ORANGE WATER AND SEWER AUTHORITY

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

AGENDA
WORK SESSION OF THE OWASA BOARD OF DIRECTORS
THURSDAY, OCTOBER 8, 2015, 6:00 P.M.
OWASA COMMUNITY ROOM

The Board of Directors appreciates and invites the public to attend and observe its meetings. For the Board's Work Session, public comments are invited on only items appearing on this agenda. Speakers are invited to submit more detailed comments via written materials, ideally submitted at least three days in advance of the meeting to the Clerk to the Board via email or US Postal Service (aorbich@owasa.org/400 Jones Ferry Road, Carrboro, NC 27510).

Public speakers are encouraged to organize their remarks for delivery within a four minute time frame allowed each speaker. Additional time may be allowed at the discretion of the Board of Directors.

The Board may take action on any item on the agenda.

Announcements

a. Announcements by the Chair
   - Any Board Member who knows of a conflict of interest or potential conflict of interest with respect to any item on the agenda tonight is asked to disclose the same at this time.
   - Welcome to new OWASA Board Member, Barbara M. Foushee, Orange County Appointee
   - Update on the Design of Sewers for the Historic Rogers Road Area at the October 20, 2015, Carrboro Board of Aldermen meeting

b. Announcements by Board Members
   - Update on the September 30, 2015 Meeting of the Energy Management Collaboration Working Group (Terri Buckner)
   - Community Engagement Committee to meet on Tuesday, October 13, 2015, at 6 PM in the OWASA Board Room (Ruchir Vora)

c. Announcements by Staff

Discussion

1. Draft Biosolids Management Plan - Part 2 (Todd Taylor/John Kiviniemi)
2. Discussion of Work Plan for Considering Water and Sewer Rate Structure Modifications (Stephen Winters)
3. Restrictions Applicable to Charitable Activities by OWASA (Robert Epting)
4. Review Board Work Schedule (John Young/Ed Kerwin)
   a. Request(s) by Board Committees, Board Members and Staff
   b. 12 Month Board Meeting Schedule
   c. October 22, 2015 Board Meeting
   d. November 12, 2015 Work Session

Summary of Work Session Items

5. Executive Director will summarize the key staff action items from the Work Session

Agenda Item 1

Draft Biosolids Management Plan – Part 2

Purpose

1. Present findings of the biosolids management alternatives analysis summarized in the draft *Biosolids Management Report - Part 2*.

2. Receive the Board of Directors' questions, comments, and guidance regarding the analysis and staff's recommended next steps. No formal Board action is requested.

Background

- At its Work Sessions on January 8, 2015 and April 9, 2015 the Board of Directors discussed the draft *Biosolids Management Report (Part 1)* and provided guidance to the staff regarding the evaluation of options for recycling dewatered biosolids.

- Staff has evaluated several options for improving and optimizing our biosolids recycling program, and the results are presented in the draft *Biosolids Management Report - Part 2*.

- Staff has distributed the draft Part 2 report to farmers participating in our program and other interested stakeholders. We have also invited them to attend the Board's October 8, 2015 Work Session at which the draft Part 2 report will be discussed. We have posted the draft report on our website.

Action Requested

- No formal action is needed at this time.

- We seek the Board's understanding, comments, and guidance regarding the draft Part 2 report.

- Does the Board have suggestions or alternative guidance regarding staff's recommended next steps?

Information

Draft *Biosolids Management Report - Part 2*

DRAFT BIOSOLIDS MANAGEMENT REPORT – PART 2

October 2, 2015

Orange Water and Sewer Authority

Carrboro – Chapel Hill, North Carolina

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

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EXECUTIVE SUMMARY

OWASA has evaluated several options to improve and optimize recycling the biosolids produced during the treatment of wastewater at the Mason Farm Wastewater Treatment Plant (WWTP). This draft *Biosolids Management Report – Part 2* presents the results of that evaluation, and focuses primarily on options that use existing biosolids treatment processes at the WWTP. As agreed to by the Board of Directors, this evaluation does not include options that would require design and construction of new, major biosolids treatment systems either independently or in cooperation with other parties.

Options have been evaluated against social, environmental, and financial objectives which have been previously agreed to by the Board of Directors, but for which no relative ranking or weighting has been assigned. An additional objective – consideration of impacts on OWASA employees – is included for consideration.

Key findings from the evaluation are:

1. There is no single alternative that outperforms all other options across all objectives; therefore, the final decision as to the preferred option will depend on how the Board of Directors weighs the different objectives.

2. Based on the assumptions used for this analysis, the annual operating and maintenance costs of all of the options evaluated are within about 17% (about $150,000 difference between the highest and lowest cost options) of one another. Capital equipment and capital improvements costs associated with the different options have a much greater range of variation, with the lowest option costing $380,000 and the highest costing about $1.8 million over the 20-year planning period. (This is about 1% or less of the projected total Capital Improvements Program costs for the next twenty years.)

3. Options involving the land application of liquid biosolids are more transport-intensive, and involve more risk of vehicle accidents, spills, and improper application of biosolids. They also have greater uncertainty regarding their long-term viability. Options involving land application by OWASA are more labor intensive.

4. Options involving greater dewatering will pose greater challenges for the treatment of wastewater, especially as plant flows approach the design capacity of the WWTP.

5. Land application of liquid biosolids maximizes the value to farmers, while application of dewatered biosolids has considerably lower value to farmers due to reduced nutrient and moisture content.

6. Estimated 20-year capital equipment and capital improvements costs are considerably higher for options involving dewatering 50% or more of our biosolids, as conveyance and loading improvements will be needed at our existing dewatering building. Options involving land application of dewatered biosolids have even higher capital costs because a new off-site dewatered biosolids storage facility will be needed.

Recommended Next Steps

There are near-term opportunities to improve our biosolids recycling program, but we can maintain our existing program approach if the Board of Directors would like to take additional time to determine the best course of action for long-term management of our biosolids considering our biosolids management objectives. In addition, if the Board determines that it has adequate information to modify the existing program, it would take time to design, permit, and construct any capital facilities as well as provide adequate notice to the farmers currently in our biosolids program. Therefore, the following next steps are recommended:

1. Staff provide any additional information needed by Board to determine the preferred path forward for biosolids management.

2. Inform farmers participating in our program and other stakeholders that we will continue our current biosolids management program approach for at least the next two fiscal years. This will provide additional time for evaluation of our options, selection of the preferred option, and, if applicable, hire additional staff and/or design and implement any improvements required to implement the selected option. If the Board of Directors agrees, this will be reflected in the preparation of the annual budgets for Fiscal Years 2017 and 2018.

3. Prepare and issue a Request for Proposals for liquid biosolids management contract services needed to supplement OWASA management of liquid biosolids for the next two years.

4. Remove the *Biosolids Management Report – Part 2* approval from the Board of Directors' 12-month schedule and obtain the Board's guidance regarding scheduling of future evaluation of alternatives and possible community engagement activities, if desired.

DRAFT BIOSOLIDS MANAGEMENT REPORT – PART 2
October 2, 2015

Purpose

The purpose of the draft *Biosolids Management Report – Part 2* is to present options for the recycling of dewatered biosolids and provide information to support OWASA's discussions and decisions about the preferred path forward for near-term management of and investments in its biosolids recycling program.

Background

This draft report builds on the information and analysis in the December 18, 2014 *Draft Biosolids Management Report – Part 1*, which was reviewed and discussed by the OWASA Board of Directors at its January 8, 2015 Work Session. It also incorporates the Board's April 9, 2015 guidance regarding the evaluation of options for recycling dewatered biosolids. (Dewatered biosolids are also commonly referred to as "cake" and that term is occasionally used in this report.)

In consideration of issues raised about the impact of our decisions on farmers participating in our land application program, we have expanded the options evaluated to include two alternatives that would involve increased recycling of liquid biosolids to farmland.

The alternatives discussed in this report are generally evaluated against the social, environmental, and financial performance objectives that have been established for our biosolids management program, which are listed in Appendix A. In accordance with the Board of Directors guidance received at the April 9th Work Session, the following additional objectives have been established for this evaluation:

> *Consider the benefits our biosolids land application program has on local farmers participating in the program, and the value of our partnership with those farmers.*
>
> *Strategies should be flexible and adaptable to changing conditions.*

Decisions regarding the future of our biosolids management program will directly affect our existing biosolids program staff and our wastewater treatment management team. Therefore, we have incorporated the following proposed additional social performance objective into this evaluation:

> *Consider the impacts of our decisions on our existing biosolids program staff and wastewater treatment management team.*

Background technical and financial information about our wastewater and biosolids treatment processes and our existing biosolids management program was included in the draft Part 1 report and is incorporated by reference, but not repeated in this report. Summary cost information from the draft Part 1 report is included in Table 1, which compares operations and maintenance (O&M) costs and capital expenditures associated with the various alternatives. As discussed later in this report, some modifications have been made to the cost estimates included in the draft Part 1 report.

Approach for Determining Desired Biosolids Management Program

At its November 13, 2014 work session, the OWASA Board of Directors agreed with staff's recommendation that three basic questions be answered in sequence to determine the desired biosolids management program, now and into the future:

First, should we discontinue our liquid biosolids land application program in favor of dewatering 100% of our biosolids for transport to a private company for composting?

The draft Part 1 Report addressed this question. The financial evaluation (which was informed by a study by Brown and Caldwell, our project consultant) indicated that OWASA could potentially save about $113,000 a year in Operations and Maintenance (O&M) costs if 100% of our biosolids were dewatered and transported for composting at McGill Environmental Systems' facility in Chatham County. The evaluation also indicated that such a strategy would provide several important non-economic benefits for OWASA.

(Note: Some cost information has been updated since the draft Part 1 report was completed. When program management costs are also considered, the estimated annual savings in O&M costs associated with moving to a 100% dewatering program with end management by McGill is about $150,000 which is more than reported in the draft Part 1 report.)

Second, what near-term action(s) should be considered to further optimize biosolids management?

This question is addressed in this draft Part 2 report, which includes an analysis of several alternatives for recycling biosolids the Board approved for evaluation on April 9, 2015, plus two alternatives that would involve increased recycling of liquid biosolids to farmland.

Third, what longer-term action(s) should be considered to further optimize biosolids management?

The schedule and approach for answering this question will be developed after the OWASA Board of Directors has considered the information and recommendations in this draft Part 2 report.

Our Community Engagement Efforts

Our biosolids management program is of interest to customers, farmers participating in our land application program, local officials, and other stakeholders; therefore, it is important that we keep interested and affected parties informed of our work, and provide timely and meaningful opportunities for them to receive information and comment on our plans and proposals before we make any final decisions. Following is a summary of our engagement efforts relating to the draft Part 2 report.

Outreach to Farmers Participating in Our Land Application Program: Over the past several months, we have taken several steps to inform farmers about our ongoing evaluation of options for biosolids management, share with them the draft Part 1 report, and receive their feedback. Staff has met in person with or talked by phone to all the farmers participating in our program. We have talked to them about their individual needs, equipment, etc.; the expected nutrient and moisture content of dewatered biosolids compared to liquid biosolids; logistical considerations regarding transport, loading, and land application of cake biosolids; likely State requirements applicable to the storage and use of dewatered biosolids on farmland; and potential for farmers to assume responsibility for land application of biosolids.

We hosted a meeting with several farmers on March 17, 2015 at our WWTP, and on September 23, 2015 we conducted a field demonstration of dewatered biosolids (cake) land application at our Headwaters land application property. Cake spreading was done using a manure-style spreader owned by one of the local farmers participating in our land application program. Farmers participating in our land application program were invited to observe the cake spreading demonstration first-hand, and to ask questions and offer feedback to OWASA staff. Six of our partner farmers attended the cake application demonstration, which highlighted some of the challenges of ensuring consistent application of dewatered biosolids.

Key comments we have received from farmers are: (a) they strongly prefer to receive liquid biosolids than cake; (b) they prefer to receive cake biosolids rather than no biosolids; (c) if OWASA no longer provides biosolids they will seek no-cost or very low-cost sources of fertilizer, or go without supplemental fertilizer for their pasture/hay land; (d) there are concerns about the potential for clumping and uneven distribution of cake; and (e) several do not have the equipment to spread dewatered biosolids, and/or cannot afford to purchase such equipment.

We will share this draft Part 2 report (and any subsequent reports) with our partner farmers in advance of Board meetings (and Board committee meetings, if applicable) at which this report will be discussed, and we will invite them to attend and provide feedback at those meetings.

Outreach to Regulatory Community: Staff has met with officials from the North Carolina Department of Environmental Quality (NCDEQ) who are responsible for regulating biosolids management programs, including land application. The guidance we have received has been incorporated into our analysis, and especially affects cost and logistical considerations regarding the temporary storage of dewatered biosolids on land application sites prior to actual spreading.

Distribution of and Feedback on the Draft Part 2 Report: We will provide an electronic copy of this draft report to stakeholders on our biosolids management e-mail distribution list. We will inform stakeholders that this draft report is available for viewing on our website at http://www.owasa.org/biosolids-recycling-program, and that the OWASA Board of Directors invites public comment on or before its October 8, 2015 Work Session, at which time the draft report will be discussed.

We will also inform the public that the Board will invite and consider public comments up until the date when the Board takes action that would involve major changes to the scope and approach of our existing biosolids management program.

Overview of Evaluation of Biosolids Recycling Alternatives

With technical support from Brown and Caldwell, our engineering consultant assisting with this study, staff has completed an analysis of our existing biosolids program and several potential alternatives that would be compatible with our existing biosolids treatment system and technology. This evaluation included options previously agreed to by the Board of Directors, as well as two additional options which would involve expanded land application of liquid biosolids.

The options evaluated are:

A. Recycle 50% in liquid form to farms and 50% in dewatered form for composting by McGill (the existing "Baseline" program);

B. Recycle 75% in liquid form to farms using contractor services and 25% in dewatered form for composting by McGill (75% Liquid to Farm by Contractor; 25% Cake to McGill by OWASA). This is an additional option to those discussed with the Board on April 9, 2015 (please see below for the rationale for this option);

C. Recycle 75% in liquid form to farms using OWASA resources and seasonal contract services and recycle 25% for composting by McGill (75% Liquid to Farms by OWASA with Seasonal Contractor; 25% Cake to McGill by OWASA). This is an additional option to those discussed with the Board on April 9, 2015 (please see below for the rationale for this option);

D. Dewater 100% and recycle at McGill's Composting Facility (100% Cake to McGill by OWASA);

E. Dewater 100% and recycle by applying to farms using OWASA resources (100% Cake to Farms by OWASA);

F. Dewater 100% and recycle by applying to farms using contractor services (100% Cake to Farms by Contractor); and

G. Dewater 100% and recycle via thermal drying at the Western Wake Regional Water Reclamation Facility (WWWRF) with transport by OWASA (100% Cake to Thermal Drying by WWWRF; Transport by OWASA).

