

CITY OF CHARLOTTE

WATER AND SEWER RATE STUDY

MAY 2016

PREPARED BY:
City of Charlotte
Finance & Treasury Department

SECTION I: INTRODUCTION AND BACKGROUND

The Finance & Treasury department recently undertook a comprehensive evaluation of the City's utility rates. The City's utility rates were last adjusted in July 2015. The purpose of this report is to describe the process by which this study was performed, to summarize our findings regarding the current water and sewer rates, and to recommend rate adjustments and fiscal policies for the water and sewer enterprise fund.

The following objectives served as a foundation of the rate study and guided our decisions regarding the proposed utility rates.

- ❖ Rates should generate sufficient revenues to cover operating costs, debt service obligations, and capital program needs, as well as maintain adequate reserves consistent with sound financial management.
- ❖ Rates should reflect the cost of providing services to the customers
- ❖ Rates should be fair and equitable
- ❖ Rates should conform to the city's utility ordinance

The following steps were taken in the development of this rate study.

- ❖ Classify utility customers by meter sizes and establish meter equivalent units¹ consistent with city ordinance §68-100(B)(1)
- ❖ Determine average annual billable usage
- ❖ Analyze and classify water and sewer expenses by function
 - Operational
 - Labor and benefits
 - Debt service
 - Depreciation
- ❖ Analyze and classify income streams
 - Operating income
 - Non-operating income, e.g., equity and tap fees, interest income, etc.
- ❖ Establish inflationary and contingency percentages

¹ Meter equivalent units (MEUs) are a means of relating large size meters to a base size of 5/8 inch, which is the typical residential size meter.

SECTION II: CURRENT WATER AND SEWER DATA

CURRENT WATER AND SEWER RATES

The City's current rate structure, summarized in Table II-A, is intended to distribute the cost of water service based on the demand the customer places on the City's water system. On their quarterly bills, all customers are charged a fixed base charge depending on their meter size and a commodity charge based on their usage per 1,000 gallons. Base charges are intended to recover the fixed costs of providing water and sewer service, with commodity charges recovering variable costs of operation.

Current Water Rates			Current Sewer Rates		
Quarterly			Quarterly		
<u>Meter Size</u>	<u>Base Charge</u>	<u>Rate per 1,000 gal.</u>	<u>Meter Size</u>	<u>Base Charge</u>	<u>Rate per 1,000 gal.</u>
5/8 x 3/4	\$ 41.00	\$ 2.75	5/8 x 3/4	\$ 62.00	\$ 4.50
1"	70.00	2.75	1"	99.00	4.50
1.5"	140.00	2.75	1.5"	205.00	4.50
2"	220.00	2.75	2"	329.00	4.50
3"	410.00	2.75	3"	620.00	4.50
4"	640.00	2.75	4"	961.00	4.50
6"	1,370.00	2.75	6"	2,065.00	4.50

Table II-A

CUSTOMER CHARACTERISTICS

The City of Charlotte provides water service to 3,283 customers and sewer service to 3,235 customers. These customers are classified as either residential or non-residential. The non-residential class includes our commercial, industrial, multi-unit dwellings and government/other customers. The first step, in analyzing the adequacy of rates in recovering the costs of providing water and sewer service to our customers, is to identify the number of accounts and water usage characteristics of each customer class. FY 15/16 utility data was analyzed on this basis and summarized in Charts II-A & II-B. As reflected in these charts, single family users represent 87 percent of the city's accounts while generating 53 percent of the water usage, whereas, non-residential dwellings generate 47 percent of the system's usage. In addition, almost 50 percent the non-residential usage is attributable to the city's top 10 users.

