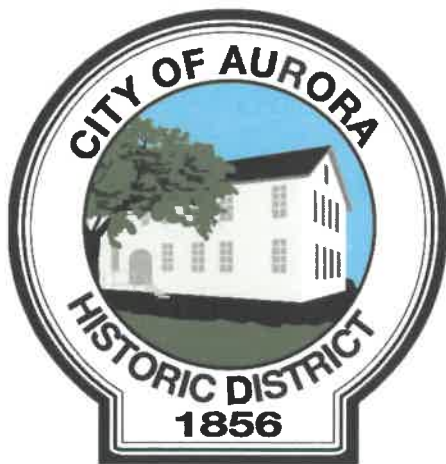


Wastewater Rate Summary

CITY OF AURORA



Final Report

April 2017



Prepare by:

Oregon Association of Water Utilities

City of Aurora Wastewater Summary

The City of Aurora called upon the Oregon Association of Water Utilities to conduct a wastewater summary of rates. This project succeeded and collaborated with the water rate study in determining the adequacy of the current rates for the 2017-2018 fiscal year. The approach of this study includes financial strategies and rates that:

- Adjust current wastewater utility revenues due to inflation, operations and maintenance modifications and costs, and cost-of-living increases
- Review capital expenses as they relate to operational cost of the wastewater system and proposed Capital Improvement Plan (CIP) projects and propose a rate structure designed to meet expenditures
- Are relatively simple to understand and implement, being consistent with industry standards and practices

The rate summary proposal is based upon combined expenditures placed into a single total line item; these budgeted amounts are obtained from the City of Aurora documents. This figure includes personnel services, materials and services, contingency funding and capital improvement.

Initial contact inquiring the procedures to conduct a wastewater summary began in December 2016. After completion of the preliminary information, the City of Aurora approved the Oregon Association of Water Utilities to begin the review process. This is the first wastewater rate review since the last rate adjustment in July 2011.

Beginning steps include the following:

- Review of existing budget, and or proposed budget
- Review of influent flows into the wastewater treatment plant (WWTP)
- Review of water sales, and the correlation to influent flows

Billing for sewer service is based on the volume of wastewater a user will discharge to the sewer system. Discharge is measured by comparing winter water usage to an annual use, and billing on a one-to-one ratio of said usage. These measurements assist in defining the difference of the discharge of sewage by the users and the total volume of wastewater received at the WWTP. The variance between the two typical consists of the inflow and infiltration (groundwater) entering the collection system.

One point of discrepancy is the comparison of actual influent into the WWTP and how the units of measure are derived. Currently, City of Aurora comprises of 475 connections stemming from 329 residential connections and 46 commercial connections. With these two classifications of users, a total of 475 residential equivalent units (REUs) are billed monthly, but in a bi-monthly (2

months) manner. A single REU consist of 4,660 gallons, and is the amount of discharge before additional surcharge fees are imposed.

Another factor discovered during the review process was the design flows of the sanitary sewer to equate to 60 gallons per capita daily (gpcd), based on 3 people in a single-family residence. When calculating the totals, an assumption of 180 gallons per day multiplied by 30 days or 5,400 gallons per month. The 180 gallons per day was calculated by using actual figures measure at the WWTP. The difference between the two figures presented is likely due to inflow and infiltration of groundwater in the collection system. The second point is shared as a measurement tool for future calculations and possibly change in wastewater flow determinations.

Annually, using 475 REUs per month, multiplied by 12 months, a total of 5,700 REUs are billed. At 5,400 gallons per REU, this translates to approximately 30.7 million gallons of generated sewage prior to any surcharges being imposed.

Of the 30.7 annual million gallons, the average winter influent is 4.7 million gallons from infiltration and inflows. In comparison to the number of units billed, some adjustment may be necessary to align measured flows with actual conditions. The data from the water rate study commenced in a review of the actual water flows for the customers. This information allowed determination to better align actual discharge associated with a single REU.

Winter months, average wastewater flow into the WWTP is 16.5 million gallons from October through March. This figure correlates to 2.76 million gallons per month. Average water sold per month through the same period equates to 2.2 million gallons. Usually when potable water consumed exceeds wastewater discharge, it is due to irrigation, washing of vehicles, etc. These activities typically occur during the summer months.

One recommendation is to routinely compare information with the water department as it pertains to total water sales. This data, along with data from the WWTP, will better support futures decision and understanding of rates, flows and operating expenses.

Cost Evaluations:

If the total operating expenditures were equally segregated according to the number of equivalent dwelling units, the revenue necessary per residential equivalent unit required by the authority would be \$58.76 per month.

$\$334,946.00$ divided by 12 months divided by 475 residential equivalent units = \$58.76 per

When determining cost for wastewater, equity based upon the treatment of wastewater is applied, and this is accomplished by means of determining the price per unit and the amount of generation per month. One should pay only for the amount of wastewater generated, and the

treatment of such. Believed as one of the highest priority regarding wastewater utility rates, is that consumers should pay for their costs associated with services rendered.