For Options B and C above, we based the 75% liquid – 25% cake split on the following factors: (a) a 75% liquid approach enables us to maximize the benefits to farmers participating in our program, while avoiding capital expenditures associated with conveyance and loading improvements; (b) historically, we have been able to land apply about 150 calendar days per year, but we have extended periods when we are unable to land apply biosolids due to inclement weather and other factors. We must rely on dewatering during those periods, which can be three or more consecutive months; and (c) we have the equipment needed to support this level of liquid land application (although some of that equipment would need to be replaced within the near future).

Tables 1 and 2 summarize the results of our evaluation.

Table 1 summarizes technical information regarding a number of factors relating to each option, such as: number of loads of liquid and/or dewatered biosolids transported and associated total transport miles and fuel use by OWASA; estimated O&M costs; and costs for any required capital equipment and capital improvements.

The analysis reflects O&M costs assuming current biosolids production levels and that our existing treatment processes can handle any additional nutrient loading. For this draft Part 2 report, the O&M and capital costs shown in Table 1 have not been escalated for inflation, nor have they been discounted to net present value. Also, for the purpose of this analysis, we have made no assumptions regarding the potential disposition of some of OWASA's Headwaters property that could be considered if OWASA discontinues the land application of biosolids.

Table 2 provides summary information about each option's relative performance against our biosolids management objectives.

Following is an overview of some key technical factors affecting the evaluation and that are reflected in Table 1 and Table 2:

1. **O&M Costs of Baseline Option:** The details and assumptions of the Baseline program cost analysis are provided in Appendix 3 of the draft Part 1 report. Since that analysis was completed, the following refinements have been made to certain cost factors in the analysis: (a) the contract service cost we pay for each load of dewatered biosolids transported to McGill services is higher than shown in the draft Part 1 report; (b) the estimated number of loads of dewatered biosolids we must haul have been revised; and (c) we have included costs associated with the expected level of management oversight required.

2. **Dewatering Increases WWTP O&M Costs:** When we dewater biosolids, our WWTP O&M costs for chemicals and power increase because of the need to treat the much higher nutrient load in the filtrate from the biosolids dewatering process.

   (Our *Capital Improvements Budget for Fiscal Years 2016 – 2020* includes funding for design and construction of sidestream treatment facilities for treating the nutrient-rich filtrate. The need for and timing of this project will depend on wastewater treatment flows and loadings at the WWTP and NCDEQ's timetable for implementation of more stringent nutrient limits for our WWTP. As plant flows and loadings increase and we approach our

permitted capacity, sidestream treatment can have a positive payback while increasing operational reliability and perhaps even treatment capacity at the plant. Design and construction of sidestream treatment facilities will be subject to authorization by the Board of Directors.)

3. **Capital Equipment Costs for Liquid Land Application Program:** If we continue our liquid land application program, we will need to replace the tractor-trailers we use to haul liquid biosolids, and the liquid spreader. The direct replacement cost of this existing equipment would be as much as $650,000 over a 20-year planning horizon. (New liquid spreading equipment may be needed within the next five years; some tractor-trailers units may need to be replaced in the 10 to 15 year period.)

4. **Capital Equipment Costs for Transport of Dewatered Biosolids:** For dewatering options, we will need to acquire new cake transport equipment. If our staff land applies dewatered biosolids, we will also need to buy new equipment for cake loading and spreading. (This equipment would need to be acquired in the near-term.)

5. **Replacement of Rotary Press for Certain Dewatering Options:** Our rotary press is about seven years old, and would likely need replaced within the next twenty years assuming our dewatering program continues at 50% or is expanded above that level. The estimated cost of a new press is $320,000. For options involving dewatering of less than 50% of our biosolids, we have factored in an $80,000 cost for reduction in remaining useful life of the press over the next twenty years.

6. **Effect of Transport Distance:** Cake transport to farms, and related fuel use and costs would be less than transport to McGill or to the WWWRF thermal dryer because the average roundtrip distance to farms in our program is 20% less than the roundtrip distance to the McGill and WWWRF facilities (40 miles to farms vs. 50 miles to McGill or WWWRF).

7. **Management Oversight Required Varies with Complexity of Options:** All land application options (liquid or cake) considered would involve greater levels of management oversight for regulatory compliance, communications with farmers, pursuit of additional farmland for program, etc.

8. **Tip Fees for Composting and Thermal Drying Options:** End management by McGill or via thermal drying at the WWWRF will require the payment of tipping fees applicable to the wet tons of dewatered biosolids we send to those facilities. We currently pay McGill a tipping fee of $26 per wet ton of dewatered biosolids delivered, and our financial analysis assumes that fee remains in place. Based on preliminary cost information provided by Cary staff, we have assumed a $46 per wet ton tip fee for thermal drying at the WWWRF.

   Those cost assumptions are very preliminary. McGill's tipping fees may be lower if we negotiated a long-term contract for composting all of our dewatered biosolids. The assumed tip fee for thermal drying at the WWWRF is based on Cary staff's analysis of current costs for the WWWRF, and is subject to change. It is also based on the assumption

that we would deliver 1,185 dry tons of biosolids to the WWWRF each year. The fee may be different if OWASA needs this as a planned or unplanned short-term option. Fees for thermal drying will be subject to review and approval by the joint municipal owners of the WWWRF, and the terms and conditions of an interlocal agreement for those services.

9. **Contract Service Costs for Land Application of Biosolids:** For options involving land application of biosolids by contractors, we have relied on our current experience as well as preliminary cost information from a contractor that provides land application services for both liquid and dewatered biosolids. Land application costs by a contractor will depend on the terms and conditions of the contract, the volume to be applied, and other factors. For contract land application options, we think it is important to have a staff person to work directly with our partner farmers, assist with community engagement, and oversee the contractor to ensure compliance with the contract terms and conditions, and we have factored this into the analysis.

10. **Conveyance and Loading Improvements Needed for Dewatered Biosolids Options:** For options involving dewatering of 50% or more of our biosolids, we have assumed that we will make conveyance and loading improvements to our existing dewatering building. Based on a concept level design by Brown and Caldwell, those improvements are assumed to cost $640,000. Those improvements would enable us to use much larger cake transport trailers, which would reduce transport loads, miles driven, fuel use, and related costs by about 60% compared to our existing small roll-off containers.

    We estimate that for options involving the transport of 100% of our dewatered biosolids, the conveyance and loading improvements will have a payback of about 13 to 15 years assuming current biosolids production levels.

    The above cost estimates assume that no new odor control equipment will be required for the new conveyance and loading system, as we do not expect any objectionable off-site odors from such a facility.

11. **Storage Facility Needed for Dewatered Biosolids Land Application Options:** For options that involve application of dewatered biosolids to farmland, NCDEQ and best management practices would require that we construct a covered dewatered biosolids storage facility to provide for cake storage during extended periods of inclement weather when land application is not possible. Such a facility would also be needed because we do not produce enough biosolids to justify daily transport of dewatered biosolids directly to the farms for spreading. (NCDEQ staff guidance indicates that there will likely be a 30 to 60 day limitation on the storage of dewatered biosolids at the land application sites.)

    Due to space limitations at the WWTP, we have assumed that the storage facility would be located at our Headwaters biosolids management site in Bingham Township. Our assumption is that we would construct a fabric-covered structure on a concrete pad, and that the design and construction cost will be $400,000. We do not anticipate any odor issues with such a facility; therefore, we have assumed that odor control facilities would not be required.

12. **Safety Risks of All Options are Relatively Small:** There is minimal difference in safety-related risks for employees and the public between land application of liquid or dewatered biosolids, composting of dewatered biosolids, or thermal drying of dewatered biosolids. The primary factors in assessing safety risk are the number of loads transported and the total miles driven to transport the biosolids. Since our liquid land application program began in the late-1970s, we have had very few accidents and spills.

13. **Compliance Risks of All Options are Relatively Small:** The options involve minimal differences with respect to compliance with public health standards. However, a spill of dewatered biosolids can be contained and responded to much easier than a spill of liquid biosolids. There is also a higher risk of error in land application of liquid or dewatered biosolids; but improper application of liquid biosolids has the highest relative risk.

14. **Nuisance Odor, Dust, and Noise Risks of All Options are Relatively Small:** The potential for odor complaints for the land application of liquid or dewatered biosolids is similar. Odor events could increase where dewatered biosolids are stored prior to land application. McGill's composting facility and the WWWRF both have odor control measures in place. Fewer transport trips mean there will be lower risk of noise and dust.

15. **Environmental Compliance Risk Differences are Relatively Small:** The potential for improper application or a spill of liquid or dewatered biosolids pose greater environmental risks than sending dewatered biosolids for composting by McGill or thermal drying at the WWWRF. It is easier to clean up and manage a spill of dewatered biosolids than liquid biosolids. Options involving greater levels of dewatering and higher volumes of nutrient-rich filtrate will present greater challenges in operating the wastewater treatment plant, especially as wastewater flows approach the WWTP's permitted capacity.

16. **Most Options Provide Similar Levels of Flexibility and Reliability:** There is greater uncertainty regarding the continued availability of land for biosolids recycling, and the effect that regulatory changes could have on land application. Dewatering of biosolids will likely be required for any future regional biosolids management strategies; therefore, investments in dewatered biosolids conveyance and loading improvements will support end management options beyond those currently available.

Consideration of Impacts to the Local Agricultural Community

Our biosolids are not considered high-grade fertilizer because they have low nutrient value compared to commercial fertilizer. However, they have value to farmers participating in our land application program. Land application of liquid biosolids provides the greatest fertilizer and soil conditioning value to farmers. Dewatered biosolids have lower value, as they have about 40% less plant available nitrogen (PAN) levels compared to liquid biosolids. This is because much of the nutrient content is removed (and ends up in the filtrate) when the biosolids are dewatered.

This means that more dewatered biosolids are needed to meet the cover crop PAN requirements as compared to land application of liquid biosolids. While the reduced volume of the dewatered biosolids reduces the amount of land required for land application, the farms that do receive dewatered biosolids receive less nitrogen annually from the applied biosolids. Some farmers may find that acceptable; however, others may decide to pursue supplemental nutrient applications from other sources. Each farmer will likely have a different breakpoint based on their respective crops and costs associated with meeting their supplemental nutrient requirements.

Another operational consideration of importance to farmers is that if land application of cake biosolids to grass (hay and/or pasture) is too thick, it can smother the grass crop. If we decide to implement a cake land application program, we will need to determine the maximum wet tons per acre that can be applied to maximize the PAN/acre of the reduced nutrient content biosolids while minimizing the potential to smother the cover crop. This is important because the majority of the farmland in our program is in hay/pasture grass.

Selection of our biosolids recycling strategy will have a direct and important impact on the farmers participating in our program; however, in the overall context of our local agricultural economy, the impact will be relatively limited. We base that conclusion on the fact that the 1,087 acres of land enrolled in our program is about 0.6% of the 168,444 acres of cropland in Orange and Chatham counties. (2012; US Department of Agriculture Census of Agriculture). While not all of our enrolled lands are in hayland, 1,087 acres of hayland would represent only about 4.3% of the combined total 25,335 acres of hayland in the two counties.

Summary of Performance of Alternatives Compared to Our Objectives

Staff has compared the relative performance of the various biosolids management alternatives to OWASA's biosolids management objectives. Table 2 summarizes the results of that evaluation. Key highlights are:

1. There is no single alternative that outperforms all other options across all objectives; therefore, the final decision as to the preferred option will depend on how the Board of Directors weighs the different objectives.

2. Based on the assumptions used for this analysis, the annual operating and maintenance costs of all of the options evaluated are within about 17% (about $150,000 difference between the highest and lowest cost options) of one another. Capital equipment and capital improvements costs associated with the different options have a much greater range of variation, with the lowest option costing $380,000 and the highest costing about $1.8 million over the 20-year planning period. (This is about 1% or less of the projected total Capital Improvements Program costs for the next twenty years.)

3. Options involving land application of liquid biosolids are the most transport-intensive and, therefore, involve the greatest risks for spills and accidents, require the greatest degree of oversight and management, and accompanying risks for non-compliance with public health and environmental standards. Based on our past experience, land application of liquid

biosolids can be unavailable for extended periods, and thereby pose an increased risk to reliable and cost-effective removal of solids from the treatment process. They also have greater uncertainty regarding land-ownership and future regulation of land application of biosolids. However, liquid land application: (a) provides the greatest nutrient and soil conditioning benefits to farmers; (b) avoids increased O&M costs for the treatment of filtrate from the dewatering process; (c) avoids the need for major capital expenditures for dewatered biosolids conveyance and loading improvements, a new cake storage facility, and equipment for hauling, loading, and spreading cake on the land; and (d) has no adverse impact on our existing biosolids program staff.

4. Conversely, options involving dewatering of biosolids reduce transport and loading requirements, thereby reducing the accompanying safety, public health, and environmental compliance risks which also reduces the degree of program oversight and management. However, the biosolids dewatering options: (a) result in higher O&M costs for wastewater treatment and greater treatment challenges as plant flows and loadings increase and as nutrient limits become more stringent; (b) may involve construction of dewatered biosolids conveyance and loading improvements and an off-site cake storage facility, and acquisition of new equipment for cake transport, loading, and spreading; (c) reduce or eliminate the nutrient and soil conditioning benefits to farmers; and (d) may adversely impact our existing biosolids program staff.

5. Options involving contract services for management of our biosolids may be cost-effective, but present accountability and control issues. We may have little control over some matters, beyond terminating the service contract for cause. If we decide to outsource biosolids recycling, we will still need to provide the OWASA staff resources required for critical program oversight, and to maintain an effective biosolids management community engagement program that is responsive to farmers, customers, and stakeholders.

6. The options presented are all proven and reliable, and most are flexible and adaptable to changing conditions. Land application options involve more uncertainty about continued availability of farmland for our program, and future regulatory requirements that may limit land application of biosolids.

Staff Recommendations and Proposed Next Steps

There are near-term opportunities to improve our biosolids recycling program, but we can maintain our existing program approach if the Board of Directors would like to take additional time to determine the best course of action for long-term management of our biosolids considering our biosolids management objectives. In addition, if the Board determines that it has adequate information to modify the existing program, it would take time to design, permit, and construct any capital facilities as well as provide adequate notice to the farmers currently in our biosolids program. Therefore, the following next steps are recommended:

1. Staff provide any additional information needed by Board to determine the preferred path forward for biosolids management.