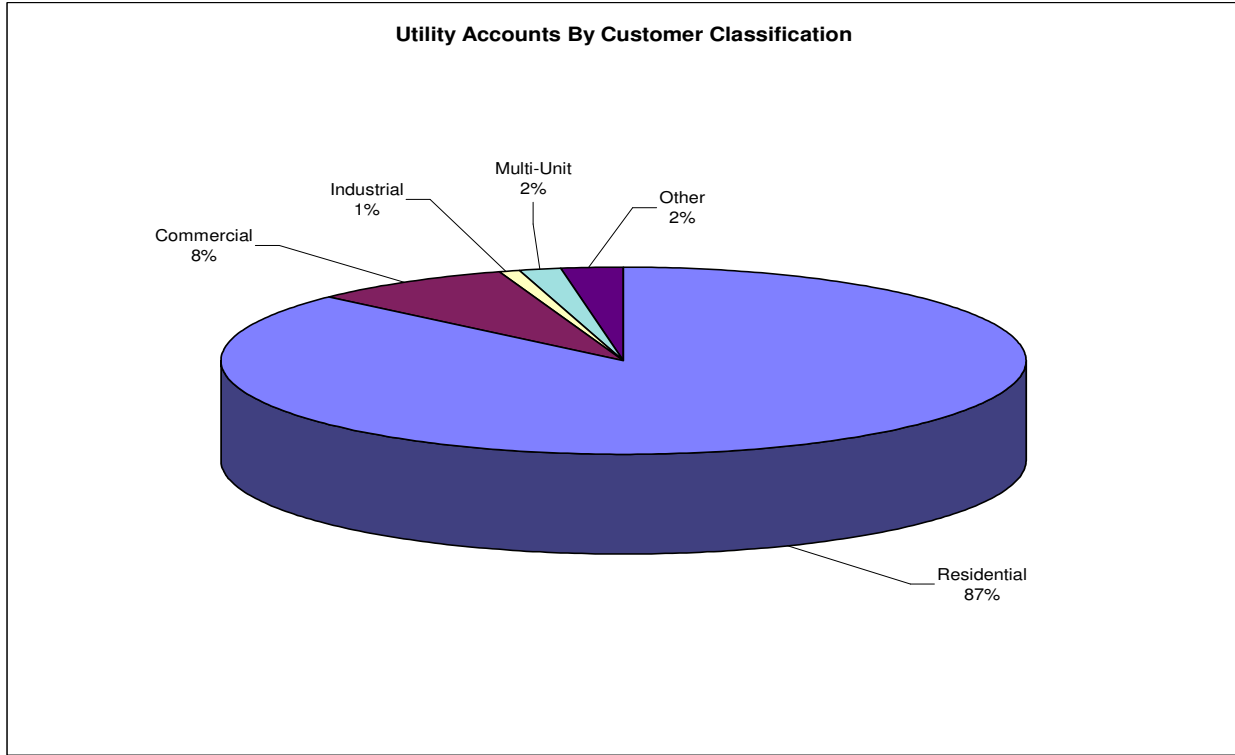


Chart II-A

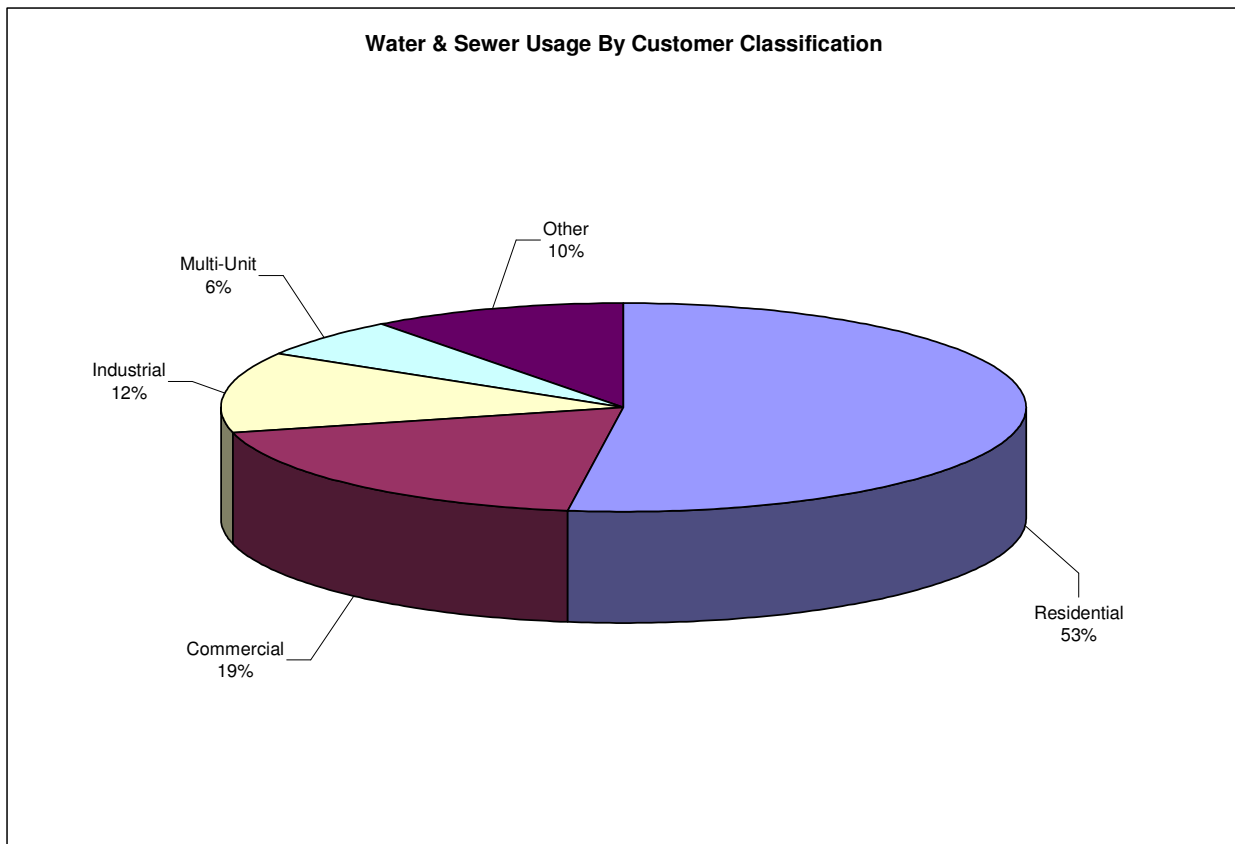


Chart II-B

SECTION III: REVENUES AND EXPENSES

REVENUE REQUIREMENTS

The costs of water supply, treatment, and distribution, together with associated general and administration expenses, are the basis for water rates. The costs of wastewater collection, treatment, and disposal, together with associated general and administration expenses, are the basis for sewer rates. The City's total annual water and sewer revenue requirements are established at \$1,276,590 and \$2,618,250 respectively, as summarized below.

Water Labor & Benefits	\$442,980
Water Operational Expenses	<u>833,610</u>
Total	\$1,276,590
Sewer Labor & Benefits	\$442,980
Sewer Operational Expenses	833,610
Sewer Debt Service Payments	<u>512,450</u>
Total	\$2,618,250

The total annual revenue requirement is the amount of revenue that should be generated by utility rates in order to cover costs associated with operation and maintenance, debt service obligations or depreciation expense, and capital program needs of the utility. Also incorporated, is consideration of other non-water revenues and availability of or need to increase reserve balances. The determination of the revenue requirement starts with the annual operation costs of the system. Planned capital expenditures are added, which include amounts needed for reserves and debt service. The revenue anticipated from other sources such as interest earnings and other service charges reduce the total expenditure requirement.

Because depreciation expense is a non-cash requirement, the inclusion of depreciation expense in calculating revenue requirements provides available funds for capital improvements or for repaying debt. For instances where debt financing of capital improvements already exists, such as the City's sewer system, the alternative to including depreciation expense is to include the higher of the depreciation expense or the principal debt payment.

More detailed information can be found in Attachments 1, 2 and 3 of this report.

