentlemen:

We have reviewed the RSAC report, Findings and Recommendations On Structure of Metro Charges to Component Agencies, and we at Sammamish Plateau Water and Sewer District support the recommendations of the report.

Commissioner Bob Nova and I participated in the Technical Subcommittee for Infiltration and Inflow, and we would be willing to serve again if the recommendations are accepted and the committee is set up again. If you have any questions or require further information, please contact me.

Sincerely,

Ron Little, P.E.  
District Manager

RL:vb

18024 94th Avenue N.E.  
Bothell, WA 98011  
July 10, 1987

Rate Structure Advisory Committee  
METRO, MS/82  
821 Second Avenue  
Seattle, WA 98104


Subject: Findings and Recommendations on Structure of Metro  
Charges to Component Agencies

Gentlemen:

I believe your findings and recommendations to be both accurate and appropriate.

In particular, you have my support for your recommendation regarding connection charges to be levied by Metro directly to new customers to charge for the pro-rata share of the cost of the system then in existence. As Metro approaches the Legislature again for this authority, I would appreciate being advised so as to be able to lend my support in a timely fashion.

With best regards,



Steve Palevich  
Bothell City Councilman



**COMMITTEE RESPONSE TO COMMENTS RECEIVED**





Municipality of Metropolitan Seattle

Exchange Building • 821 Second Ave. • Seattle, WA 98104-1598

July 31, 1987

The Honorable A.J. Culver, Mayor  
City of Issaquah  
P.O. Box 1307  
Issaquah, Washington 98027-1307

Dear Mayor Culver:

Thank you for your thoughtful letter containing comments on recommendations of the Rate Structure Advisory Committee. In response to your comments I offer the following:

1. Connection Charge - The committee shares your concern about the increase in total fees. The rate structure package should mean that total fees would be less than otherwise would be required. The effect will be felt slowly at first but, over time, should result in a Metro rate that is \$6-8 lower.

Connection charges levied by cities cover your local facilities. The charge from Metro covers regional conveyance and treatment facilities. There is no overlap. Only the debt service on Metro's facilities is used to calculate the connection charge amount.

The "package compromise" is believed to achieve equity among all component agencies and all classes of ratepayer. Ingredients of the package are:

1. Connection Charge
  2. Infiltration and Inflow Control Program
  3. Combined Sewer Overflow Control Program
  4. Customer Equivalency Value
2. Customer Equivalency - The committee recommendation is to lower the value from 900 to 750 cubic feet of water consumed. This change will more accurately reflect actual water consumption of single family residential customers. The effect will be a reduction of about 9 percent in the Metro bill for residential customers.
  3. Infiltration and Inflow (I&I) - Committee intent is that each agency should inspect and rehabilitate two (2) percent of its own collection system each year. Since the use-life of sewerage systems is more than 50 years, such a program would substantially extend the life of the system, benefiting

TO: The Honorable A.J. Culver, Mayor, Issaquah  
RE: Rate Structure Advisory Committee  
7/30/87 - page 2

your ratepayers. At the same time, flows from I&I sources would be reduced, thereby reducing capacity requirements in Metro's facilities, which will mean lower Metro rates in the long term.

Let me emphasize that the I&I correction program would be only in your own system. The committee recommendation is that each agency select its own projects and each year spend 88 cents per inch-diameter-foot in 2 percent of its system. In the recommendation there are several offsets which will reduce the required expenditure.

As for Seattle and what would be required of them, in addition to the above correction program in their separated and partially separated systems (about two-thirds of their total collection system), Seattle would be required to refund 50 percent of the benefit from the connection charge until they have paid 100 percent of Metro's CSO control costs. That amount is several hundred million dollars. It will probably take forty years or more to realize that amount from Seattle contributions. But it will also mean that Seattle residents will have a sewer rate about \$3.00 per month higher than suburban residents.

4. Low Income Elderly Rate Relief - As you have indicated, it is not in the jurisdiction of Metro to provide rate relief to one class of customer. The committee recommendation is that decisions such as rate relief for low income elderly customers appropriately should be left with local jurisdictions. Use of the word "encouraged" will be discussed further as the committee considers your comments.