2. Inform farmers participating in our program and other stakeholders that we will continue our current biosolids management program approach for at least the next two fiscal years. This will provide additional time for evaluation of our options, selection of the preferred option, and, if applicable, hire additional staff and/or design and implement any improvements required to implement the selected option. If the Board of Directors agrees, this will be reflected in the preparation of the annual budgets for Fiscal Years 2017 and 2018.

3. Prepare and issue a Request for Proposals for liquid biosolids management contract services needed to supplement OWASA management of liquid biosolids for the next two years.

4. Remove the *Biosolids Management Report – Part 2* approval from the Board of Directors' 12-month schedule and obtain the Board's guidance regarding scheduling of future evaluation of alternatives and possible community engagement activities, if desired.

TABLE 1. COMPARISON OF BIOSOLIDS MANAGEMENT OPTIONS (ASSUMES CONVEYANCE AND LOADING IMPROVEMENTS ARE COMPLETED FOR 50%+ CAKE OPTIONS)

		MANAGEMENT OPTIONS INVOLVING LIQUID BIOSOLIDS			MANAGEMENT OPTIONS NOT INVOLVING LAND APPLICATION OF LIQUID BIOSOLIDS			
	FARMLAND AND TRANSPORT METRICS, AND OPERATIONS, MAINTENANCE AND CAPITAL COST FACTORS	**BASELINE Existing Program 50% Cake to McGill; 50% Liquid to Farmland**	**75% Liquid to Farms by Contractor; 25% Cake to McGill by OWASA**	**75% Liquid to Farms by OWASA with Seasonal Contractor; 25% Cake to McGill by OWASA**	**100% Cake to McGill by OWASA**	**100% Cake to Farms by OWASA**	**100% Cake to Farms by Contractor**	**100% Cake to Thermal Drying by Cary; Transport by OWASA**
Farm	Estimated Total Pounds of N Applied to Farmland	67,800	101,700	101,700		26,400	26,400	
	Estimated Value of N Applied (@ $400/Ton @32% N)	$42,000	$64,000	$64,000		$17,000	$17,000	
Transport & Staffing	Gallons of Liquid Biosolids to be Applied	6,866,000	10,298,000	10,298,000				
	Tanker Loads of Liquid Biosolids (6,175 Gallons/Load)	834	1,668	1,668				
	Wet Tons of Cake Produced	3,052	1,526	1,526	6,094	6,094	6,094	6,094
	Loads of Cake Biosolids (23 Wet Tons/Load for most options)	133	162	162	265	265	265	265
	TOTAL TRANSPORT MILES:	**40,000**	**74,800**	**74,826**	**13,200**	**10,600**	**10,600**	**13,200**
	Diesel Gallons Used for Transport at 4.5 MPG	8,889	16,622	16,628	2,933	2,356	2,356	2,933
	Program Management Staff	0.5	0.5	0.5		0.5	0.5	
	Biosolids Crew Leader and Handlers	3 (plus OT)	1	4 (plus OT)	1	3	0.5	1
Operating & Maintenance Costs	In-House Labor	$325,000	$160,000	$396,000	$87,000	$279,000	$115,000	$87,000
	Maintenance	$74,000	$6,000	$50,000	$24,000	$41,000	$12,000	$24,000
	Power	$138,000	$83,000	$83,000	$130,000	$130,000	$130,000	$130,000
	Chemicals	$267,000	$112,000	$112,000	$448,000	$448,000	$448,000	$448,000
	OWASA Fuel Costs for Transport	$33,000	$7,000	$67,000	$11,000	$9,000		$12,000
	Land Application Site Expenses	$17,000	$30,000	$30,000		$30,000	$30,000	
	Cake Transport Contract Service Fee ($309/Load)	$17,000			$10,000			
	Liquid Program Contract Service Costs ($0.05/gallon)	$69,000	$463,000	$116,000				
	Cake Program Contract Service Costs ($34.00/WT)						$228,000	
	Tipping Fees ($26/Load McGill; $46/WT for Dryer)	$79,000	$40,000	$40,000	$158,000			$280,000
	TOTAL ESTIMATED ANNUAL O&M COSTS:	**$1,019,000**	**$901,000**	**$894,000**	**$868,000**	**$937,000**	**$963,000**	**$981,000**
	20-YEAR TOTAL OF O&M COSTS:	**$20,380,000**	**$18,020,000**	**$17,880,000**	**$17,360,000**	**$18,740,000**	**$19,260,000**	**$19,620,000**
Required Capital Costs	Capital Equipment - Liquid Program	$650,000	$100,000	$650,000				
	Capital Equipment - Cake Program							
	Rotary Press	$320,000	$80,000	$80,000	$320,000	$320,000	$320,000	$320,000
	New Roll-Off Container Truck and Boxes	$200,000	$200,000	$200,000				
	New Spreaders/Tractors/Loaders					$160,000		
	New Transport Trailer (39 cubic yard capacity)				$60,000	$120,000	$60,000	$60,000
	Conveyance Improvements to Existing Building	$640,000			$640,000	$640,000	$640,000	$640,000
	Capital Facilities - Cake Storage Facility					$400,000	$400,000	
	TOTAL REQUIRED CAPITAL COSTS:	**$1,810,000**	**$380,000**	**$930,000**	**$1,020,000**	**$1,640,000**	**$1,420,000**	**$1,020,000**
	TOTAL 20-YEAR O&M AND CAPITAL COSTS (Not Discounted):	**$22,190,000**	**$18,400,000**	**$18,810,000**	**$18,380,000**	**$20,380,000**	**$20,680,000**	**$20,640,000**

TABLE 2. RELATIVE COMPARISON OF BIOSOLIDS MANAGEMENT OPTIONS AGAINST EVALUATION CRITERIA

		MANAGEMENT OPTIONS INVOLVING LIQUID BIOSOLIDS			MANAGEMENT OPTIONS NOT INVOLVING LAND APPLICATION OF LIQUID BIOSOLIDS			
	EVALUATION CRITERIA	**BASELINE (Existing Program) 50% Cake to McGill; 50% Liquid to Farmland**	**75% Liquid to Farms by Contractor; 25% Cake to McGill by OWASA**	**75% Liquid to Farms by OWASA with Seasonal Contractor; 25% Cake to McGill by OWASA**	**100% Cake to McGill**	**100% Cake to Farmland by OWASA**	**100% Cake to Farmland by Contractor**	**100% Cake to Thermal Drying at WWWRF; Transport by OWASA**
SOCIAL PERFORMANCE	Safety of employees and public	Moderate total miles for transport	Higher miles for transport	Higher miles for transport	Lower miles for transport	Lower miles for transport	Lower miles for transport	Lower miles for transport
	Compliance with public health standards	Moderate risk of non-compliance; moderate risk of spills and improper application	Higher risk due to potential for spill, improper application, containment challenges, and indirect control	Higher risk due to potential for spill, improper application, and containment challenges	Lower risk of non-compliance; lower spill risk; no risk of improper application	Lower risk of non-compliance due to lower spill risk and cake product; higher risk of improper application	Lower risk of non-compliance due to lower spill risk and cake product; higher risk of improper application; higher risk due to indirect control	Lower risk of non-compliance; lower spill risk; no risk of improper application
	Odor, dust, noise, etc.	Moderate risk for nuisance levels of odor, dust, noise, etc.	Moderate risk of odor; higher risk of dust and noise due to more transport loads	Moderate risk of odor; higher risk of dust and noise due to more transport loads	Lower risk of odor, noise, and dust - McGill is in industrial area; cake loading not expected to be major odor source; fewer transport loads	Moderate risk of odor, noise and dust; cake storage may result in some odor; more transport loads may result in more noise and dust	Moderate risk of odor, noise and dust; cake storage may result in some odor; more transport loads may result in more noise and dust	Lower risk of odor, noise, and dust - cake loading not expected to be major odor source; fewer transport loads
	Effect on farmers	Moderate fertilizer and soil conditioning benefits to farmers	Higher fertilizer and soil conditioning benefits to farmers	Higher fertilizer and soil conditioning benefits to farmers	No benefit to local farmers (they lose all supplemental fertilizer and soil conditioning benefits)	Lower benefits to farmers; reduces nutrient value by 50% compared to Baseline	Lower benefits to farmers; reduces nutrient value by 50% compared to Baseline	No benefit to local farmers (they lose all supplemental fertilizer and soil conditioning benefits)
	Effect on employees (program staff and managers)	Existing program staff maintained; program management somewhat complicated due to coordination of land application program	One staff position eliminated; program management slightly less complex as contractor coordinates land application activities	Existing program staff maintained and new staff added; program management more complex for greater land application	One staff position eliminated; program management and regulatory compliance made considerably easier	Exisitng staff retained and new staff added; program management more complex due to new procedures, equipment, etc.	One staff position eliminated; program management requirements similar; contractor coordinates land application activities	One staff position eliminated; program management and regulatory compliance made considerably easier
ENVIRONMENTAL PERFORMANCE	Compliance with environmental standards	Moderate risks of spills and improper application; moderate operation risk with filtrate treatment	Higher risk of spills and improper application; contractor oversight required	Higher risk of spills and improper application	Lower spill risk; higher operational challenge associated with filtrate treatment	Lower spill risk; higher risk of improper application; higher operational challenge associated with filtrate treatment	Lower spill risk; higher risk of improper application; higher operational challenge associated with filtrate treatment	Lower spill risk; higher operational challenge associated with filtrate treatment
	Reliable removal of biosolids from WWTP	Moderate reliability; may be extended periods in which liquid biosolids cannot be land applied; risk of losing land in program	Lower reliability; higher risk due to extended periods of inclement weather when land application is not possible; higher risk of losing land in program	Lower reliability; higher risk due to extended periods of inclement weather when land application is not possible; higher risk of losing land in program	Higher level of reliability depending on terms and conditions required by other party	Moderate reliability; farmers could drop out of program to seek alternative fertilizer sources; higher risk of losing land in program	Moderate reliability; farmers could decide to drop out of program to seek alternative fertilizer sources; higher risk of losing land in program	Higher level of reliability depending on terms and conditions required by other party
	Energy use and greenhouse gas emissions	Liquid program is fuel & GHG intensive for transport; dewatering is more energy & GHG intensive for WWTP operations	Higher fuel use and GHGs for transport; lower energy use and GHGs for treatment and N fertilzer replacement	Higher fuel use and GHGs for transport; lower energy use and GHGs for treatment and N fertilzer replacement	Lower fuel use and GHGs for transport; higher energy use and GHGs for filtrate treatment at WWTP and N fertilizer for farmers	Lower fuel use and GHGs for transport; higher energy use and GHGs for filtrate treatment at WWTP and N fertilizer for farmers	Lower fuel use and GHGs for transport; higher energy use and GHGs for WWTP and N fertilizer for farmers	Lower fuel use and GHGs for transport; higher energy use and GHGs for filtrate treatment at WWTP and for thermal drying, and for N fertilizer for farmers
	Beneficially recycle 100% of our biosolids	Achieves 100% beneficial use	Achieves 100% beneficial use	Achieves 100% beneficial use	Achieves 100% beneficial use	Achieves 100% beneficial use	Achieves 100% beneficial use	Achieves 100% beneficial use
FINANCIAL PERFORMANCE	Relative life-cycle costs	Higher life-cycle costs; higher O&M costs; higher capital costs	Lower life-cycle costs; moderate O&M costs; lower capital costs	Lower life-cycle costs; lower O&M costs; moderate capital costs	Lower life-cycle costs; lower O&M costs; moderate capital costs	Higher life-cycle costs; moderate O&M costs; higher capital costs	Higher life-cycle costs; higher O&M costs; higher capital costs	Higher life-cycle costs; higher O&M costs; moderate capital costs
	Proven and reliable strategy at our scale	Proven and reliable based on our experience to date	Higher risk of losing land in program; contract land application is common practice	Higher risk of losing land in program; contract land application is common practice	Higher reliability; more contingency options are available for dewatered biosolids than liquid; risk of losing land in program not applicable	Less proven; Inefficient at our scale due to lack of consolidated farmland, need for off-site covered storage; higher risk of losing land in program	Less proven; Inefficient at our scale due to lack of consolidated farmland, need for off-site covered storage; higher risk of losing land in program	Technically more complex; more contingency options are available for dewatered biosolids than liquid; risk of losing land in program not applicable
	Flexible and adaptable to changing conditions	Moderate flexibility since we maintain two end management strategies; land availability and regulatory framework are risks to land application	Lowest capital costs and maintains future options; land availability and regulatory framework are risks to land application	Lowest capital costs and maintains future options; land availability and regulatory framework are risks to land application	Higher flexibility since alternative end management options will be available; no risks associated with land application	Less flexible and adaptable; cake storage facility and spreading equipment required; land availability and regulatory framework are risks to land application	Lower flexibility/adaptability; cake storage facility and spreading equipment required; land availability and regulatory framework are risks to land application	Higher flexibility since alternative end management options will be available; no risks associated with land application
	Cost-effective, balanced program	**TO BE DETERMINED**						

Relative comparison of performance to each other (only applicable to the objective for that row)

Key to Cell Shading:	**UNACCEPTABLE**	**ACCEPTABLE**	**BETTER**	**BEST**

Appendix A

Biosolids Management Objectives

To guide our decisions, we established these objectives for biosolids management, except for Objective (e) which is offered for consideration by the Board of Directors:

***Social Performance**:* Our biosolids operations can impact people and the communities in which we operate. Our objectives are:

a) Safety for OWASA's employees and others.
b) Full compliance with all regulatory standards established to protect public health.
c) No excessive events of odor, dust, noise, or other nuisances.
d) Consider the benefits our biosolids land application has on local farmers participating in our program, and the value of our partnership with those farmers.
e) Consider the impacts of our decisions on our existing biosolids program staff and wastewater treatment management team. (Proposed additional objective)

***Environmental Performance**:* Our biosolids operations can impact natural systems. Our objectives are:

f) Full compliance with all regulatory standards established to protect and preserve the environment.
g) Reliable removal of biosolids from the WWTP to ensure all treated effluent and reclaimed water quality standards are met.
h) Evaluate biosolids management alternatives against their relative projected net energy use and greenhouse gas emissions.
i) Beneficially recycle 100% of the biosolids produced at the WWTP.