City of Aurora Wastewater Rate Review Points –

Financial Review:

- Sewer service revenues in the proposed budget total \$334,946.00 dollars, which is a reduction from the original set of figures. The adjustment stems from a reduction in capital outlay, and an increase of personnel services to accommodate for the transition of personnel (retirement).
- Capital outlay figured with \$35,800.00 in preparation for future upgrades of the WWTP to meet discharge requirements of the NPDES (National Pollutant Discharge Elimination System) permit.

Technical Review:

- Total connections (475) equate to 475 residential equivalent units (REUs), billed bi-monthly totaling 5,700 REUs annually.
- Average monthly discharge per connection per month equals 4,660 gallons (1-REU)
- 2015 influent into WWTP is 31.3 MG or 6,716 total REUs
- Average treatment cost per REU, based on proposed budget equals \$58.76

Note: The discrepancy of REUs generated annually by customers compared to total REUs, is speculated, on the infiltration and inflows of groundwater and confirmed from WWTP operations.

Billing Comparisons:

- Expenditures:
 - Personnel Services = \$105,221.00
 - Materials Services = \$193,925.00
 - Contingency = \$
 - Capital Outlay = \$ 35,800.00
- Total Expenditures = \$334,946.00

- Total revenues for 2016 - 2017 = \$290,700.00
- Forecast shortfall for 2017 - 2018 = **\$ 44,246.00**
- Forecast Revenues for 2017 – 2018 = \$334,946.00
 - Increased percentage 15.00

- Total actual cost per REU = \$ 58.76
- Recommended Rate Increase = \$ 6.00

Allocations of Capital:

- Cash on Hand = \$265,000.00
- Capital Accrual (4 years) = \$143,200.00
- Capital Improvement Total = \$408,200.00

Capital improvement planning, and the funds necessary to complete future upgrades, stem from regulatory requirements dealing with discharge levels of pollutants. Increasing percentages of removal for both biological oxygen demand (BOD) levels and total suspended solids (TSS) will mandate the WWTP to be modernized.

Discrepancies between estimated and actual costs for construction projects will vary, dependent on several factors. These variations in construction costs may encourage or hamper the timeline in which to proceed, impacting the allotment of funds. The wastewater facilities plan, (currently be written) will outline both technical and financial objectives required to meet new NPDES permits.

The recommendation in this study proposes the monthly base rate corresponds to 100 percent of the total proposed budget. A routinely review of customer’s water consumption will determine if any exceedance of a single REU is being generated. This will allow for adjustments of the billing to match the additional treatment cost associated with any increase of sewage.

One aspect to follow when considering future rate adjustments is to look at Consumer Price Index at it relates to the basket of services in the utility industry. A running average for the past ten years has been 2.21 percent. If 2.21 percent were applied to the proposed budget line items of personnel and materials services at \$299,146.00 in the following fiscal year (2018-2019), an additional increase would be \$6,611.12 or \$0.98 per REU.

As collected evidence presents itself during the subsequent year, the Oregon Association of Water Utilities will return, if called upon, to review and confirm the effectiveness of the recommendations, thus assuring the goals presented in this wastewater rate summary.

With numerous considerations and decisions being calculated with this rate summary, it is an goal of Oregon Association of Water Utilities to assist the City of Aurora towards a sufficient wastewater rate to meet the needs of the system, provide fair and equitable rates for all consumers and to ensure the wastewater system is poised for future growth.



Wastewater Rate Study
for
City of Aurora

System Data

For Year: 2017-2018
Date completed: April-17

Wastewater Collected
Amount of Water Sold ¹
Potential Infiltration

Gallons (annual)	100 Cu Ft. (annual)	2015	
31,300,000	41,845		
26,590,500	35,549		
4,709,500	6,296		15.05%

Personnel / Materials
Contingency
Annual Debt Service
Capital Outlay
Total Proposed Budget

Dollars	Cost per Gallon	Cost Per 1000 Gals	Cost Per 100 Cu.Ft.
\$299,146.00			
\$0.00	\$0.0107	\$10.70	\$8.00
\$0.00			
\$35,800.00			
\$334,946.00	Potential Treatment Cost \$ 50,397.07		\$ 50,397.07

Connection Information
Base Rate Only

Size	# of connections			Total Connections
	Residential	Commercial	Other	
5/8"	0	0	0	
3/4"	291	34	0	
1"	138	11	0	
1 1/2"	0	0	0	
2"	0	1	0	
3"	0	0	0	
4"	0	0	0	
6"	0	0	0	475

Current Rate information (base)