SECTION IV: RECOMMENDATIONS

UTILITY RATE RECOMMENDATIONS

Based on the information obtained and analyzed in this rate study, the water and sewer rates presented in Table IV-A are recommended.

Current Water Rates			Proposed Water Rates		
	Quarterly			Quarterly	
	Base	Rate per		Base	Rate per
Meter Size	Charge	1,000 gal.	Meter Size	Charge	1,000 gal.
5/8 x 3/4	\$ 41.00	\$ 2.75	5/8 x 3/4	\$ 33.00	\$ 2.45
1"	70.00	2.75	1"	50.00	2.45
1.5"	140.00	2.75	1.5"	110.00	2.45
2"	220.00	2.75	2"	170.00	2.45
3"	410.00	2.75	3"	330.00	2.45
4"	640.00	2.75	4"	510.00	2.45
6"	1,370.00	2.75	6"	1,100.00	2.45
Current Sewer Rates			Proposed Sewer Rates		
	Quarterly			Quarterly	
	Base	Rate per		Base	Rate per
Meter Size	Charge	1,000 gal.	Meter Size	Charge	1,000 gal.
5/8 x 3/4	\$ 62.00	\$ 4.50	5/8 x 3/4	\$ 81.00	\$ 5.35
1"	99.00	4.50	1"	130.00	5.35
1.5"	205.00	4.50	1.5"	270.00	5.35
2"	329.00	4.50	2"	430.00	5.35
3"	620.00	4.50	3"	810.00	5.35
4"	961.00	4.50	4"	1,250.00	5.35
6"	2,065.00	4.50	6"	2,690.00	5.35

Table IV-A

We are recommending a decrease in water rates and an increase in sewer rates. The combination of which results in a combined increase in both the total base charge and commodity rate (rate per 1,000 gallon).

These rate adjustments are required to maintain services due to:

- ❖ Capital expenses related to proposed capital improvement projects for the distribution system and treatment facilities
- ❖ Sewer system bond debt coverage
- ❖ A decrease in customer water usage sufficient to off-set the system's fixed costs

It is recommended that these rates be effective July 1, 2016.

Under the proposed rates, the average resident's bill would increase \$16.50 per quarter, as summarized in Table IV-B². An increase of 18 cents per day.

	Quarterly Usage (gallons)	Rate per 1,000 gal.	Base Charge	Quarterly Bill	Quarterly Increases
Current Water Rate	10,000	\$ 2.75	\$ 41.00	\$ 68.50	
Proposed Water Rate	10,000	\$ 2.45	\$ 33.00	\$ 57.50	\$ (11.00)
Current Sewer Rate	10,000	\$ 4.50	\$ 62.00	\$ 107.00	
Proposed Sewer Rate	10,000	\$ 5.35	\$ 81.00	\$ 134.50	\$ 27.50
Current combined Rate	10,000	\$ 7.25	\$ 103.00	\$ 175.50	
Proposed combined Rate	10,000	\$ 7.80	\$ 114.00	\$ 192.00	\$ 16.50

Table IV-B

Additional total bill changes for various usage amounts can be found in Attachment 4 of this report.

FISCAL POLICY RECOMMENDATIONS

The underlying fiscal policies for the proposed utility rates are summarized below.

- ❖ Operating Contingency – provides sufficient cash flow to meet daily operating expenses
 - Maintain an operating contingency equal to three months revenues.
- ❖ System Reinvestment – to ensure ongoing integrity through reinvestment in the system
- ❖ Inflationary Increase – to ensure rates keep pace with the inflationary increases of the system's expenses.

² The quarterly usage of 10,000 gallons is based on the average residential customer's usage.