***Financial Performance**:* The economic well-being of our customers and our community depends upon our ability to ensure high quality and reliable biosolids management at an acceptable financial cost. Our objectives are:

j) Evaluate biosolids management alternatives against their relative life cycle costs (capital, operating and maintenance costs).
k) Maintain a cost-effective biosolids management program that represents a reasonable balance of financial considerations with our social and environmental performance objectives.
l) Manage our risks by selecting and implementing strategies that are proven and reliable at an appropriate scale, and for which we can establish appropriate contingency plans.
m) Strategies should be flexible and adaptable to changing conditions.

Agenda Item 2

Discussion of Work Plan for Considering Water and Sewer Rate Structure Modifications

Purpose

Provide a work plan for considering water and sewer rate structure modifications and get Board's decision on whether to proceed with a cost allocation study as the next step in considering rate structure modifications.

Overview

As a result of the Board's discussion at its September 10, 2015 meeting, staff prepared a proposed work plan of the process ahead for considering rate structure modifications.

The attached memo also includes information about the customer classes that are tracked in our customer information system.

Action Requested

Authorize staff to proceed with a cost allocation study as the next step in considering rate structure modifications.

Information

Memorandum: Discussion of Work Plan for Considering Water and Sewer Rate Structure Modifications

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: Board of Directors

THROUGH: Ed Kerwin

FROM: Stephen Winters, CPA

DATE: October 2, 2015

SUBJECT: Discussion of Work Plan for Considering Water and Sewer Rate Structure Modifications

Background

At its September 10, 2015 meeting, the Board continued its discussions about potential modifications to OWASA's water and sewer rate structure. Staff recommended conducting a cost of service allocation study as the next step in the process. The Board generally agreed with this approach but requested that staff first provide:

- a work plan that outlines the proposed process ahead: and
- information about the customer classes tracked in our customer information system, including historical trends in water consumption.

Purpose

Provide a proposed work plan for considering water and sewer rate structure modifications and get Board's decision on whether to proceed with a cost allocation study as the next step in considering rate structure modifications.

Process Ahead

As the next step in the process, a cost of service allocation study will provide a basis for rate structure changes we may wish to consider to ensure that our rates fully recover our costs and are equitable for our customers (a general summary of a cost of service allocation study is provided on page 5). Because of their knowledge about OWASA and because we have been pleased with the results of previous rate-making and financial planning services they have performed for us, staff recommends working with Burton & Associates to conduct a cost of service allocation study. The following work plan outline was prepared with assistance from Burton & Associates. The Board may wish to conduct some of the discussions identified below in committee meetings instead of Board meetings or work sessions.

A flowchart depicting the general steps listed below is on page 4.

- Identify the customer classes that can be an analyzed. See Table 1, on page 6, for a list of the customer classes we track in our customer management system and the applicable rate structure. (Our existing customer classification system was established many years ago primarily for demand forecasting and trends analyses.) We will analyze the customer classes' water use patterns and other attributes to

determine which customer classes should be grouped together for purposes of allocating costs and assigning a rate structure.

- **October 8, 2015 Board Work Session –** Discuss customer classes and get Board decision on whether to proceed with a cost allocation study.
- If Board approves, conduct cost allocation study as generally summarized below and depicted in the flowchart on page 5:
    - **Functionalize costs** into components such as water supply, drinking water treatment, wastewater treatment, etc.
    - **Classify costs:** Identify units of service for each cost component and customer class. For example, water supply costs are allocated among customer classes based on average and maximum day demand; drinking water treatment costs are distributed to customer classes based on average day, maximum day, and peak hour demand.
    - **Allocate costs** to each customer class based upon their respective units of service (e.g. water supply cost allocated to a customer class based upon that customer class' average and maximum day demands).
- **Board check-in** (date and format to be determined) – Review results of cost allocations and recommended customer class combinations with the Board. Group customer classes for rate setting purposes and identify the sets for which to evaluate rate structure modifications.
- Analyze rate structure modification alternatives
    - The cost allocations established in previous steps will be used to determine the revenue requirement for each customer class; this will be used in evaluating rate structure modifications.
    - Through a rate design model, rate structure modification scenarios will be analyzed to identify the impact that the modified structures will have on the revenue recovery of the customer class, as well as the impact on a representative set of individual customers within each major class grouping.
- ***January 2016 Board Work Session and/or Board Meeting*** – Review results of the analyses with the Board, and if ready, Board to decide which, if any, rate structure modification scenarios it prefers. Determine scope and timing of community engagement process.
- Revise rate structure modification scenarios based on Board feedback. Launch community engagement process.
- ***February 11, 2016 Board Work Session*** – Board to decide which, if any, rate structure modification scenarios it prefers.
- Analysis will be updated to reflect the revenue requirements needed to support the FY 2017 budget.
- ***April 14, 2016 Board Work Session*** – Board to consider community engagement feedback and make a final decision on rate structure modifications.
- ***May 26, 2016*** – Public hearings on proposed FY 2017 budget and rates.
- ***June 9, 2016*** – Board to approve FY 2017 budget and rates.
- ***October 1, 2016*** – Effective date of new rates.

***** *Dates proposed after January 2016 may change based on scope and timing of community engagement process decided on by the Board.*

Customer Class Information

Information about the customer classes that are tracked in our customer information system is shown in the table and charts on the following pages.

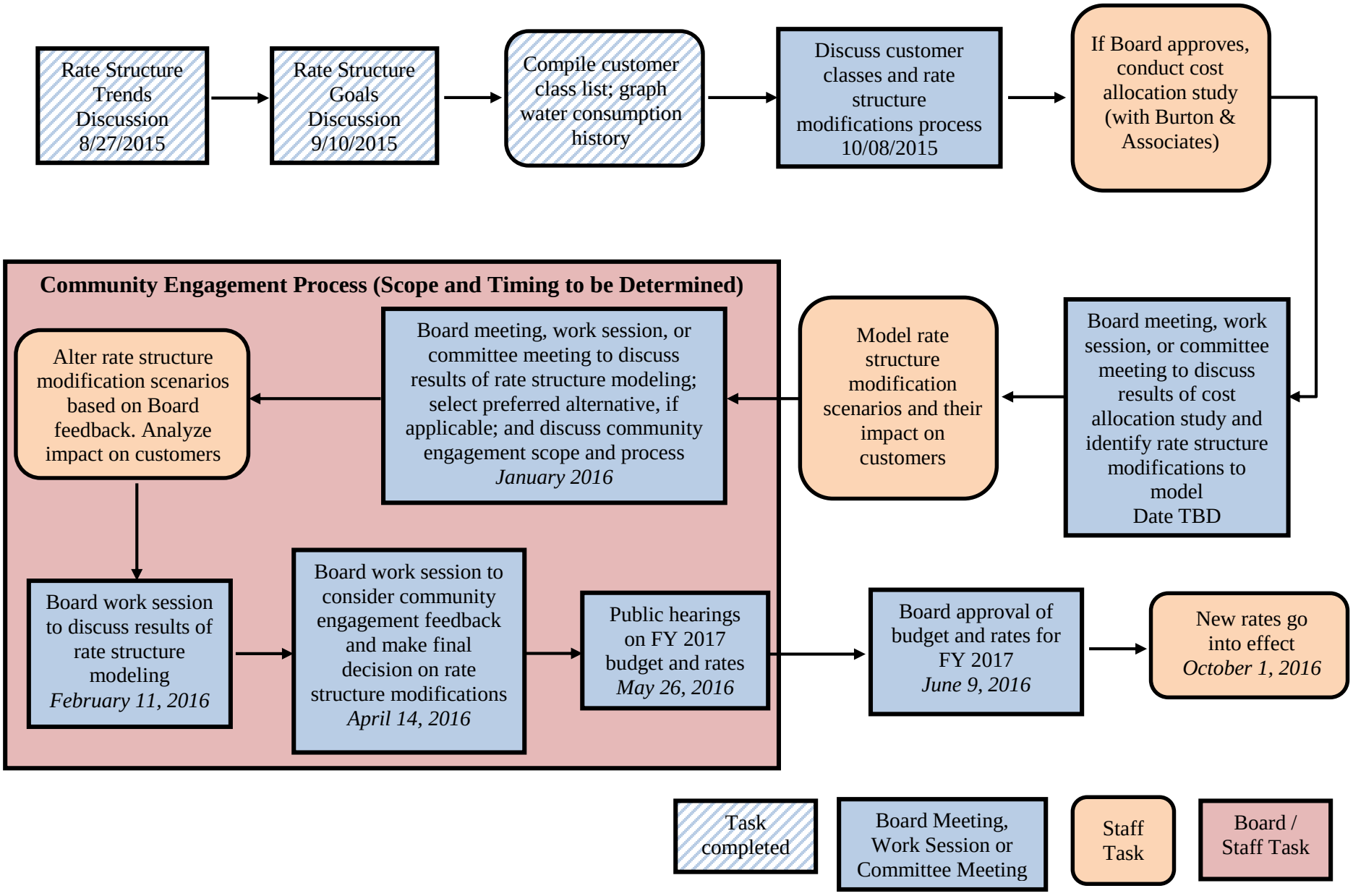
- Table 1 lists our customer classes and the number of customers that are in each class. They are grouped into three columns:
    - Customers to which seasonal water rates apply
    - Customers to which increasing block rates apply
    - Customers to which uniform irrigation rates apply (most of the customers in this group are also included in the above groups because they also have a "non-irrigation" meter)
- Figures 1 through 8 show monthly billed water sales for some of our customer classes. We have included monthly data from July 1999 through August of 2015: essentially all of the data that we have in our system. As some graphs indicate, we implemented our seasonal water rates in May 2002, our increasing block water rates in October 2007, and uniform year-round irrigation rates in October 2008.

Action requested

Authorize staff to proceed with a cost allocation study as the next step in considering rate structure modifications.

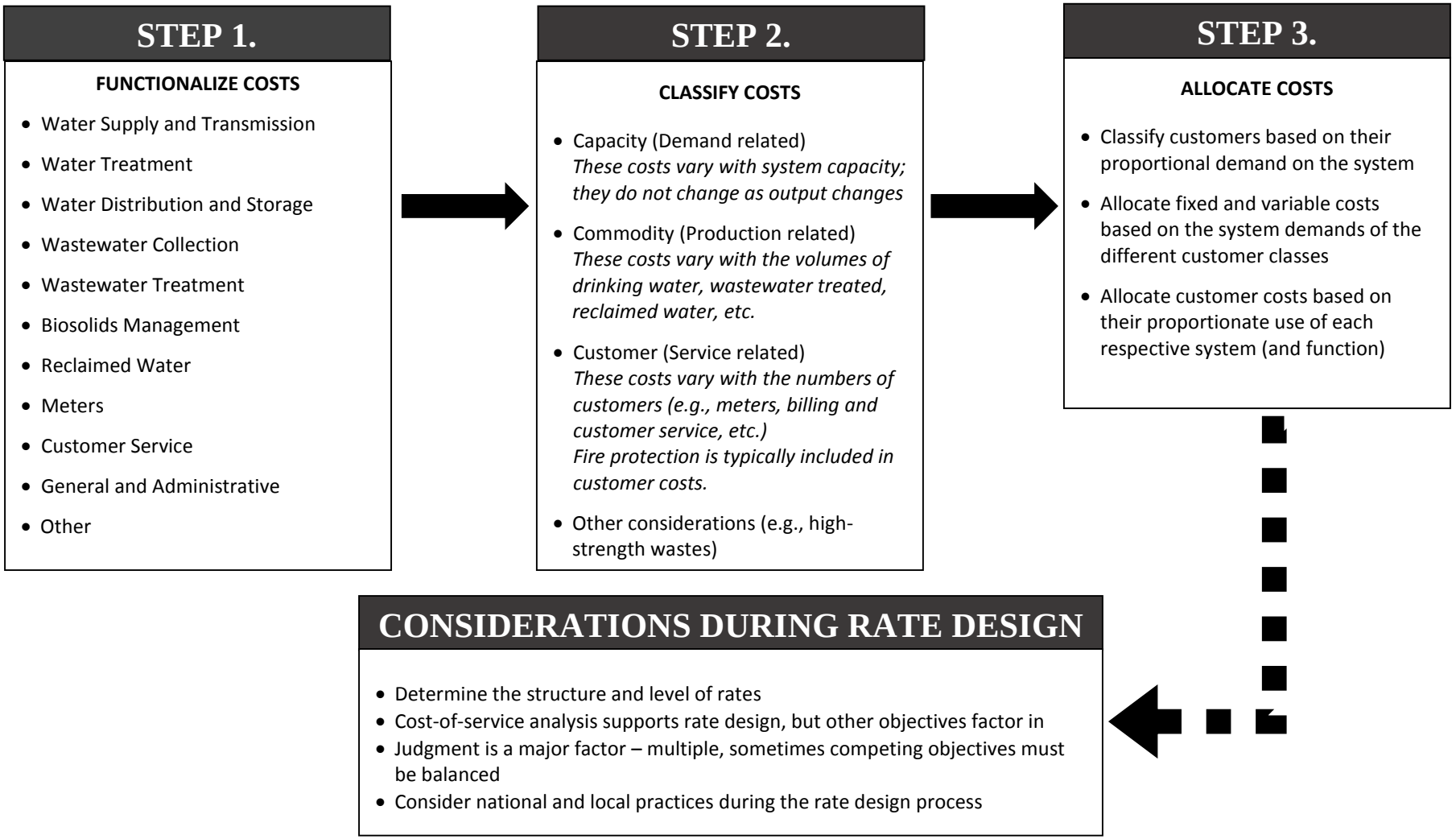
Stephen Winters, CPA
Director of Finance and Customer Service

Process for Considering Rate Structure Modifications



CONCEPTUAL APPROACH FOR COST ALLOCATION STUDY

(Cost of service studies help to ensure that rates are designed so that users pay for the costs they impose on a system.)



Customer Classes

Table 1 lists our commercial and non-commercial customer classes and the number of customers in each class.

