Technical Memorandum

DATE: May 12, 2017
TO: Lee Feldman – City Manager, City of Fort Lauderdale
FROM: Michael Burton, Vice President, Financial Services – Stantec Consulting
CC: Laura Reece, Budget Manager, City of Fort Lauderdale
RE: Multi-Family Water & Sewer Rate Analysis - Galt Ocean Mile Condo Association

Background

Stantec Consulting Services, Inc. (Stantec) was asked to meet with members of the Galt Ocean Mile Condo Association (Association) to 1) listen to and evaluate their concerns regarding their cost of water compared to the cost for Single Family customers, 2) explain the basis for establishing water and sewer rates, and)discuss an alternative Multi-Family rate structure that will bear a more logical relationship to the Single Family rate structure for consideration in a Water and Sewer Cost Allocation and Rate Design Study, should such a Study be authorized.

I met with members of the Association on two occasions. During the first meeting, which was attended by members of the Association, City Commissioner Roberts and other members of City staff, I listened to the Association's concerns and discussed the concepts of rate making with the those in attendance and in the second meeting, which was attended by members of the Association and members of City staff, I presented a preliminary version of the analysis that is presented herein to demonstrate an alternative approach to structuring Multi-Family rates that when viewed 1) from only the usage cost of water and sewer, or 2) from the overall cost of water and sewer (including the Base Charge) is intuitive and bears a more reasonable relationship to the Single Family rate structure.

After the above referenced second meeting I refined the analysis that was presented to the Association representatives and City staff and developed this Technical Memorandum to present the analysis. The refinements to the analysis compared a recent monthly bill of the Association with a calculation of the bill for as many individually metered Single Family customers as the units served by the Association's Multi-Family meter with the same aggregate water and sewer usage as in the Association's bill. The refinements also included comparison to a scenario where the Multi-Family rate structure is adjusted as it would likely be in a cost allocation and rate design study.

Analysis

The units and usage upon which the comparative analysis was based were taken from a recent bill of the Association and are presented in Figure 1 below where water usage is shaded in blue and sewer usage is shaded in yellow. Sewer usage is lower than water usage in the Association's bill because of the deduction of water that is used in cooling towers and is not returned to the sewer.

FIGURE 1

Units/Meters	370
Water Usage Gal/Mo	1,338,000
Sewer Usage Gal/Mo	1,022,000

First, the analysis shows that when only the usage cost per unit is considered, the Association's contention that the cost of water and sewer (usage charge only) is higher than for the Single Family class with the same usage is correct, the effective water and sewer usage cost (only) per unit for an Association unit is greater than the effective water and sewer usage cost (only) per unit for a single family customer with the same amount of water and sewer usage. However, the Base Charge per unit for the Association is considerably lower than the Base Charge for a Single Family unit. This can be seen in Figure 2 below where the blue shading is for water, the yellow shading is for sewer and the green shading is for total water and sewer. This shading convention is carried out in all of the Figures that follow. Also, "Multi-Family" represents the Association's rates in this schedule and all schedules that follow.

FIGURE 2

Bill Analysis - Monthly:

	Current Muli-Family	Current Single Family
Effective Usage Cost and Effective Base Charge		
Effective Usage Cost/1k Gals:		
Water	$ 3.95	$ 2.41
Sewer	$ 6.21	$ 3.35
Total Effective Usage Cost/1k Gals	$ 10.15	$ 5.76

	Current Muli-Family	Current Single Family
Base Charge per Unit:		
Water	$ 0.69	$ 6.53
Sewer	$ 1.11	$ 9.58
Total Base Charge/Unit	$ 1.80	$ 16.11

However, when the total cost of water and sewer is considered, the lower Base Charge for the Association offsets the higher effective Usage Cost such that the total cost of water and sewer for the Association is slightly less than the total cost of water and sewer for the same number of single family homes as the Association units with the same water and sewer usage. This can be seen in Figure 3 below.

FIGURE 3

Usage, Fixed and Total Charge for All Units		
	Current	**Current**
	Muli-Family	**Single Family**
Total Charge for all Units		
Water :		
Usage Charge	$ 5,279.04	$ 3,230.04
Fixed Charge	$ 255.51	$ 2,416.10
Total Water	$ 5,534.55	$ 5,646.14
Total Water per Unit	**$ 14.96**	**$ 15.26**
Sewer:		
Usage Charge	$ 6,344.66	$ 3,423.70
Fixed Charge	$408.85	$ 3,544.60
Total Sewer	$ 6,753.51	$ 6,968.30
Total Sewer per Unit	**$ 18.25**	**$ 18.83**
Total Bill :		
Water & Sewer Usage Charge	**$ 11,623.70**	**$ 6,653.74**
Water & Sewer Fixed Charge	**$ 664.36**	**$ 5,960.70**
Total Charge	**$ 12,288.06**	**$ 12,614.44**
Total Charge per Unit	**$ 33.21**	**$ 34.09**

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The reason for the above referenced disparities in the multi-family cost and the single family cost is explained not only by the differential in the Base Charge per unit discussed above, but also by an examination of the Usage Tiers for both classes. Figure 4 below shows the Usage Tier ranges and associated rates for the Multi-family and Single Family classes as they are today. The issue is primarily Tier 1, the light blue shaded row in Figure 4. For the Multi-Family class the top of the Tier 1 range is 1,000 gallons per month; whereas, the top of the Tier 1 range for the Single Family class is 3,000 gallons per month. Although the Tier 1 and Tier 2 rates are the same for both classes, the lower top-end of the Multi-Family range causes the second tier rate to come into play after the first 1,000 gallons per month of usage per unit for the Multi-Family class; whereas, the Single Family class does not get to the higher rate of the second tier until the usage exceeds 3,000 gallons per month per unit.