WATER RATE REVENUE & EXPENSE SUMMARY

LABOR & BENEFITS		% of Total
Admin Salaries	\$ 80,400	6.30%
Staff Wages	\$ 14,400	1.13%
DPW Labor	\$ 155,800	12.20%
Comp Abs	\$ 27,800	2.18%
Longevity	\$ 3,400	0.27%
Unused Sick & Vacation Leave	\$ 7,700	0.60%
Health Reimbursement	\$ 2,550	0.20%
Auto Allowance	\$ 610	0.05%
Clothing Allowance	\$ 2,610	0.20%
FICA	\$ 22,620	1.77%
ICMA-City Share	\$ 5,120	0.40%
Vision Care	\$ 1,350	0.11%
Life, Work Comp, Unemployment	\$ 8,000	0.63%
Dental & Health Benefits	\$ 40,770	3.19%
Retirement Plans	\$ 58,660	4.60%
Retirement Health Savings	\$ 2,500	
SUB TOTAL LABOR & BENEFITS	\$ 434,290	
COST OF INFLATION INCREASE	2.00%	
TOTAL LABOR & BENEFITS	\$ 442,980	34.70%
OPERATIONAL EXPENSES / VARIABLE		
Materials & Supplies	\$ 112,050	8.78%
Postage	\$ 1,700	0.13%
Dues & Subscriptions	\$ 1,500	0.12%
Printing & Publishing	\$ 1,000	0.08%
Operating Supplies	\$ 30,000	2.35%
Laboratory Supplies	\$ 1,800	0.14%
Telephone & Pagers	\$ 2,200	0.17%
Utilities	\$ 83,000	6.50%
Professional Services	\$ 15,200	1.19%
Insurance & Bonds	\$ 7,600	0.60%
Conference & Training	\$ 4,000	0.31%
Contractual Services	\$ 24,100	1.89%
Hydrant Rental	\$ 21,200	1.66%
Capital Outlay - Computer Equipment	\$ -	0.00%
Sundry	\$ 150	0.01%
MVP Equipment Rental	\$ 350	0.03%
Operating Transfers	\$ 201,450	15.78%
Capital Outlay	\$ -	0.00%
Depreciation	\$ 275,000	21.54%
Rental Expense	\$ 3,460	
SUBTOTAL OPERATIONAL EXPENSES / VARIABLE	\$ 785,760	
CONTINGENCY ALLOWANCE	3.00%	
SUBTOTAL	\$ 809,330	
COST OF INFLATION INCREASE	3.00%	
TOTAL OPERATIONAL EXPENSES / VARIABLE	\$ 833,610	65.30%
TOTAL WATER EXPENDITURES	\$ 1,276,590	100.00%
WATER RATE REVENUE	\$ 1,162,220	
NON-RATE REVENUE	\$ 120,000	
TOTAL WATER REVENUE	\$ 1,282,220	
Revenues Over (Under) Expenditures	\$ 5,630	