I plan to call a meeting of the committee in August to consider comments and determine the content of the final report. Your letter representing the position of small cities is appreciated and will be carefully considered.

When the final report is published, I would be pleased to present the recommendations to officials of the small cities at a general meeting which I hope you would be willing to call. If you think that would be beneficial, we should talk about details.

Thanks again for your efforts. I will let you know what the committee decides.

Very truly yours,

Paul Barden, Chairman  
Rate Structure Advisory Committee

PB:hcd





Municipality of Metropolitan Seattle

Exchange Building • 821 Second Ave. • Seattle, WA 98104-1598

August 18, 1987

Mr. Ron Little, P.E., Manager  
Sammamish Plateau Water/Sewer District  
1510 228th Avenue SE  
Issaquah, Washington 98027

Dear Mr. Little:

Thank you for your letter of support for the "Findings and Recommendations" of the Rate Structure Advisory Committee. We feel these recommendations, when implemented will improve equity of Metro's rates.

The committee adopted the recommendations of the Technical Advisory Committee on infiltration and inflow. It will probably not be necessary to reconvene that special sub-committee.

Thank you again for your support.

Sincerely yours,

A handwritten signature in cursive script that reads "Paul Barden".

Paul Barden, Chairman  
Rate Structure Advisory Committee

PB:md



**METRO**  
Municipality of Metropolitan Seattle

Exchange Building • 821 Second Ave. • Seattle, WA 98104-1598

August 18, 1987

The Honorable Steve Palevich  
Bothell City Council  
City of Bothell  
18024 94th Avenue NE  
Bothell, Washington 98011

Dear Councilman Palevich:

Thank you for your letter of support for the "Findings and Recommendations On Structure of Metro Charges to Component Agencies." Your support during the legislative process will be valuable and appreciated. We will keep you informed.

Sincerely yours,

Paul Barden, Chairman  
Rate Structure Advisory Committee

PB:hcd

LEGISLATION APPROVED DURING 1989 SESSION

SUBSTITUTE SENATE BILL NO. 6013  
State of Washington 51st Legislature 1989 Regular Session  
by Committee on Governmental Operations (originally sponsored by  
Senators Bluechel, Talmadge, Fleming, Conner and McDonald)

Read first time 3/1/89.

1 An ACT Relating to water and sewer connection or capacity  
2 charges; amending RCW 56.08.010, 56.16.030, 57.08.010, and 57.16.010;  
3 adding a new section to chapter 35.38 RCW; adding a new chapter to  
4 Title 56 RCW; and adding a new chapter to Title 57 RCW.

5 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

6 NEW SECTION. Sec. 1. A new section is added to chapter 35.38  
7 RCW to read as follows:

8 (1) A metropolitan municipal corporation that is engaged in the  
9 transmission, treatment, and disposal of sewage may impose a capacity  
10 on users of the metropolitan municipal corporation's sewage  
11 facilities when the user connects, reconnects, or establishes a new  
12 service. The capacity charge shall be approved by the council of the  
13 metropolitan municipal corporation.

14 (2) The capacity charge shall be based upon the cost of the  
15 sewage facilities' excess capacity that is necessary to provide 16 sewerage treatment  
for new users to the system. The capacity charge,  
17 which may be collected over a period of fifteen years, shall not  
18 exceed:

19 (a) Seven dollars per month per residential customer equivalent  
20 for connections and reconnections occurring prior to January 1, 1996;  
21 and

22 (b) Ten dollars and fifty cents per month per residential  
23 customer equivalent for connections and reconnections occurring after  
24 January 1, 1996, and prior to January 1, 2001.

25 For connections and reconnections occurring after January 1,  
26 2001, the capacity charge shall not exceed fifty percent of the basic  
27 sewer rate per residential customer equivalent established by the  
28 metropolitan municipal corporation at the time of the connection or  
29 reconnection.