The same effect occurs with the sewer usage rate tiers causing the effective cost per 1,000 gallons of water and sewer to be higher for the Association than the effective cost per 1,000 gallons of usage for the same number of Single Family meters as the Association's units.

FIGURE 4

Water & Sewer Rates in Tiers:

	Current Muli-Family		Current Single Family	
Tier	Max Range Value	Rate	Max Range Value	Rate
Tier 1	1,000	$ 2.00	3,000	$ 2.00
Tier 2	3,000	$ 4.43	8,000	$ 4.43
Tier 3	5,000	$ 5.53	12,000	$ 5.53
Tier 4	8,000	$ 7.47	20,000	$ 7.47
Tier 5	1,000,000	$ 10.83	1,000,000	$ 10.83
SewerWater Rate in Tiers:				
Tier 1	1,000	$ 3.35	3,000	$ 3.35
Tier 2	1,000,000	$ 7.83	1,000,000	$ 7.83

Although this analysis shows that the total water and sewer cost differential of the Association compared to the same number of Single Family customers as the Association has units is not significant, it is our conclusion that the Multi-Family rate structure needs to be adjusted to be more consistent with the Single Family rate structure. The Multi-Family rate structure should be adjusted to change the basis of the Base Charge from meter size, which it is now, to units behind the meter be more reflective of the potential demand exhibited by the Multi-Family units behind the meter. Furthermore, the Base Charge for each Multi-Family unit should be adjusted compared to the Base Charge of a Single Family customer to reflect the lower average monthly usage of a Multi-Family unit. Conversely, when the Multi-Family Base Charge is increased as described above, the Multi-Family usage rate tier ranges should be adjusted to bear a closer relationship to the Single

Family tier ranges, at least at the lower range of usage associated with essential domestic usage requirements, which is where essentially all of the Association's usage occurs on a per unit basis.

We have developed a demonstrative example of how the Multi-Family rate structure would be adjusted in a Cost Allocation and Rate Design Study if the City were to authorize such a Study. However, it should be noted that the analysis presented herein only considers changes to the Multi-Family rate structure relative to the Single Family rate structure; whereas in a Study as mentioned above, there will be 1) an increase in the revenue requirement of 5% based upon the City's adopted plan of annual rate adjustments, and 2) there will be compensating changes to all rates in the analysis to achieve that revenue requirement. But the relative relationship of the recommended Multi-Family rate structure and the Single Family rate structure would be the same as demonstrated here, however, the actual rates resulting from the above reference Rate Study will be different.

The first adjustment to the Multi-Family rate structure will be to set the Multi-Family Base Charge in a proper relationship to the Single Family Base Charge. The Base Charge is to recover a portion of the fixed costs of the water and sewer systems based upon the potential demands of the customer. The Base Charge includes fixed costs that do not vary with usage such as debt service, a base level of staffing at the treatment plants, overhead, and management costs to name a few. One can look at it as a Readiness-to-Serve Charge. The Systems have to be ready to meet the potential demands of all customers, no matter what the actual usage is, and there is a cost associated with maintaining that level of readiness.

The proper relationship of the potential demand exhibited by Multi-Family units to the potential demand of Single Family units is a comparison of the average usage per unit of the Multi-Family class to the average usage per unit of the Single Family class, preferably during the peak demand portions of the year. For the purposes of this demonstration analysis we assumed that the average usage per unit for the Multi-Family call is 72% of the average usage per unit for the Single Family class[1]. See Figure 5 below.

FIGURE 5

MF Usage/Unit	**3,600**
SF Usage/Unit	**5,000**
MF Multiplier	**0.72**

[1] When an empirical analysis is performed during the above referenced Study this percentage may change and it is only used herein for demonstration purposes.

Figure 6 below shows that when the Base Charge is adjusted as described above, it will be considerably higher than the current Association Base Charge per unit, but it will be about 72% of the Single Family Base Charge per unit, representing the lower potential demand exhibited by a Multi-Family unit compared to a Single Family unit.