Seasonal Rates		Increasing Block Rates		Uniform Irrigation Rates (Irrigation Meters)	
Customer Description	**No.**	**Customer Description**	**No.**	**Customer Description**	**No.**
Multi-family residences – master meter	615	Single-family, individually-metered residences	14,626	Single-family, individually-metered residences	42
Public housing multi-family residences – master meter	8	Public housing single-family, individually-metered residences	3	Multi-family, individually-metered (townhouse, duplex, etc.)	2
Nursing homes	7	Multi-family, individually-metered (townhouse, duplex, etc.)	4,053	Multi-family residences – master meter	10
Hotels and motels	18	Public housing Multi-family, individually-metered (townhouse, duplex, etc.)	139	Hotels and motels	5
Non-UNC medical facilities	40			Non-UNC medical facilities	1
Non-UNC schools, churches	101			Non-UNC schools, churches	5
Office and retail	693			Office and retail	20
Gas stations	29			Gas stations	2
Car washes	5			Municipality/government operations	2
Laundromats	9			Swimming pools	1
Swimming pools	12			Non-UNC recreation facilities	7
Non-UNC recreation facilities	44			Restaurants	3
Municipality/government operations	60			Other	2
Utilities	42			UNC Classrooms and faculty offices	10
Restaurants	89			UNC Lab and research	4
Other	96			UNC Office / administration	3
UNC Classrooms and faculty offices	84			UNC Student Housing	12
UNC Lab and research	33			UNC Hospitals and patient care	2
UNC Office / administration	36			UNC Other	22
UNC Student housing	100				
UNC Hospitals and patient care	27				
UNC Heating and cooling	16				
UNC Other	100				

Table 1

Single-Family Residences
Monthly Water Sales Measured in Thousands of Gallons – Does Not Include Irrigation Meters

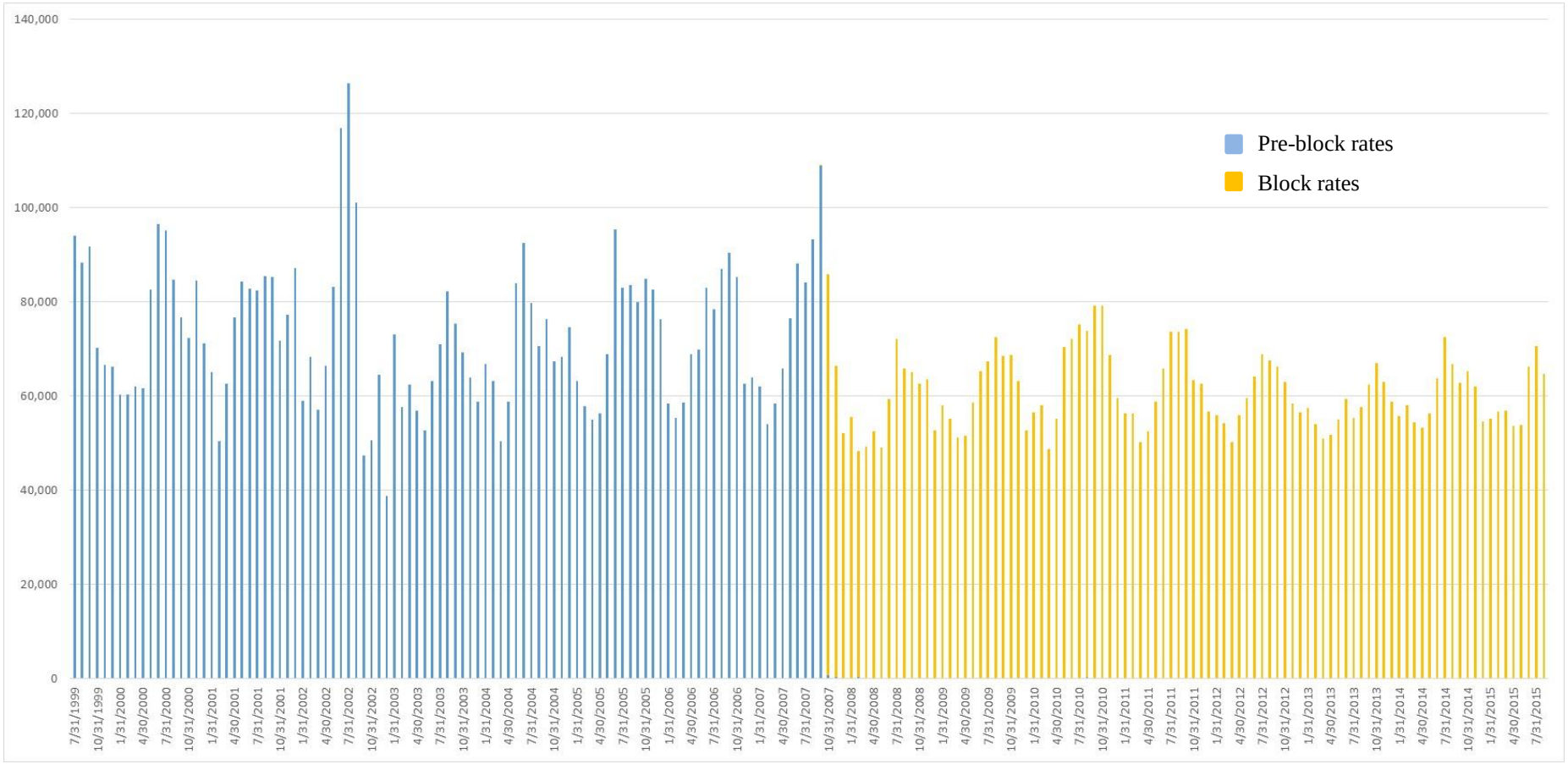


Figure 1

Multi-Family, Master-Metered Residences
Monthly Water Sales Measured in Thousands of Gallons – Does Not Include Irrigation Meters
(Seasonal Rates)

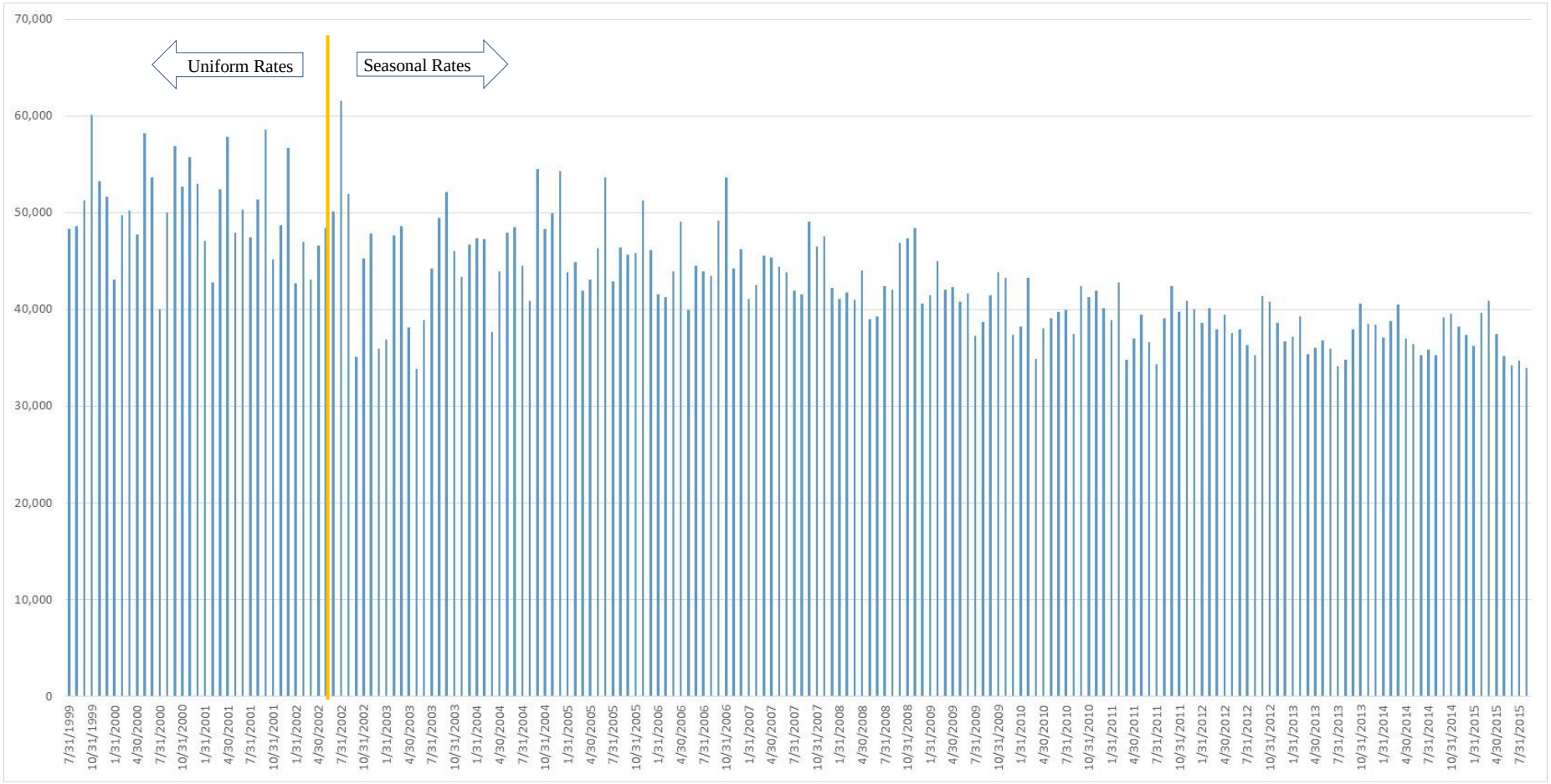


Figure 2

Churches and Non-UNC Schools
Monthly Water Sales Measured in Thousands of Gallons – Does Not Include Irrigation Meters
(Seasonal Rates)

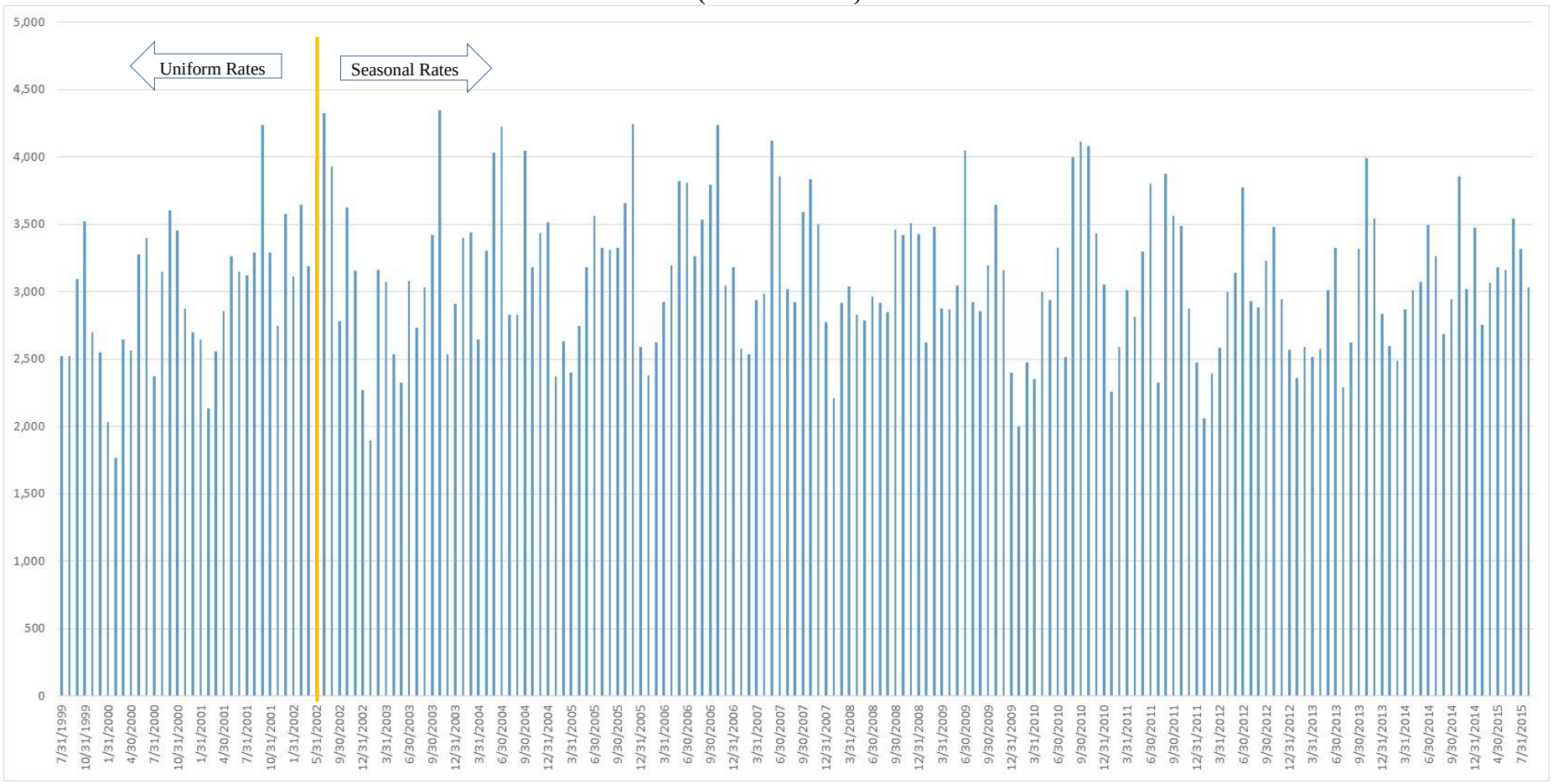


Figure 3

Office and Retail
Monthly Water Sales Measured in Thousands of Gallons – Does Not Include Irrigation Meters
(Seasonal Rates)

