ORANGE WATER AND SEWER AUTHORITY

A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community.

MEMORANDUM

TO: **Finance Committee**
John Young (Chair)
Terri Buckner
Gordon Merklein
Will Raymond
Amy Witsil
Alan Rimer (*ex-officio*)

THROUGH: Ed Kerwin

FROM: Stephen Winters, CPA

DATE: November 12, 2012

SUBJECT: Finance Committee Meeting – November 15, 2012

The Finance Committee will meet on Thursday, November 15, 2012, at 8:00 AM in the OWASA Board Room. The agenda will be:

- **Review and discuss OWASA's Rate Study. (Background information attached.)**

  Committee Action Requested: Receive and discuss the study's results and recommendations.

Stephen Winters, CPA
Director of Finance and Customer Service

cc: Board of Directors, Ed Kerwin, Bob Epting

Attachment 1 – Background information for rate study discussion
Attachment 2 – Monthly average and median billed use for residential customers subject to block rates
Attachment 3 – Rate scenario impact chart

Purpose

The Finance Committee met on September 13 and October 17 to discuss the results of the water and sewer rate study. In those meetings, the following decisions were made.

- The monthly sewer cap for individually-metered, single-family residences will remain at 15,000 gallons.
- There will be no reduction in the rates charged for irrigation-only accounts.
- There will be no change to our Drought Surcharge structure.

At the Finance Committee meeting on October 17, the Committee requested staff to prepare rate structure recommendations for review at the next Committee meeting. Staff considered and analyzed a number of rate structure scenarios and the following table lists the ones we will discuss in more detail at the Committee's meeting on November 15.

	Scenarios				
Rate structure modification	**1**	**2**	**3**	**4**	**5**
Equalize revenue recovery from water and sewer monthly service charge at 20% for each	✓	✓		✓	✓
Separately calculate customer service component of monthly service charge	✓	✓	✓	✓	✓
Adopt American Water Works Association (AWWA) standard for scaling monthly service charges for larger meters	✓	✓	✓	✓	✓
Decrease commodity charge for first two rate-blocks by 3% each		✓			
Equalize revenue recovery from water and sewer monthly service charge at 15% for each			✓		
Change Block 1 to include 0-3k gallons Change Block 2 to include 4-6k gallons				✓	
Decrease commodity charge for first two rate-blocks to achieve 1.5% affordability ratio for individually-metered residential customers using an average of 4,500 gallons per month					✓

(Attachment 3 of this packet is a chart that analyzes the impact that these five rate scenarios would have on various types of customers.)

Focus on Affordability

A primary driver in our rate study deliberations – and a key concern shared by both the Board and staff – is the affordability of our water and sewer rates for current and future customers. Our recent Customer Satisfaction Survey confirmed that the cost of our services is one of the most important concerns of our customers.

A key focus of the ongoing study has been to evaluate options for further tailoring our rate structure to better achieve the Service Affordability objective stated in our Financial Management Policy, which is:

"The target for average annual residential water and sewer bill divided by real median household income is ≤1.5%."

Our target only addresses affordability as it relates to individually-metered residential customers; however, our concerns about affordability apply equally to all customers, including the businesses, public schools, non-profit agencies, and other non-residential customers that are essential to the economic vitality and quality of life of our community. Therefore, as we consider rate structure changes to enhance affordability for our individually-metered residential customers, we must balance those changes against the corresponding effects on our non-residential customers.

An important related consideration is that our non-residential customers include master-metered multi-family residential developments, many of which house low-income residents that do not receive a bill from OWASA.

What is the Right Affordability Target? Affordability is a subjective matter and there is no industry-wide standard for what a utility's affordability target should be. Our target was based on a threshold used by the NC Department of Environment and Natural Resources; essentially, the Department uses the affordability ratio as one of the criteria to measure a utility's need for grants, low-interest and no-interest loans. The Department considers a utility with an affordability ratio of 1.5% or better to be in good condition from a residential customer affordability standpoint.

Many agencies use 2.0% as the measure of affordability for combined monthly water and sewer charges (1.0% for water and 1.0% for sewer). UNC-Chapel Hill's School of Governments uses 2.0% as its benchmark for analyzing total monthly water and sewer rates.

Some states and utilities have established affordability thresholds of as much as 2.0% for water rates, only, and the US Environmental Protection Agency (EPA) has stated that annual water bills in the range of 1.5% to 2% of median household income (MHI) are considered affordable. According to a report by the National Drinking Water Advisory Council (2003), EPA's *"…2.5 percent standard was established by using other household goods and services as proxies for "willingness to pay" for quality water."*

It is important to consider the subjective nature of our Service Affordability target as the Board makes decisions about our rate structure.

How Does Our Average Residential Bill Compare to Our Target?