SEWER RATE REVENUE & EXPENSE SUMMARY

LABOR & BENEFITS		% of Total
Admin Salaries	\$ 114,820	4.39%
Staff Wages	\$ 14,600	0.56%
DPW Labor	\$ 217,000	8.29%
Comp Abs	\$ 35,000	1.34%
Part-time Wages	\$ 1,500	0.06%
Longevity	\$ 4,300	0.16%
Unused Sick & Vacation Leave	\$ 7,700	0.29%
Health Reimbursement	\$ 2,550	0.10%
Auto Allowance	\$ 610	0.02%
Clothing Allowance	\$ 3,710	0.14%
FICA	\$ 30,810	1.18%
ICMA-City Share	\$ 6,840	0.26%
Vision Care	\$ 2,300	0.09%
Life, Work Comp, Unemployment	\$ 13,800	0.53%
Dental & Health Benefits	\$ 80,940	3.09%
Retirement Plans	\$ 82,800	3.16%
Retirement Health Savings	\$ 3,000	0.11%
SUB TOTAL LABOR & BENEFITS	\$ 622,280	
COST OF INFLATION INCREASE	2.00%	
TOTAL LABOR & BENEFITS	\$ 634,700	24.24%
OPERATIONAL EXPENSES / VARIABLE		
Materials & Supplies	\$ 56,650	2.16%
Postage	\$ 3,500	0.13%
Dues & Subscriptions	\$ 800	0.03%
Printing & Publishing	\$ 100	0.00%
Operating Supplies	\$ 50,000	1.91%
Laboratory Supplies	\$ 16,000	0.61%
Telephone & Pagers	\$ 2,800	0.11%
Utilities	\$ 159,400	6.09%
Professional Services	\$ 98,000	3.74%
Insurance & Bonds	\$ 15,000	0.57%
Conference & Training	\$ 4,500	0.17%
Contractual Services	\$ 179,100	6.84%
Hydrant Rental	\$ 21,200	0.81%
Capital Outlay - Computer Equipment	\$ 5,000	0.19%
Sundry	\$ 900	0.03%
MVP Equipment Rental	\$ 71,550	2.73%
Rental Expense	\$ 700	0.03%
Operating Transfers	\$ 201,450	7.69%
Capital Outlay	\$ 500,000	19.10%
Depreciation	\$ -	0.00%
SUBTOTAL OPERATIONAL EXPENSES / VARIABLE	\$ 1,386,650	
CONTINGENCY ALLOWANCE	3.00%	
SUBTOTAL	\$ 1,428,250	
COST OF INFLATION INCREASE	3.00%	
TOTAL OPERATIONAL EXPENSES / VARIABLE	\$ 1,471,100	56.19%
LOANS / BONDS / INTEREST - ANNUAL PAYMENT		
2015 Refunding Bonds - Principal	\$ 425,000	} 19.57%
2015 Refunding Bonds - Interest	\$ 87,450	
TOTAL ANNUAL PAYMENTS	\$ 512,450	19.57%
TOTAL SEWER EXPENDITURES	\$ 2,618,250	100.00%
SEWER RATE REVENUE	\$ 2,577,670	
NON-RATE REVENUE	\$ 41,000	
TOTAL SEWER REVENUE	\$ 2,618,670	
Revenues Over (Under) Expenditures	\$ 420	

FY 16/17 WATER & SEWER ANUALIZED REVENUE PROJECTIONS

		Proposed Rates	Projected Revenue	Current Rates	Current Revenue
3/4	3,094	\$ 33.00	\$ 102,100	\$ 41.00	\$ 126,850
1	63	\$ 50.00	\$ 3,150	\$ 70.00	\$ 4,410
1.5	53	\$ 110.00	\$ 5,830	\$ 140.00	\$ 7,420
2	49	\$ 170.00	\$ 8,330	\$ 220.00	\$ 10,780
3	12	\$ 330.00	\$ 3,960	\$ 410.00	\$ 4,920
4	11	\$ 510.00	\$ 5,610	\$ 640.00	\$ 7,040
6	1	\$ 1,100.00	\$ 1,100	\$ 1,370.00	\$ 1,370
	3,283		\$ 130,080		\$ 162,790
			Annualized Base Rate Revenue \$ 520,320		\$ 651,160
			Plus: Annualized Usage Revenue		
	262,000,000	\$ 2.45	\$ 641,900	\$ 2.75	\$ 720,500
			Total Water Rate Revenue \$ 1,162,220		\$ 1,371,660
			Increase/(Decrease) \$ (209,440)		
			% Change -15%		

		Proposed Rates	Projected Revenue	Current Rates	Current Revenue
3/4	3,065	\$ 81.00	\$ 248,270	\$ 62.00	\$ 190,030
1	62	\$ 130.00	\$ 8,060	\$ 99.00	\$ 6,140
1.5	55	\$ 270.00	\$ 14,850	\$ 205.00	\$ 11,280
2	48	\$ 430.00	\$ 20,640	\$ 329.00	\$ 15,790
3	12	\$ 810.00	\$ 9,720	\$ 620.00	\$ 7,440
4	10	\$ 1,250.00	\$ 12,500	\$ 961.00	\$ 9,610
6	1	\$ 2,690.00	\$ 2,690	\$ 2,065.00	\$ 2,070
	3,253		\$ 316,730		\$ 242,360
			Annualized Base Rate Revenue \$ 1,266,920		\$ 969,440
			Plus: Annualized Usage Revenue		
	245,000,000	\$ 5.35	\$ 1,310,750	\$ 4.50	\$ 1,102,500
			Total Sewer Rate Revenue \$ 2,577,670		\$ 2,071,940
			Increase/(Decrease) \$ 505,730		
			% Change 24%		
			Total Increase/(Decrease) \$ 296,290		
			Total % Change 9%		