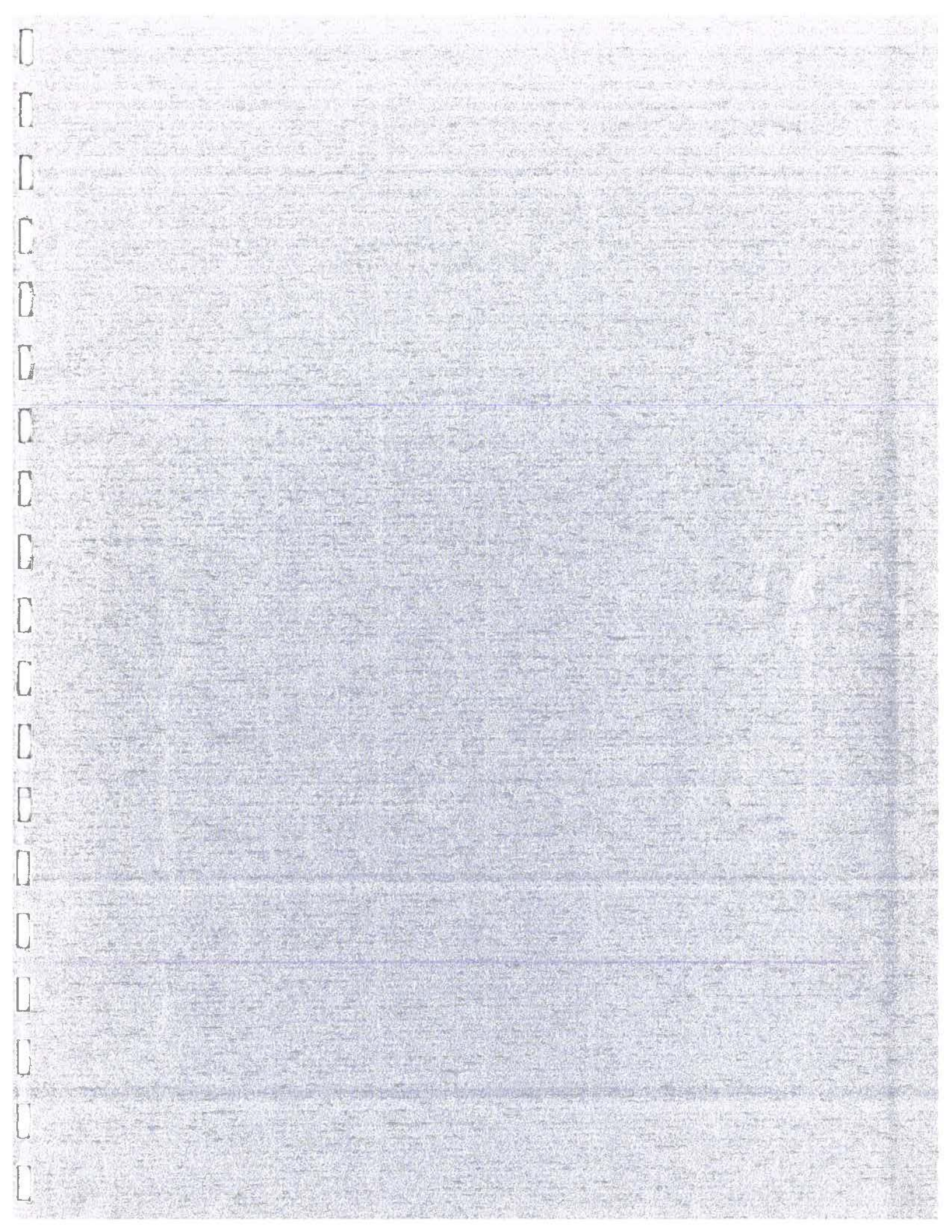
Sec. 1

1 (3) The user or a successive user shall have the option of paying  
2 off the capacity charge or the remainder of the capacity charge at  
3 any time prior to the final monthly payment, at a discount as  
4 determined by the metropolitan municipal corporation. This  
5 option shall not directly or indirectly give rise to a lien against  
6 the user's property.

7 (4) The capacity charge for a building other than a single-  
8 family residence shall be based on the projected number of  
9 residential customer equivalents to be represented by the building,  
10 considering its intended use.