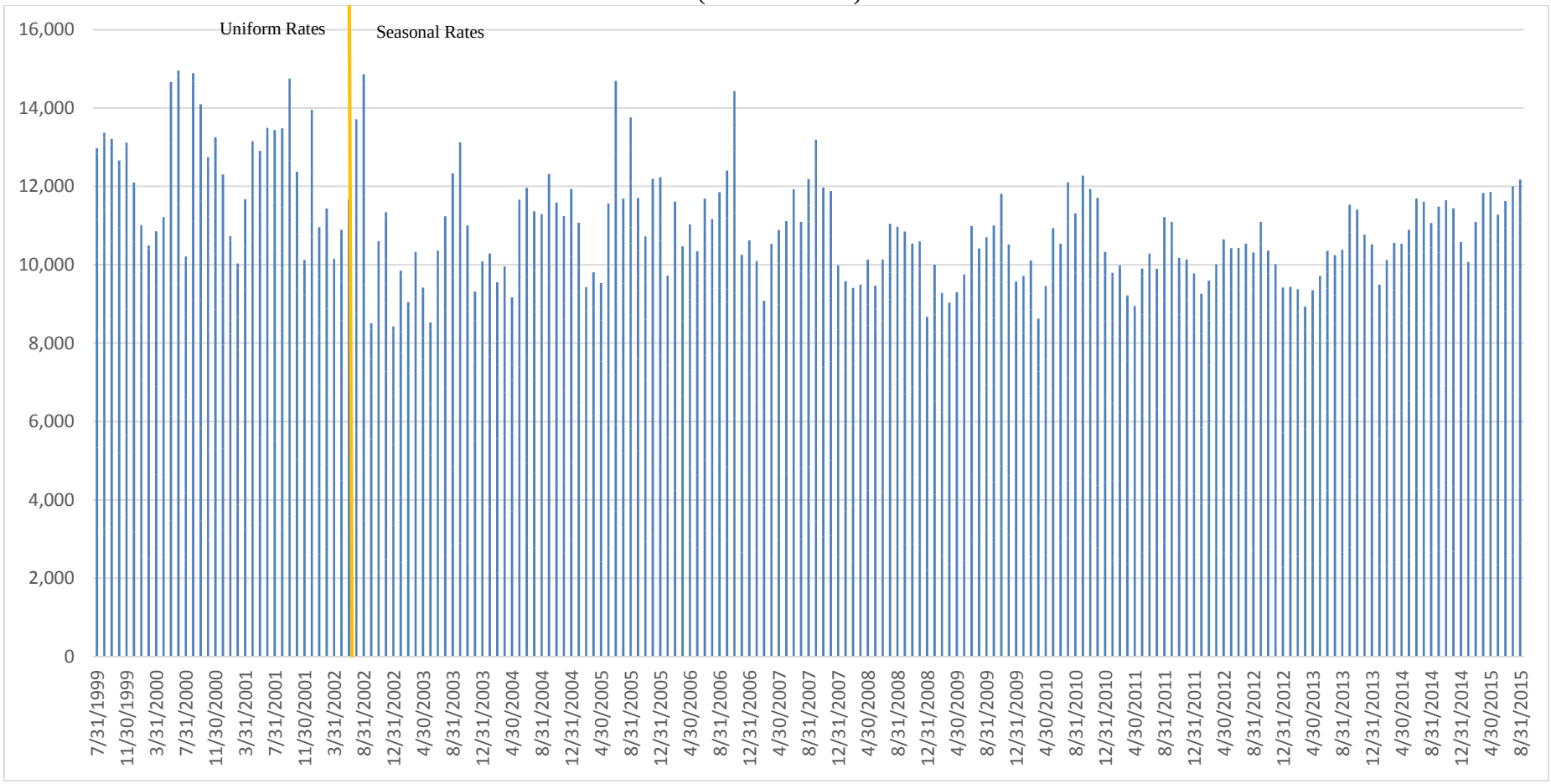


Figure 4

All Non-UNC Irrigation Meters
Monthly Water Sales Measured in Thousands of Gallons
(Irrigation Rates)

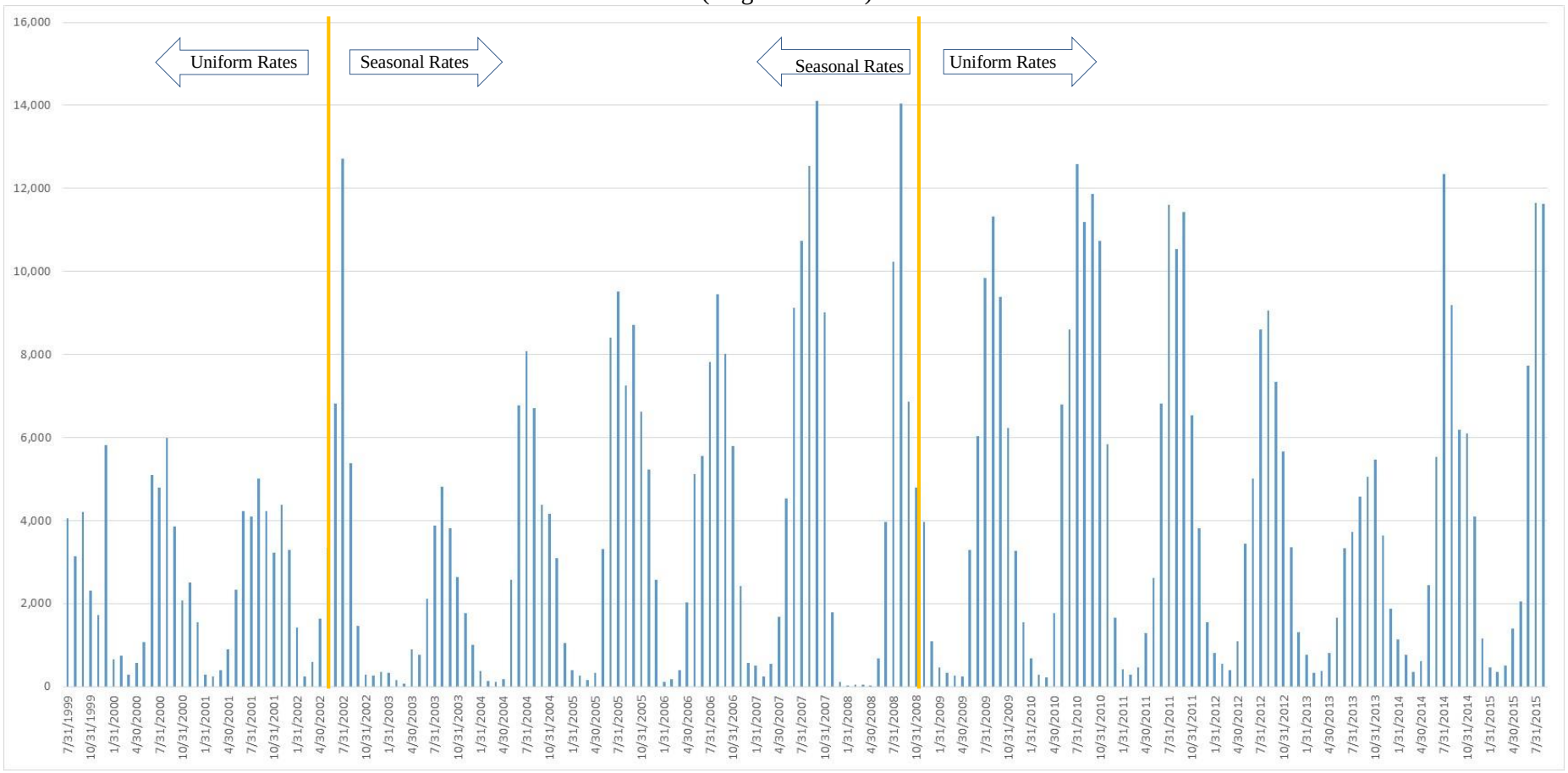


Figure 5

UNC Drinking Water Irrigation Meters
Monthly Water Sales Measured in Thousands of Gallons
(Irrigation Rates)

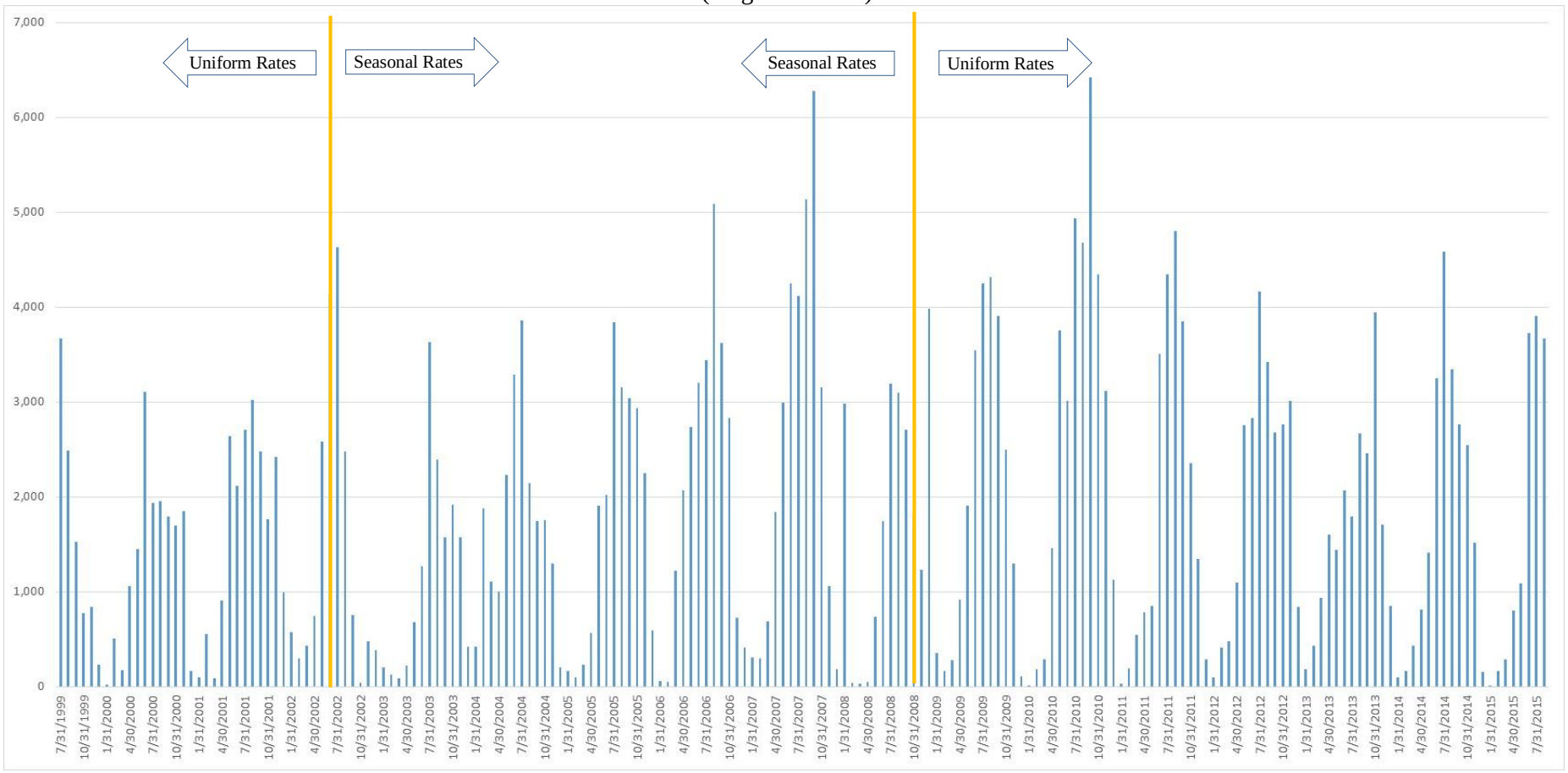


Figure 6

UNC Drinking Water
Monthly Water Sales Measured in Thousands of Gallons
(Seasonal Rates)

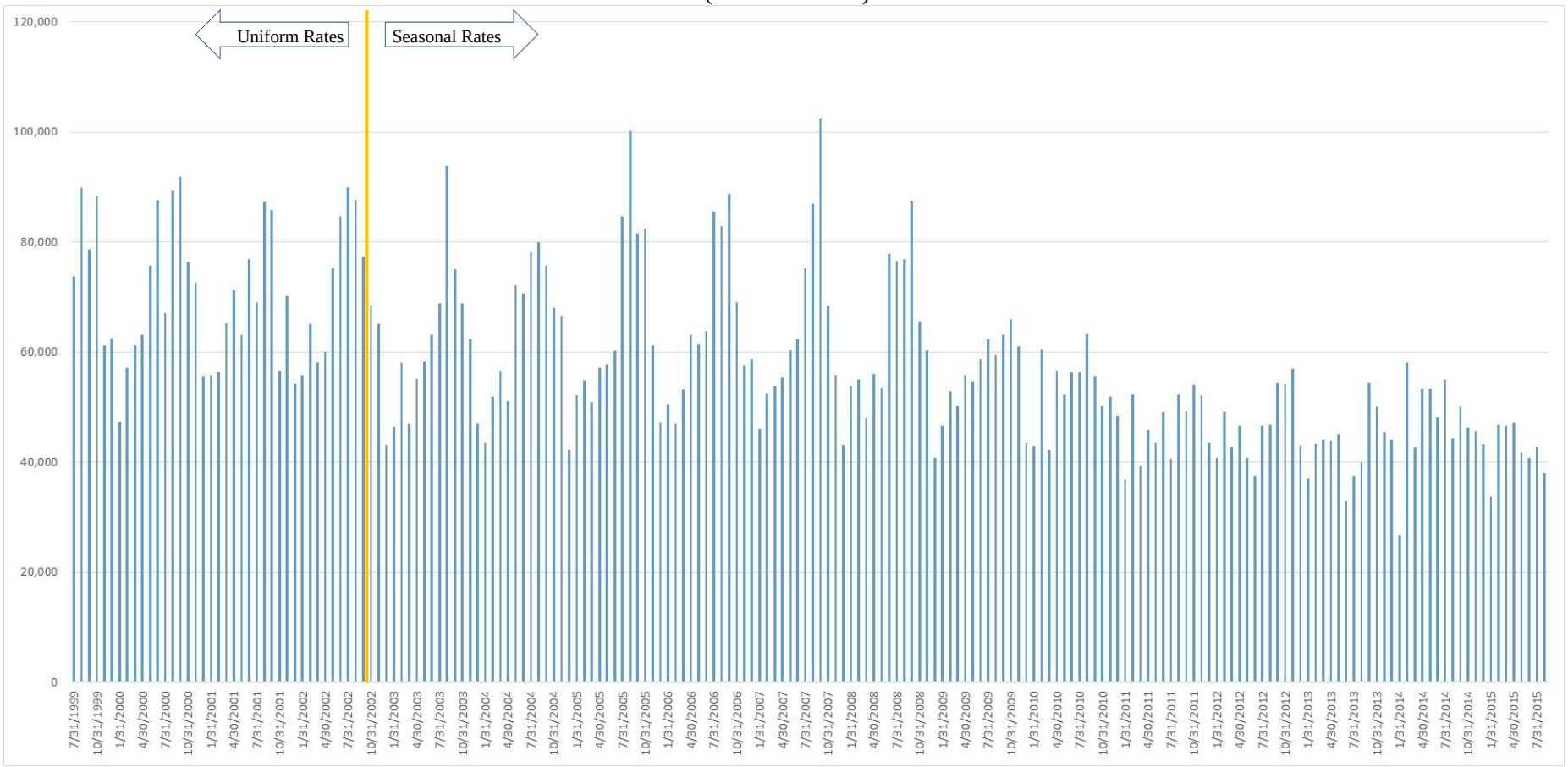


Figure 7

UNC Reclaimed Water
Monthly Water Sales Measured in Thousands of Gallons
(Reclaimed Water Rates)