TYPICAL TOTAL WATER & SEWER BILL CHANGES

METER SIZE	GALLONS USED	NEW BILL	OLD BILL	CHANGE IN BILL	% CHANGE
3/4	1,500	\$125.70	\$113.88	\$11.83	10%
3/4	3,500	\$141.30	\$128.38	\$12.93	10%
3/4	6,000	\$160.80	\$146.50	\$14.30	10%
3/4	10,000	\$192.00	\$175.50	\$16.50	9%
3/4	25,000	\$309.00	\$284.25	\$24.75	9%
1	50,000	\$499.41	\$488.50	\$10.91	2%
1.5	150,000	\$1,338.23	\$1,315.50	\$22.73	2%
2	35,000	\$790.59	\$580.95	\$209.64	36%
3	35,000	\$1,290.59	\$860.95	\$429.64	50%
4	50,000	\$1,979.41	\$1,279.50	\$699.91	55%
6	50,000	\$3,869.41	\$2,329.50	\$1,539.91	66%

Proposed Rates

Current Rates

FIXED RATE	FIXED RATE
\$114.00	\$103.00
VARIABLE RATE	VARIABLE RATE
\$7.80	\$7.25

TYPICAL WATER BILL CHANGES

METER SIZE	GALLONS USED	NEW BILL	OLD BILL	CHANGE IN BILL	% CHANGE
3/4	1,500	\$36.68	\$45.13	(\$8.45)	-19%
3/4	3,500	\$41.58	\$50.63	(\$9.05)	-18%
3/4	6,000	\$47.70	\$57.50	(\$9.80)	-17%
3/4	10,000	\$57.50	\$68.50	(\$11.00)	-16%
3/4	25,000	\$94.25	\$109.75	(\$15.50)	-14%
1	50,000	\$192.50	\$207.50	(\$15.00)	-7%
1.5	150,000	\$507.50	\$552.50	(\$45.00)	-8%
2	35,000	\$305.75	\$137.25	\$168.50	123%
3	35,000	\$495.75	\$137.25	\$358.50	261%
4	50,000	\$762.50	\$178.50	\$584.00	327%
6	50,000	\$1,502.50	\$178.50	\$1,324.00	742%

FIXED RATE	FIXED RATE
\$33.00	\$41.00
VARIABLE RATE	VARIABLE RATE
\$2.45	\$2.75

TYPICAL SEWER BILL CHANGES

METER SIZE	GALLONS USED	NEW BILL	OLD BILL	CHANGE IN BILL	% CHANGE
3/4	1,500	\$89.03	\$68.75	\$20.28	29%
3/4	3,500	\$99.73	\$77.75	\$21.98	28%
3/4	6,000	\$113.10	\$89.00	\$24.10	27%
3/4	10,000	\$134.50	\$107.00	\$27.50	26%
3/4	25,000	\$214.75	\$174.50	\$40.25	23%
1	50,000	\$306.91	\$281.00	\$25.91	9%
1.5	150,000	\$830.73	\$763.00	\$67.73	9%
2	35,000	\$484.84	\$443.70	\$41.14	9%
3	35,000	\$794.84	\$723.70	\$71.14	10%
4	50,000	\$1,216.91	\$1,101.00	\$115.91	11%
6	50,000	\$2,366.91	\$2,151.00	\$215.91	10%

FIXED RATE	FIXED RATE
\$81.00	\$62.00
VARIABLE RATE	VARIABLE RATE
\$5.35	\$4.50