Size	Residential	Commercial	Other	Base Rate Revenues
5/8"				
3/4"	\$51.00	\$51.00		
1"	\$51.00	\$51.00		
1 1/2"				
2"		\$51.00		
3"				
4"				
6"				\$290,700.00

Current Generation Rate
Per Single Family Residence

6.23	4,660
Cubic Feet	Gallons

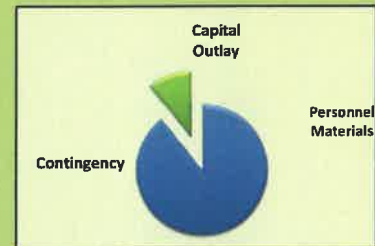
Percentage of budget without any consumption revenue

Operating Budget Outline

Personnel / Materials	\$299,146.00	89.31%
Contingency	\$0.00	0.00%
Capital Outlay	\$35,800.00	10.69%
Annual Debt Service	\$0.00	0.00%
TOTAL OPERATING EXPENDITURES	\$334,946.00	Base Rate % Total Cost 86.79%

Notes:

1- Total # of EDUs based on ave SFR consumption of water at 6.23 units or 4,660 gals / user / mo. 26.5 MG (35,548 units)
 Wet weather sewer flows based on 92K per day or 5,810 gals / user / mo. or 33.58 MG (44,893 units)
 1- Dry weather sewer flows based on 77K per day or 4,880 gals / user / mo. - 28.1 MG (35,573units)
 Wastewater flows based on mo. winter water consumption at 1:1 ratio or 4,660 gals / user / mo. 26.5 MG (35,548 units)





Base Rate 100

Rate Study
for

City of Aurora

For Year: 2017-2018
Date completed: April-17

Wastewater Collected
Amount of Water Sold
Potential Infiltration

100 Cu. Ft. (Annual)	41,845	
	35,549	
	6,296	15.05%

Annual Operating Budget
Annual Debt Service
Total Annual Budget

Dollars	
\$	334,946.00
\$	-
\$	334,946.00

100% of Budget
334,946.00

Connection information

Size	# of connections		
	Residential	Commercial	Other
5/8"	0	0	0
3/4"	291	34	0
1"	138	11	0
1 1/2"	0	0	0
2"	0	1	0
3"	0	0	0
4"	0	0	0
6"	0	0	0

Per 100 Cubic Feet
8.00

Discharge w/ base (cu.ft.)

	6.23	6.23	0
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Current Rate (base)

	Residential	Commercial	Other
5/8"	\$58.76	\$58.76	\$58.76
3/4"	\$58.76	\$58.76	\$0.00
1"	\$58.76	\$58.76	\$58.76
1 1/2"	\$58.76	\$58.76	\$58.76
2"	\$58.76	\$58.76	\$58.76
3"	\$58.76	\$58.76	\$58.76
4"	\$58.76	\$58.76	\$58.76
6"	\$58.76	\$58.76	\$58.76

Consumption Charge
Current Base Revenue

per 100 cu. ft.	\$8.67		
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	Residential	Commercial	Other	Totals
5/8"	\$0.00	\$0.00	\$0.00	\$ -
3/4"	\$17,099.87	\$1,997.92	\$0.00	\$ 19,097.80
1"	\$8,109.22	\$646.39	\$0.00	\$ 8,755.61
1 1/2"	\$0.00	\$0.00	\$0.00	\$ -
2"	\$0.00	\$58.76	\$0.00	\$ 58.76
3"	\$0.00	\$0.00	\$0.00	\$ -
4"	\$0.00	\$0.00	\$0.00	\$ -
6"	\$0.00	\$0.00	\$0.00	\$ -
Total/month	\$25,209.09	\$2,703.07	\$0.00	\$ 27,912.17
12 mo. Total	\$302,509.12	\$32,436.88	\$0.00	\$ 334,946.00

% of operating budget

	90.32%	9.68%	0.00%	100.00%
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Water with base charge

Total/month	2,673	287	0	2,959
12 mo. Total	32,072	3,439	0	35,511

Typical 3/4" Usage

6.23				
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Wastewater Generation
84.86%

	Residential	Commercial	Other	Revenue / Shortfall
12 mo. Total	32,072	3,439	0	
12 mo. Total			0	
			6,334	\$0.00

Surplus Wastewater
Revenue Percentage / Dollars

Potential Annual Revenues		16.40%		\$ 54,915.08
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Cost per 100 c.f.

\$8.00		Total Revenue Generated	\$ 389,861.08
		Annual Gain/(Shortfall)	\$ 54,915.08

Typical Residential Water Bill

Notes:	Gallons	Cubic Ft. Used	Res. Water Bill
Base rate increase 11% or \$6.00 per month, creates total base rate @ 97%	4,665	6.23	\$58.76
First increase since July 2011, an average of \$1.00 per month, annually.	6,986	9.34	\$85.73
	13,980	18.69	\$166.79