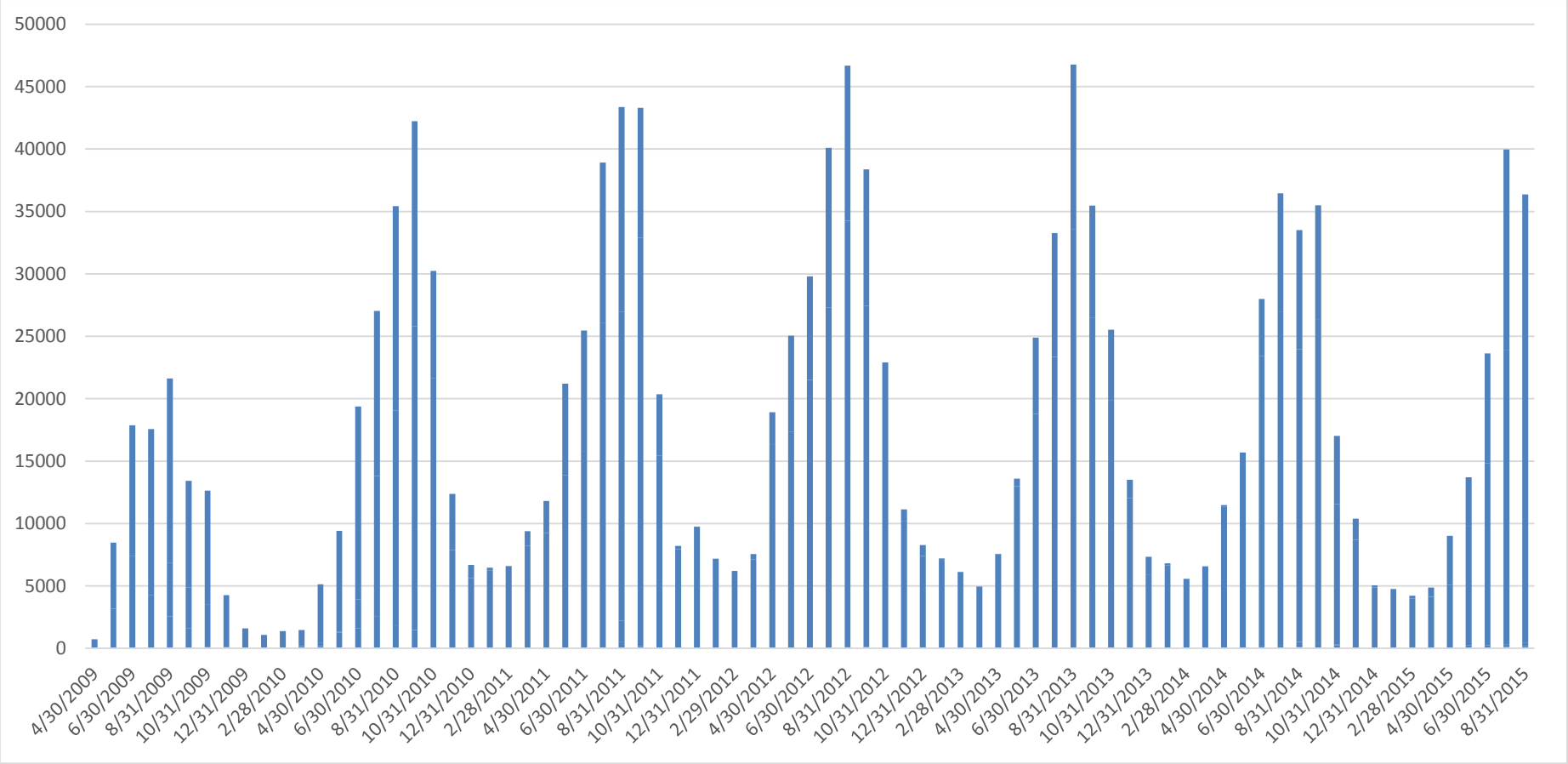


Figure 8

Agenda Item 3:

Restrictions Applicable to Charitable Activities by OWASA

Purpose:

To respond to previous requests by the Board of Directors for more specific information regarding the legal authority of OWASA to expend funds for charitable purposes, or to differentiate its rate structure to provide for lower rates to be charged customers with lower incomes.

Information:

- August 5, 2015, letter from Robert Epting, OWASA's General Counsel, to Ed Kerwin, OWASA's Executive Director, regarding Observations on Restrictions Applicable to Charitable Activities by OWASA
- March 21, 1997, letter from Robert Epting, OWASA's General Counsel, to Ed Kerwin, OWASA's Executive Director, regarding Customer Assistance Program, Legal Considerations

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OF COUNSEL
ELIZABETH LACKEY JACOBS

August 5, 2015

Mr. Ed Kerwin, Executive Director
Orange Water and Sewer Authority
400 Jones Ferry Road
Carrboro, NC 27510

Re: Observations on Restrictions Applicable to Charitable Activities by OWASA

Dear Mr. Kerwin:

The Board of Directors has requested information on the legal restrictions that prohibit OWASA's participation in charitable actions to make service costs more affordable to customers who may be less able to pay than others and to understand what, if anything, might be done to alter those restrictions.

In this regard, it would be useful to review the sources of OWASA's legal authority, as well as the restrictions on that authority, pertaining to these questions.

First, as an independent, single-purpose unit of local government, OWASA is empowered by the General Statutes to govern, operate, and determine how to finance the water and sewer system here. Those powers are set out in Chapter 162A of the General Statutes. As a corollary, it is important to understand that OWASA has no authority to do anything except what that statute specifically authorizes it to do. Stated another way, OWASA is a limited purpose unit of local government, not a general purpose unit such as a County or Town.

The General Statutes empower the Board to set the fees and charges it thinks necessary to operate and maintain the system, and require that rates be uniform within the various user classes. In short, this provision means that fees shall be charged for service provided, and that users in each particular user class will be charged equal amounts for equal usage. No authority is given to establish user classes based upon the income or economic situation of individual users.

We have often referred to this dictate as the "No Free Service" rule. Its corollary is that reduced rates for persons within the same user class, based upon their income level or economic means, are not permitted by the statute.

The No Free Service dictate is also found in the Sales and Purchase Agreements entered into by OWASA with the University, with the Town of Chapel Hill, and with the Town of Carrboro, for their

transfer of their water and sewer system facilities to OWASA in 1977. Those agreements specifically recite that, except for service provided to supply water to the various fire hydrants in the Towns and on campus, no free service will be provided.

The system facilities were purchased in 1977 with funds obtained by OWASA's borrowing the purchase price paid, by the issuance and sale of bonded certificates of indebtedness. Those Bonds were secured by a Bond Order, (the function of which is much like a homeowner's mortgage), that requires certain rate-making practices, and especially financial management practices. Since payment of the bonded indebtedness is promised from the rates and fees collected from system customers, the Bond Order requires measures that will assure prudence in the protection of those revenues to assure payment of the Bonds. One of the most important covenants of the bond orders prohibits free service, so as to prevent the erosion of the revenues that are essential to the financial vitality of the Bonds.

Thus we see that free service, as well as differential rates based upon income or economic level of various customers, are not authorized by the General Statutes, conflict with the Sale and Purchase Agreements, and are prohibited by the Bond Order.

I talked with OWASA's Bond Counsel recently about the Board's interest in learning more about how it might contribute to charitable needs in the community, including whether it might differentiate its rates to serve customers of varying means by charging various rates among similar user classes based upon economic need.

Bond Counsel agreed that OWASA is a "cost of service" utility, that it is bound to fix its rates and charges based on cost of service, and that neither the enabling legislation nor the Agreements of Sale and Purchase anticipate or empower OWASA to charge "sliding scale" rates based on income, or to give rebates or collect fees to provide funding for charitable causes, or to help the less fortunate. He also underscored that such charitable practices, though well motivated, would violate the Rate Covenants contained in Section 7.04 of the present Bond Order.

For the reasons set out above, to do otherwise would require a specific amendment to the General Statutes to give Water and Sewer Authorities the specific power to fund or operate charitable causes, or to charge rates and fees based on sliding scales related to income or means levels of various customers.

In addition, so long as the present Bond Order remains in effect, the provisions restricting OWASA to cost of service rates, equal within each user class, must be followed. I do note that the Bond Order would allow OWASA to spend a de minimus amount (from interest income only, subject to a limit of not more than one percent of its net expenses, as I recall) for charitable purposes. However, that provision does not empower OWASA to do anything the General Statutes does not empower it to do, and so without that power springing from legislative action, OWASA could not do so even though the de minimus fund might not violate the Bond Order.

Nor would the consent of the parties to the Sales and Purchase Agreements empower OWASA to begin to engage in charitable activities. Again, that power must be added to Chapter 162A's list of things that Water and Sewer Authorities may do, by the General Assembly. Failing that, in my opinion, OWASA is not authorized to charge differential rates based upon its customers' varying economic circumstances, nor has it any authority to expend its revenues for any purpose other than operation, maintenance, improvement and replacement of the community's water and sewer system facilities.

Our previous opinions on this subject from March and July of 1997, may be useful for the Board to consider, and are provided by attachment.

Sincerely,

Robert Epting
OWASA General Counsel

RECEIVED
MAR 21 1997

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March 21, 1997

Mr. Ed Kerwin
Executive Director
Orange Water and Sewer Authority
Carrboro, NC 27510

Re: Customer Assistance Program
Legal Considerations

Dear Mr. Kerwin:

I have reviewed various materials supplied by Linda Vaughn with respect to the prospect of OWASA's establishing a Customer Assistance Program, which would provide financial assistance to customers temporarily unable to pay for OWASA's water and sewer service.

In recognition of its contractual obligations prohibiting the provision of free service, I understand that your committee has proposed to find a way to establish a fund which would not come from service revenues, and which could be administered by outside assistance from an agency experienced in such endeavors, such as the local Interfaith Council for Social Services.

(As you know, I have served for years as Counsel to the Interfaith Council. I point it out here, so that others who may later review this opinion letter will also have that information and not later learn it under circumstances that might then be made to appear inappropriate or awkward. I neither proposed, nor do I have any authority or ability to endorse, OWASA's cooperating with the IFC. If the IFC does agree to participate with OWASA in this matter, I will have nothing to do with its advice in that regard, and I will see that it obtains other counsel about that matter if it asks me to do so.)

I understand that you are considering a program which would invite and permit customers to contribute to a Customer Assistance Fund ("Fund") by way of "rounding up" their monthly bills to the next even dollar amount, with the net cents being directed by the customer to OWASA for contribution to the Fund, which would then be administered in such a way that a customer temporarily in financial distress could obtain assistance from the Fund to pay their OWASA water or sewer related charges.

I have reviewed the statutes, the Purchase and Sales Agreements, and the Bond Order, and I am of the opinion that OWASA is not prohibited from participating in such a program, for the following reasons.

First, the program would not make way for the provision of free service, but instead would be set up as a way for customers to provide assistance to other customers to pay for services actually received.

Second, the statutes make express provision allowing water and sewer authorities "to receive from any public or private agency, person, or entity ... donations ... and to agree to apply and use the same in accordance with the conditions under which the same are provided." (G.S. 162A-6(13). Thus, at the written direction of a customer authorizing OWASA to receive the "rounded up" funds as a donation, and to use the same in the Customer Assistance Program to make provision for the payment of water and sewer charges due from other needy customers, OWASA is authorized by statute to do precisely what you are considering in this program.

Third, I do not believe that the net funds received from "rounding up" to the next dollar would in fact be subject to the bond order, because, so long as they were received and administered as I understand you are contemplating, I do not think they are in fact system revenues.

However, even if they were considered system revenues, the last revision of the Bond Order, at section 513, specifically refers to and would allow the expenditure of not more than "1% of current expenses, generated from interest earned upon the General Fund along with voluntary grants, <u>contributions</u> and subscriptions,..." to be used for any purpose allowed by the enabling act and the bond order.

In my opinion the creation of a fund from voluntary contributions given OWASA for the purpose of helping pay accounts which might otherwise remain delinquent and ultimately be lost, is a purpose allowed by the statutes and Bond Order, for the fund would help assure the maximization of collection of OWASA's service accounts, and thus the minimization of service that would otherwise have become a species of "free service," even though OWASA had not intended to provide it for free.

In the context of complaints about large development costs, such as availability and connection fees, where local agencies or legitimately concerned citizens have complained about the impact of water and sewer fees on development costs and the resulting dearth of affordable housing, OWASA has previously been counselled that statutory requirements that rates and fees be uniform within its various classes of service, and bond and contractual requirements

prohibiting free service, all prevent OWASA from varying its rates within a class according to the charitable nature of the user's endeavors. That is still my opinion and advice.

However, the program proposed is different in that it proposes to provide for full payment for OWASA's services, not some discount therein, by the use of funds authorized by statute and anticipated by the bond order. It is my opinion that a program established and administered as proposed would be within the legal authority of OWASA.

Finally, I add this note about tax deductibility. The bad news is that monies paid to OWASA for this purpose are not going to be tax deductible. The good new is that even for someone in Donald Trump's tax bracket, a tax deduction for $11.88 ($.99 x 12 months) would only be worth $3.92 off their taxes. People or companies who want to make tax deductible contributions for this purpose should simply write their check to the Interfaith Council and mark it for use for the "Sharing Water Program" (my name for it). The IFC's use of the funds would be limited by that restrictive designation, and the same purpose would be served.

I will be glad to meet with you and your staff to discuss administrative questions as they arise. I think key components would include:

- assuring complete understanding of the details of the program by our customers;

- assuring that appropriate authorization and direction be given in writing by participating customers;

- assuring proper administration of the funds, whether within or without OWASA's direct administration or oversight.

I am thrilled to be able to be a part of OWASA's effort on this. It reminds me of why I am proud to be associated with you all.

Very truly yours,

Robert Epting
OWASA General Counsel

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July 16, 1997

Mr. Ed Kerwin
Executive Director
Orange Water and Sewer Authority
Carrboro, NC 27510

Re: Customer Assistance Program Proposals

Dear Mr. Kerwin:

I wrote in March expressing our opinion that the Customer Assistance Program funded through "rounding up" of customer bills is a purpose authorized for authorities under Chapter 162A of the General Statutes. After disclosing my long time representation of the Interfaith Council, I also suggested that the proposal to have the fund administered by the IFC appeared to be legal and appropriate.