• Estimated annual MHI for our service area is currently	$52,785
• Monthly bill necessary to achieve 1.5% Service Affordability target	$66
• Current average residential bill for 4,500 gallons/month	$77
• Dollar reduction needed to achieve our stated target	$11
• Percent reduction needed to achieve our stated target	14%

Can We Adjust Our Rate Structure to Meet Our Target? It's possible but staff strongly recommends against it; doing so could have unintended and potentially significant consequences for many of our customers. As noted above, changes we make to enhance affordability for our "average-use" individually-metered single-family customers must be balanced against the impact those changes will have on service affordability for our other residential and non-residential accounts.

As the Finance Committee discussed at its October 17, 2012 meeting, there are four primary rate structure approaches for addressing affordability for our residential customers: reduce the water and/or sewer fixed monthly charges; reduce the commodity charge (cost/1,000 gallons of service) for water and/or sewer services; reduce both

the service and commodity charges applicable to customers at or below the average-use threshold; change the block volumes.

Our fixed monthly charges are based on the size of the meter serving the premises; therefore, reductions in fixed charges for the residential class would also result in corresponding reductions in the fixed charges applicable to our non-residential customer classes. Reductions in our fixed charge revenues must be offset by increases in the commodity charges applicable to all our customers. This would result in increased water and sewer bills for many of our customers.

Water commodity charges for residential customers can be reduced by lowering one or more block rates. However, reductions in some block rates will require offsetting increases in the remaining block rates and could also require increases in our seasonal water rates for non-residential customers.

What Other Strategies Can We Use to Come Closer to Our Target? We must continue to minimize future cost increases to our customers through optimizing our operations and infrastructure assets; seeking supplemental funding support (such as no-interest loans or grants); etc. We will also continue to inform our customers about cost-effective ways they can reduce their monthly bills through water conservation and efficiency strategies.

Helping Customers Who Need it the Most – The affordability ratio is an imprecise measurement that focuses on the cost of an average volume of water and sewer use compared to a median level of income. It does not account for an individual customer's level of income as compared to that same customer's water and sewer use. By focusing our affordability efforts on achieving our affordability ratio goal, we are addressing the cost of an average volume of use for all income levels.

We are making excellent progress towards building the tools we need to be able to focus affordability efforts on lower-income higher-volume users. Through these efforts, we hope to be able to improve affordability for those who need it the most through education about conservation and other water-use efficiency measures.

Revenue Stability

Currently, OWASA's annual expenditures for Operating Expenses, Capital Improvements Program projects and debt service total about $38 million. Additionally, to meet the requirements of our Bond Order and Financial Management Policy (such as debt service coverage ratio) we must bring in a certain amount of revenue each year. As we have seen over the last decade, a rate structure can have a significant impact on customer behavior; and its impact can be even more pronounced during periods of extreme weather conditions. Therefore, we must carefully consider the impact rate structure changes may have on revenue stability.

For example, reducing bills for average-use residential customers and recovering the lost revenue by increasing the bills for higher-volume residential customers sends a strong pricing signal to the high-volume users. When we have done this in the past, it led to significant reductions in water sales which led to significant rate increases for all customer classes. Similarly, reducing the amount of revenue from fixed service charges and increasing the amount of revenue from commodity charges puts more revenue at risk.

During the last decade we experienced two droughts, implemented conservation block rates, and brought reclaimed water online. This led to significant reductions in drinking water use and sales, considerable revenue instability, and substantial rate increases which were hardships for our customers as well as for the organization.

Conservation

Our community's success at reducing its water use has been well-documented. Today, our customers are using about the same amount of water that they used 20 years ago even though the number of customers we serve has

increased by about 60%. While conservation remains a primary focus for OWASA, our current rate structure provides an extremely effective conservation incentive to our customers.

Rate Study Conclusions

The results of this rate study confirm the following.

- While there is no standard or universally-accepted rate structure, OWASA's rate structure is consistent with progressive approaches advocated by industry thought-leaders and utilities focused on conservation and maintaining a reliable and sustainable system.
- Making significant improvements in affordability for individually-metered single-family residential average-volume customers through rate structure changes significantly increases the rates paid by other customers and puts more revenue at risk.
- The most effective way to address affordability is continued focus on keeping rate increases to a minimum through organizational cost-control efforts combined with strategies aimed at helping lower-income customers reduce their water and sewer bills.