FIGURE 6

	Current Muli-Family	Current Single Family	Recommended Multi-Family
Base Charge per Unit:			
Water	**$ 0.69**	**$ 6.53**	**$ 4.70**
Sewer	$ 1.11	$ 9.58	$ 6.90
Total Base Charge/Unit	**$ 1.80**	**$ 16.11**	**$ 11.60**

The next adjustment to the Multi-Family rate structure will be to set the tier ranges in proper relationship to the tier ranges of the Single Family class. Figure 7 below shows the Current Tier Ranges for Multi-Family and Single Family and the right column shows the recommend Tier Ranges in a modified Multi-Family rate structure. The Recommended Rate Structure for Multi-Family sets the First Tier range equal to the Single Family First Tier range of 3,000 gallons per month. This is because a First Tier with only 3,000 gallons per month usage represents essential domestic consumption for a household, whether it is a multi-family household or a single family household. However, subsequent Multi-Family usage tiers are set at approximately 72% (rounded up to the nearest 1,000 gallons) of the corresponding Single Family Tier, to represent the average Multi-Family usage per unit being 72% of the average single family unit. However, because most Multi-Family units do not have irrigation demands, their monthly usage will almost never get beyond the Second Tier.

FIGURE 7

Water & Sewer Rates in Tiers:	Current Muli-Family		Current Single Family		Recommended Multi-Family	
Tier	**Max Range Value**	**Rate**	**Max Range Value**	**Rate**	**Max Range Value**	**Rate**
Tier 1	1,000	$ 2.00	3,000	$ 2.00	3,000	$ 2.00
Tier 2	3,000	$ 4.43	8,000	$ 4.43	6,000	$ 4.43
Tier 3	5,000	$ 5.53	12,000	$ 5.53	9,000	$ 5.53
Tier 4	8,000	$ 7.47	20,000	$ 7.47	15,000	$ 7.47
Tier 5	1,000,000	$ 10.83	1,000,000	$ 10.83	1,000,000	$ 10.83
SewerWater Rate in Tiers:						
Tier 1	1,000	$ 3.35	3,000	$ 3.35	3,000	$ 3.35
Tier 2	1,000,000	$ 7.83	1,000,000	$ 7.83	1,000,000	$ 7.83

The result is that the Multi-Family effective usage cost for water and sewer per 1,000 gallons under the recommend rate structure will be the same as the Single Family effective usage cost for water and sewer per 1,000 gallons, as can be seen in Figure 8 below.

FIGURE 8

Bill Analysis - Monthly:	Current Muli-Family	Current Single Family	Recommended Multi-Family
Effective Usage Cost and Effective Base Charge			
Effective Usage Cost/1k Gals:			
Water	$ 3.95	$ 2.41	$ 2.41
Sewer	$ 6.21	$ 3.35	$ 3.35
Total Effective Usage Cost/1k Gals	**$ 10.15**	**$ 5.76**	**$ 5.76**

The net effect of the recommended Multi-Family rate structure change is that the Association's total cost of water and sewer per unit will be slightly lower than under the current rate structure and it will also be lower than the total cost of water and sewer per unit for a Single Family home with the same water and sewer usage as the Association on a per unit basis. This can be seen in Figure 9 below.

FIGURE 9

Usage, Fixed and Total Charge for All Units	Current Muli-Family	Current Single Family	Recommended Multi-Family
Total Charge for all Units			
Water :			
Usage Charge	$ 5,279.04	$ 3,230.04	$ 3,230.04
Fixed Charge	$ 255.51	$ 2,416.10	$ 1,739.00
Total Water	$ 5,534.55	$ 5,646.14	$ 4,969.04
Total Water per Unit	**$ 14.96**	**$ 15.26**	**$ 13.43**
Sewer:			
Usage Charge	$ 6,344.66	$ 3,423.70	$ 3,423.70
Fixed Charge	$408.85	$ 3,544.60	$ 2,553.00
Total Sewer	$ 6,753.51	$ 6,968.30	$ 5,976.70
Total Sewer per Unit	**$ 18.25**	**$ 18.83**	**$ 16.15**
Total Bill :			
Water & Sewer Usage Charge	**$ 11,623.70**	**$ 6,653.74**	**$ 6,653.74**
Water & Sewer Fixed Charge	**$ 664.36**	**$ 5,960.70**	**$ 4,292.00**
Total Charge	**$ 12,288.06**	**$ 12,614.44**	**$ 10,945.74**
Total Charge per Unit	**$ 33.21**	**$ 34.09**	**$ 29.58**

Conclusion

Based upon the analysis presented herein, it is my conclusion that the net effect of the Multi-Family rate applied to the Association is that the Association's total cost of water and sewer is reasonable compared to the total cost of water and sewer for the same number of single family customers as the number of units in the Association with the same aggregate water and sewer usage as the Association.

However, it is also my conclusion that the adjustments to the Multi-Family rate structure discussed herein should be considered in order to establish a more logical relationship to the Single Family rate structure for the Multi-Family water and sewer Base Charge and the Multi-Family water and sewer Usage Tier ranges.

Also, the scope of this analysis was limited and it relied on data provided by others and makes assumptions as to future conditions. Therefore I have included a disclaimer as an attachment which should be considered as a part of this Technical Memorandum

It has been a pleasure coordinating this analysis with the Association members and with City staff. If you have any questions, do not hesitate to call me at (904) 923-1466.

Sincerely,

Michael E. Burton

Vice President, Financial Services

DISCLAIMER ATTACHMENT

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