11 (5) The council of the metropolitan municipal corporation shall  
12 enforce the collection of the capacity charge in the same manner  
13 provided for the collection, enforcement, and payment of rates and  
14 charges for sewer districts provided in RCW 56.16.100 and 56.16.110.  
15 At least thirty days before commencement of an action to foreclose a  
16 lien for a capacity charge, the metropolitan municipal corporation  
17 shall send written notice of delinquency in payment of the capacity  
18 charge to any first mortgage or deed of trust holder of record at the  
19 address of record.

20 (6) As used in this section, "sewage facilities" means capital  
21 projects identified since January 1, 1982, to the effective date of  
22 this section in the metropolitan municipal corporation's  
23 comprehensive water pollution abatement plan. "Residential customer  
24 equivalent" shall have the same meaning used by the metropolitan  
25 municipal corporation in determining rates and charges at the time  
26 the capacity charge is imposed.







Exchange Building • 821 Second Ave. • Seattle, WA 98104-1598

October 16, 1989

To: Jean Baker  
From: Dennis Barnes  
Subject: 1989 Avg. Single-Family Residential Water Consumption

One of the recommendations made by the Rate Structure Advisory Committee to the Metro Water Quality Committee in its June, 1989 report "Findings and Recommendations On Structure of Metro Charges to Component Agencies" was that, "the residential customer equivalency value of 900 cubic feet metered water consumption, used to charge non-residential customers, should be lowered to 750 cubic feet". The recommended 750 cubic feet was based on an analysis of actual single-family residential water consumption data provided in 1982 by several sewer service agencies for which Metro provides disposal services. Due to the amount of time that has passed since the 1982 analysis was performed it was decided that a current survey and analysis of the actual single-family residential customer water consumption should be performed. The purpose of this memo is to summarize the steps performed in conducting this survey and the results of the analysis.

#### Steps Performed In Survey

- 1) Using the criteria of the number of customers in a city or sewer district, certain cities and sewer districts served by Metro were selected from which to request data. As is shown on page 3 of the attachment the cities and sewer districts selected combined to represent approximately 80% of the residential customer base.
- 2) From each selected city and sewer district certain data relating to single-family residential water consumption was requested for 1987, 1988, and 1989 (see pages 5 thru 8 of attachment for an example letter and data request forms). The billing cycle January - february was requested in effort to pick a time of the year when water consumption would approximate the amount of water that was going into the sewer system (i.e. water consumption associated with watering of lawns was not included). Three years of data was requested to determine if any trends existed and for comparative purposes. The main emphasis was placed on receiving and analyzing 1989 data.

- 3) Follow-up phone calls were made to all potential respondents prior to and after receiving data in an effort to ensure that there was a clear understanding of the data that was being requested and that we had a clear understanding of the data that we had received. Data was returned by 10 out of the 14 cities and sewer districts from which it had been requested (see page 3 of attachment for complete listing of respondents sending data). The returned data represented approximately 64% of the system wide single-family residential customer base.

#### Analysis of data

- 1) Data received from each respondent was reviewed to determine if the data was complete and in a form appropriate to be used in computing an overall average monthly water consumption amount for single-family residential customers system wide. The results of this review was that two sewer districts were dropped from the survey. Skyway Water & Sewer District had provided summary annual and year to date data only, and Sammamish Sewer & Water District could not provide complete data for the requested billing cycle periods of 1989 due to problems in the reading of their meters during the snow of early 1989.
- 2) For each of the remaining respondents a monthly water consumption amount was computed. For respondents providing detailed data an individual spreadsheet was produced to quantify various portions of the data (see page 4 of attachment for example of individual spreadsheet).
- 3) Based on the weighted average of the individual respondents a system wide average monthly water consumption per single-family residential customer was computed (see pages 1 and 2 of attachment). For 1988 and 1989 the respective computed averages were 759.1 and 747.6 (with customer showing zero consumption removed from number of customers).

#### Conclusion:

Based on the analysis performed of survey data for 1988 & 1989 it appears that the 750 cubic feet recommended by the Rate Structure Advisory Committee to the Metro Water Quality Committee is a reasonable approximation of system wide average monthly consumption. I would recommend that the average be reviewed periodically to ensure that the 750 remains a reasonable approximation.

cc: Hanford Choate 82  
Bob Hirsch 82