Staff Recommendations

Staff recommends adopting the changes reflected in Scenario 1 for the reasons outlined below:

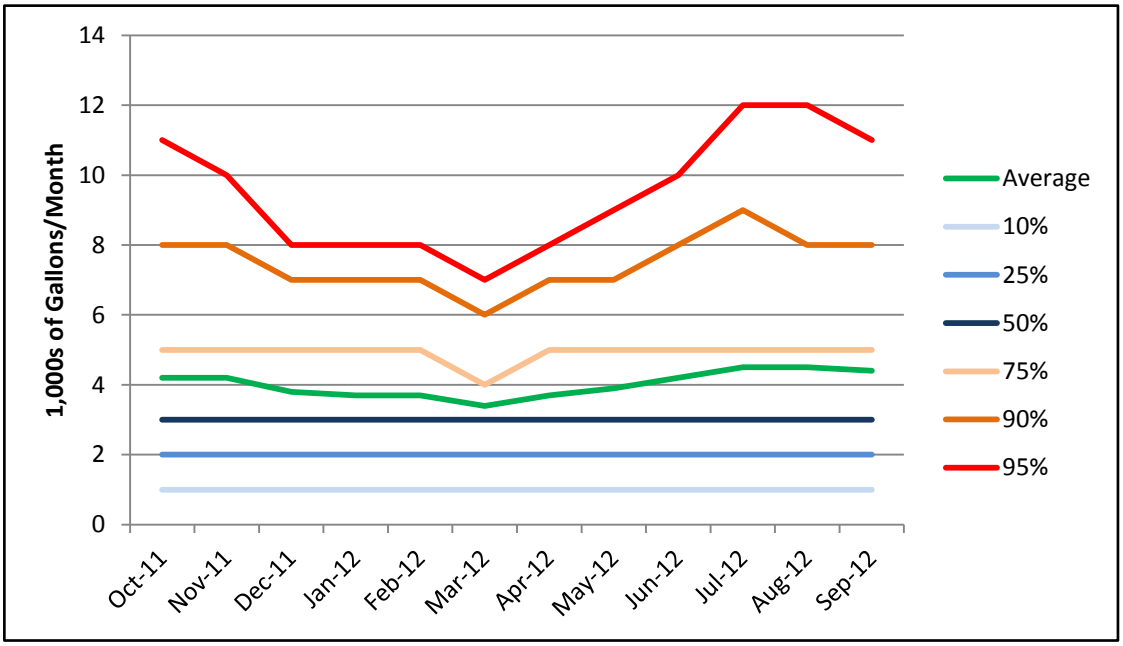
- Equalize the percentage of revenue recovered from the service charges for water and sewer to 20% each. Currently, 25% of water revenue is derived from the fixed water service charge and 75% is derived from the commodity volume charge. For sewer revenue, 19% is derived from the sewer service charge and 81% is derived from the commodity volume charge. Making this change will result in a relatively small increase in the amount of "at-risk" revenue since more revenue will come from the commodity volume charge than the fixed service charge.
- Adopt the AWWA standard for scaling monthly service charges for larger meters. The amount of our fixed monthly service charges increases based on meter size; large meters have a higher service charge than smaller ones. The AWWA has established standards for determining the differential in service charges based on meter size. The AWWA standard accounts for the difference in the demand on water systems between small and large meters; more water can flow through larger meters which equates to a higher potential demand on our system. The amounts by which our service charges increase between meter sizes is different than the AWWA standard.
- Separately calculate the customer service component of the monthly service charge. Our monthly service charge recovers costs associated with customer service, meter reading and billing. It also includes other costs that increase as the size of a meter increases. Customer service costs do not change based on meter size; it does not cost more to read and bill for a 2" meter than it does for a 5/8" meter. Making this change will better conform to the cost of service principle and will have negligible effect on our different customer classes.

Impact of staff's recommendation:

- It will improve affordability slightly as it will result in somewhat lower bills for residential customers using lower volumes of water.
- Bills for 5/8" metered non-residential customers will be reduced slightly.
- Bills for larger metered non-residential customers will increase by varying degrees and more accurately reflect their potential demand on our system.
- Our strong conservation pricing signal will be retained.
- The impact on revenue stability is estimated to be minimal.

Monthly Average and Median Billed Use for Residential Customers Paying Block Rates (Figures in 1,000s of Gallons)
(10/25/12)

Month & Year	Average	Billed Use Levels at Various Percentiles					
		10%	25%	50%	75%	90%	95%
Oct-11	4.2	1	2	3	5	8	11
Nov-11	4.2	1	2	3	5	8	10
Dec-11	3.8	1	2	3	5	7	8
Jan-12	3.7	1	2	3	5	7	8
Feb-12	3.7	1	2	3	5	7	8
Mar-12	3.4	1	2	3	4	6	7
Apr-12	3.7	1	2	3	5	7	8
May-12	3.9	1	2	3	5	7	9
Jun-12	4.2	1	2	3	5	8	10
Jul-12	4.5	1	2	3	5	9	12
Aug-12	4.5	1	2	3	5	8	12
Sep-12	4.4	1	2	3	5	8	11