Since then, Water Partners International has applied to share in the fund, from which distributions would be made for its very worthy efforts to provide clean water to those without this resource in other parts of the world. If the Board decides to include WPI, perhaps it will also consider whether to open the application process to other similar organizations.

In light of my previous advice to you and the Board about the legality of a program administered by a local agency to provide local assistance of a well defined nature, i.e., to help people in straited financial circumstances to pay their water bills, I want to add a cautionary note, based both on my experience as a Town Council member, and on my hope that the Board will understand the peculiar difficulties presented when it must choose from among a number of worthy purposes to decide how to distribute its resources.

Again, let me emphasize that what I am about to say is not intended to disparage Water Partners International or to discourage the Board from determining to include WPI as its partner in the distribution of the rounded up funds. Indeed, if the Board determined at this time to establish a program in which that portion of the fund not expended by IFC to help with the payment of local water bills was turned over to WPI for its purposes, most of the concerns I am about to express would be satisfied.

The difficulty is presented when application for the use of the rounded up "Fund" is opened across the board to any charitable group that wishes to apply. Mr. Rimer will recall, as I do, the phalanx of worthy organizations that showed up in every Town budget cycle to make application for the very limited funds the Town had begun to provide for local charitable purposes.

There is no way to make judgments about which should be approved, and which denied, that we are sure will withstand dispassionate judicial scrutiny in the unlikely event a disappointed agency sues claiming that its denial is in effect an unfair or unequal application of public funds. Truly, these decisions are political at their most fundamental level, and ought not be tested in the Courts, but I must say that if they were tested, neither I nor the Board would be able to establish a rational basis equally applied to support the denial decisions. (The approval decisions are easy.)

If the Board determined that the Fund would be subject to application for use by local agencies, and national or international organizations, it would find itself in the same situation as the Town Council, with additional duties of receiving and processing applications, receiving public and private comment from parties interested in individual applications, allocating funds upon the basis of majority vote, and, of course, monitoring or auditing the use of those funds, all over and above its usual work of overseeing the administration of the water and sewer authority. It may be more difficult for the Board to determine to its satisfaction whether potential beneficiary organizations are well managed if they are not locally based agencies such as the IFC, WPI, Habitat, or Orange Community Housing Corporation.

Finally, the Board may be subjecting itself to the claims of disappointed agencies, some one or few of which might call OWASA into Court where we would have the burden to explain or establish that there existed an objective, impartial basis for granting some requests and denying others.

Although claims of undue partiality might be avoided by the method suggested above, that is, by deciding now that individual disbursement decisions would be made by an agency like IFC, and/or WPI, the Board's fiduciary responsibilities would still include regular audits of the administration of Funds proceeds by these agencies.

I should also note that the forms evidencing customer consent to rounding up should clearly identify the purposes for and methods by which the funds would be allocated; such as, "administered by IFC to provide assistance for needy customers for payment of water

and sewer charges," or similar language for the WPI component.

We would find it difficult to draft language covering the "potential" uses and purposes of "potential" fund applicants if the Board chose to open the Funds for application by a broad scale of public or charitable group. As I advised in my earlier letter, specific customer authorization for particular uses is a crucial component of OWASA's authority to accept gifts under the statute. (The Board might consider that customers will be executing these consent forms in advance of OWASA's collection and distribution of these Funds, and that they might be less interested in donating as the potential uses of these funds become broader or are subject to later determination or annual redetermination by the Board.)

In the Board's effort to assist needy persons in obtaining clean water and wastewater disposal, both locally and beyond our own community, for all the reasons stated above, I advise the Board to choose as specific a program or programs as possible for the application of these funds, both so that customers may know just what they are being asked to authorize, and so that we can defend the allocation and use of these funds as being clearly within the actual and reasonable discretion of the Board.

Very truly yours,

Robert Epting
OWASA General Counsel

cc: Board of Directors
FAXED to BOARD on 7/16/97

Agenda Item 4:

Review Board Work Schedule

Purpose:

a) Request(s) by Board Committees, Board Members and Staff
b) Review and update the 12 Month Board Meeting Schedule
c) Review the draft agenda and discuss expectations for the October 22, 2015 meeting
d) Review the draft agenda and discuss expectations for the November 12, 2015 work session

Information:

- Draft 12 Month Board Meeting Schedule
- Draft agenda for the October 22, 2015 meeting
- Draft agenda for the November 12, 2015 work session

OWASA Board of Directors – 12 Month Board Meeting Schedule (October 2, 2015)

Month	Board Meetings		Committee & Other Meetings
	Work Session	Business Meeting	
October 2015	Discuss Rate Structure – Customer Classes and Uses Draft Biosolids Management Plan, Part II Restrictions Applicable to Charitable Activities by OWASA *10/8/2015*	Award Purefoy Road Water Line Replacement Contract Discuss Draft Affordability Program Plan Review AMI Prelim Economic & Financial Analysis Q1 Financial Report () Strategic Trends Report () *10/22/2015*	**CEC –** *Draft Affordability Program Plan (10-13-2015)* **Board Tour** – *Cane Creek Mitigation Tract (10-28-2015)* ***NRTS*** *– Rogers Road Brief (TBD)*
November 2015	Discuss Total Compensation Philosophy Draft AMI Feasibility Study Presentation/ Report Discuss Board Fiduciary Duties Review Cost Allocation Study (if needed) *11/12/2015*	*Holiday - no meeting*	
December 2015	Discuss Draft Total Compensation Philosophy Discuss Biosolids Management Plan (if needed) Final AMI Feasibility Study Presentation/ Report Affordability Program Plan Concurrence Review Cost Allocation Study (if needed) *12/10/2015*	*Holiday - no meeting*	**NRTS -** *Energy Plan – Strategy Evaluation (TBD)*
January 2016	Determine AMI Next Steps Approve Total Compensation Philosophy Update on Employee Health Insurance Discuss Financial Reserves Policies Discuss FY17 budget calendar and assumptions () Review Cost Allocation Study *1/14/2016*	Community Engagement Approach/ Process Annual Lakes Recreation Report Discuss CIP Investment Practices Discuss Rate Structure (if needed) Q2 Financial Report () CIP Semiannual Report () *1/28/2016*	
February 2016	Review Energy Plan – Strategy Evaluation Discuss Review & Update of Strategic Plan Discuss Rate Structure CS - General Counsel Interim Review () *2/11/2016*	CS - General Counsel Interim Review () *2/25/2016*	
March 2016	Review findings of Easement Pilot Draft Budget and Rates () Set date for public hearings () CS – ED Interim Review () *3/10/2016*	Draft Budget and Rates () CS – ED Interim Review () *3/24/2016*	**NRTS –** *Draft Energy Plan (TBD)*
April 2016	Review Employee Health and Dental Insurance Renewal () FY 17 Draft Budget and Rates () Authorize staff to publish proposed rates () *4/14/2016*	*Q3 Financial Report* () *Audit Firm Selection* () *4/28/2016*	
May 2016	Discuss LRWSP – Goals and Metrics Review Draft Energy Plan Award the Cane Creek Permanganate Facility Project Contract Review Employee Health and Dental Insurance Renewal (if needed) () Review Employee Merit Pay for FY 2017 () Appointment of Nominating Committee () *5/12/2016*	Public Hearings - FY 17 Budget and Rates () Approve Employee Health and Dental Insurance () Approve LRWSP – Goals and Metrics *5/26/2016*	
June 2016	Public Comment on Draft Energy Plan Approve Employee Merit Pay for FY 2017 () Approve FY 17 Budget and Rates () Election of Officers () *6/9/2016*	To Be Determined *6/23/2016*	

OWASA Board of Directors – 12 Month Board Meeting Schedule (October 2, 2015)

Month	Board Meetings		Committee & Other Meetings
	Work Session	Business Meeting	
July 2016	Discuss & Approve/Disapprove AMI Phase 2* with DS&A (if needed) Discuss LRWSP - Demands and Yield *7/14/2016*	To Be Determined *7/28/2016*	
August 2016	CS – General Counsel Review ↻ *8/11/2016*	Approve contract with DS&A for AMI procurement Phase 12 Month Financial Report ↻ CIP Semiannual Report ↻ CS – General Counsel Review ↻ *8/25/2016*	
September 2016	CS - General Counsel Review ↻ CS – ED Review ↻ *9/8/2016*	Annual Report and Financial Audit ↻ Approve General Counsel Engagement ↻ CS – ED Review ↻ *9/22/2016*	

*AMI Phase 2 includes assisting OWASA Staff with developing a community engagement plan and developing and managing an AMI RFP.

The 12 Month Board Meeting Schedule shows Strategic Plan initiatives and other priority efforts that the Board and staff plan to give greatest consideration to during the next twelve months. The schedule also shows major recurring agenda items that require Board action, or items that have been scheduled in response to the Board's prior standing request. This schedule does not show all the items the Board may consider in a work session or business meeting.
The 12 Month Board Meeting Schedule will be reviewed and updated at each monthly work session and may also be discussed and updated at the Board's business meetings.

In addition to the initiatives shown in this schedule, staff will be working on other Strategic Plan and organizational priorities that are not expected to require major additional discussion with the Board except as part of budget deliberations (e.g., continuing our comprehensive asset management work).

The schedule implies that the following Strategic Plan initiatives would be addressed beyond the 12 month period. The Board may conclude that one or more of the following initiatives are higher priority. The schedule will be revised as needed to reflect the Board's priorities, and any additional initiatives that the Board may decide to address.

- Development of a plan and policy framework for OWASA lands is considered a longer-term priority.
- Improve effectiveness as a learning organization is considered a longer-term priority.
- Water Conservation Plan will be prepared concurrent with update of the Long-Range Water Supply Plan.

The OWASA Board determines which topics it wants to explore as a full Board (potentially in a work session format) and which topics it wants to assign to Board committees or committee chairs for further analysis and development of recommendations. Board also determines priorities and desired timeframes for addressing topics. Committee meetings will be updated on the schedule routinely.

Abbreviations Used in Draft Schedule:

↻	Recurring agenda item (generally these are "required" items)
AMI	Advanced Metering Infrastructure
CIP	Capital Improvements Program
COLA	Cost of Labor Adjustment
CS	Closed Session of the Board
CY	Calendar Year
ED	Executive Director
FY	Fiscal Year
JLP	Jordan Lake Partnership
LRWSP	Long-Range Water Supply Plan
Q	Quarter
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plan

AGENDA
MEETING OF THE OWASA BOARD OF DIRECTORS
THURSDAY, OCTOBER 22, 2015, 7:00 P.M.
CHAPEL HILL TOWN HALL

In compliance with the "Americans with Disabilities Act," interpreter services are available with five days prior notice. If you need this assistance, please contact the Clerk to the Board at 919-537-4217 or aorbich@owasa.org.

The Board of Directors appreciates and invites the public to attend and observe its meetings. Public comment is invited either by petition upon topics not on the Board's agenda, or by comments upon items appearing on the Board's agenda. Speakers are invited to submit more detailed comments via written materials, ideally submitted at least three days in advance of the meeting to the Clerk to the Board via email or US Postal Service (aorbich@owasa.org/400 Jones Ferry Road, Carrboro, NC 27510).

Public speakers are encouraged to organize their remarks for delivery within a four minute time frame allowed each speaker. Additional time may be allowed at the discretion of the Board of Directors.

Announcements

1. Announcements by the Vice Chair
   A. Any Board Member who knows of a conflict of interest or potential conflict of interest with respect to any item on the agenda tonight is asked to disclose the same at this time.
   B. Update on October 20, 2015, Carrboro Board of Aldermen Meeting
2. Announcements by Board Members
   A. Update on October 13, 2015, Community Engagement Committee Meeting (Ruchir Vora)
3. Announcements by Staff

Petitions and Requests

1. Public
2. Board
3. Staff

CONSENT AGENDA

Information and Reports

1. Quarterly Attendance at Board and Committee Meetings (Andrea Orbich)

Action

2. Approval of the Minutes of the September 24, 2015 Annual Meeting of the Board of Directors (Andrea Orbich)
3. Approval of the Minutes of the September 24, 2015 Closed Session of the Board of Directors (John A. Young)
4. Approval of the Minutes of the October 8, 2015 Work Session of the Board of Directors (Andrea Orbich)

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REGULAR AGENDA

Discussion

5. Review Advanced Metering Infrastructure Preliminary Economic and Financial Analysis (Todd Taylor)
6. Discuss the Draft Affordability Program Plan (Mary Tiger/Patrick Davis)
7. Annual Review and Update of Strategic Trends and Utility Planning Issues (Ruth Rouse)

Discussion and Action

8. Resolution Awarding a Construction Contract for the Purefoy Road Water Line Replacement Contract (Vishnu Gangadharan)

Information and Reports

9. Financial Report for the Three Month Period Ended September 30, 2015 (Stephen Winters)

Summary of Board Meeting Action Items

10. Executive Director will summarize the key action items from the Board meeting and note significant items for discussion and/or action expected at the next meeting

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AGENDA
WORK SESSION OF THE OWASA BOARD OF DIRECTORS
THURSDAY, NOVEMBER 12, 2015, 6:00 P.M.
OWASA COMMUNITY ROOM

The Board of Directors appreciates and invites the public to attend and observe its meetings. For the Board's Work Session, public comments are invited on only items appearing on this agenda. Speakers are invited to submit more detailed comments via written materials, ideally submitted at least three days in advance of the meeting to the Clerk to the Board via email or US Postal Service (aorbich@owasa.org/400 Jones Ferry Road, Carrboro, NC 27510).

Public speakers are encouraged to organize their remarks for delivery within a four minute time frame allowed each speaker. Additional time may be allowed at the discretion of the Board of Directors.

The Board may take action on any item on the agenda.

Announcements

a. Announcements by the Vice Chair
   - Any Board Member who knows of a conflict of interest or potential conflict of interest with respect to any item on the agenda tonight is asked to disclose the same at this time.

b. Announcements by Board Members

c. Announcements by Staff

Discussion

1. Discussion of the Draft Advanced Metering Infrastructure Feasibility Study Report (Dan Przybyl/Todd Taylor)
2. Discussion of Total Compensation Philosophy (Stephanie Glasgow)
3. Discussion of the Fiduciary Duties of OWASA Board Members (Robert Epting)
4. Review Board Work Schedule (John Young/Ed Kerwin)
   a. Request(s) by Board Committees, Board Members and Staff
   b. 12 Month Board Meeting Schedule
   c. December 10, 2015 Work Session
   d. January 14, 2015 Work Session

Summary of Work Session Items

5. Executive Director will summarize the key staff action items from the Work Session

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