ORANGE WATER AND SEWER AUTHORITY: 2013 RATE STUDY IMPACT EVALUATION
COMPARISON OF CHANGES IN TOTAL ANNUAL CHARGES FOR VARIOUS CUSTOMERS UNDER ALTERNATIVE RATE SCENARIOS
(Charges Based on Actual Use Patterns and Volumes in FY 2012)

(Red-shaded cells indicate customers who would see an increase in their charges; Green-shaded cells indicate customers who would see a decrease)

		CURRENT RATES	SCENARIO 1		SCENARIO 2		SCENARIO 3		SCENARIO 4		SCENARIO 5	
% Revenue Recovery in Base Facility Charges:		25% W / 19% S	20% W / 20% S		20% W / 20% S		15% W / 15% S		20% W / 20% S		20% W / 20% S	
Customer Service Charge Included?			Yes		Yes		Yes		Yes		Yes	
AWWA Meter Equivalency Ratios Included?			Yes		Yes		Yes		Yes		Yes	
Block Rate Changes?			No Changes		Reduce B1 & B2 Rates 3% Recover thru Blocks 3-5		No Changes		B1: 0-3,000 B2: 3,001-6,000		Reduce B1 & B2 Rates 50% Recover thru Blocks 3-5	
		Annual Charges	Change in Annual Charges	% Change	Change in Annual Charges	% Change	Change in Annual Charges	% Change	Change in Annual Charegs	% Change	Change in Annual Charges	% Change
NON-RESIDENTIAL CUSTOMER IMPACTS	Chapel Hill Public Housing Authority Developments (Master-Metered Projects)	$126,879	$764	0.6%	$764	0.6%	$4,812	3.8%	$3,387	2.7%	$764	0.6%
	Chapel Hill-Carrboro City Schools (Includes All Accounts Including Irrigation Services)	$422,730	$4,960	1.2%	$4,960	1.2%	$13,914	3.3%	$14,747	3.5%	$4,960	1.2%
	Other Master-Metered Multi-Family Developments (Seven Complexes) See Note 1	$824,598	-$3,307	-0.4%	-$3,307	-0.4%	$38,223	4.6%	$14,743	1.8%	-$3,307	-0.4%
	Total For Sample Set of Low-Volume Users (7 Meter Sizes)	$56,382	$2,555	4.5%	$2,555	4.5%	-$2,104	-3.7%	$3,282	5.8%	$2,555	4.5%
	Total For Sample Set of Moderate-Volume Users (7 Meter Sizes)	$176,315	$1,083	0.6%	$1,083	0.6%	$5,082	2.9%	$4,614	2.6%	$1,083	0.6%
	Total For Sample Set of High-Volume Users (7 Meter Sizes)	$534,304	-$3,340	-0.6%	-$3,340	-0.6%	$26,497	5.0%	$8,539	1.6%	-$3,340	-0.6%
	8-Inch Metered Customer	$106,676	$1,681	1.6%	$1,681	1.6%	$2,946	2.8%	$3,751	3.5%	$1,681	1.6%
	4 Irrigation Accounts (With Different Meter Sizes)	$78,107	$495	0.6%	$495	0.6%	$3,867	5.0%	$2,538	3.2%	$495	0.6%
		# Customers										
INDIVIDUALLY-METERED RESIDENTIAL CUSTOMER IMPACTS	2,000 Gallons/Month	(3,170)	$539.04	-$8	-1.4%	-$12	-2.2%	-$57	-10.5%	-$4	-0.8%	-$41	-7.6%
	AVERAGE USE CUSTOMER - 4,500 Gallons/Month	(1,800)	$925.14	-$12	-1.3%	-$27	-2.9%	-$33	-3.5%	-$47	-5.1%	-$147	-15.9%
	6,000 Gallons/Month	(1,230)	$1,174.08	-$13	-1.1%	-$22	-1.9%	-$16	-1.4%	-$61	-5.2%	-$75	-6.4%
	9,000 Gallons/Month	(330)	$1,689.24	-$16	-1.0%	$2	0.1%	$18	1.1%	-$50	-3.0%	$203	12.0%
	12,000 Gallons/Month	(130)	$2,279.04	-$17	-0.7%	$36	1.6%	$61	2.7%	-$33	-1.4%	$557	24.5%
	15,000 Gallons/Month	(60)	$2,906.16	-$16	-0.6%	$75	2.6%	$108	3.7%	-$13	-0.4%	$951	32.7%
	20,000 Gallons/Month	(20)	$4,093.56	$22	0.5%	$229	5.6%	$237	5.8%	$83	2.0%	$2,172	53.1%
SERVICE AFFORDABILITY RATIO (Based on Individually-Metered Residential Customer Billed for Average of 4,500 Gallons/Month)			1.75%	1.73%		1.70%		1.69%		1.66%		1.47%	

Note 1 Several of the master-metered residential customers sub-meter water use and re-bill their tenants. It is likely they would pass through any projected increases directly to their tenants.