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, SEPTEMBER 8, 2016, 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 e-mail 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.
   - Executive Committee will meet on Tuesday, September 13, 2016 at 5:30 P.M. in the OWASA Board Room

b. Announcements by Board Members
   - Update on August 31, 2016 Human Resources Committee Meeting (Robert Morgan)
   - Chapel Hill Town Council OWASA Committee and Chapel Hill Appointees to the OWASA Board of Directors will meet on Thursday, September 15, 2016 at 8:00 A.M. in the OWASA Board Room (Jeff Danner)
   - OWASA will provide an Update for the Carrboro Board of Aldermen on September 20, 2016 at 7:30 P.M. at Carrboro Town Hall (Robert Morgan/Yinka Ayankoya)

c. Announcements by Staff

Petition

1. Petition from John M. Silva and Christine A. Silva about OWASA's August 25, 2016 Decision Regarding Mountains-to-the Sea Trail (John Young)

Information and Report

2. Preliminary Twelve Month Financial Report for the Period Ended June 30, 2016 (Stephen Winters)

Discussion

3. Discuss Multi-Family, Master-Meter Rate Structure Alternatives (Stephen Winters)

Discussion and Action

4. Discuss and Approve Energy Management Program Evaluation Criteria and Approach, including the Incorporation of a Social Cost of Carbon (Mary Tiger)

Discussion

5. Review Fiscal Year 2017 Budget Process (Stephen Winters)
6. Discussion of OWASA's Capital Improvements Program Investment Practices (Adam Haggerty/Vishnu Gangadharan)
7. Review Board Work Schedule (John Young/Ed Kerwin)
   a. Request(s) by Board Committees, Board Members and Staff
   b. September 22, 2016 Board Meeting
   c. October 13, 2016 Work Session
   d. 12 Month Board Meeting Schedule
   e. Pending Key Staff Action Items

Summary of Work Session Items

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

CLOSED SESSION

9. The Board of Directors will convene in a Closed Session for the Purpose of Discussing a Personnel Matter (Robert Morgan)

Agenda Item 1:

Petition from John M. Silva and Christine A. Silva about OWASA's August 25, 2016 Decision Regarding Mountains-to-the Sea Trail

Action:

Discuss and determine whether the Board of Directors wishes to reconsider its August 25, 2016 vote approving the Mountains-to-Sea Trail to access and cross land that OWASA owns near Cane Creek Reservoir.

Information:

- Petition from John M. Silva and Christine A. Silva dated Monday, August 29, 2016 titled, "OWASA August 25, 2016 Decision Regarding MST"
- E-mail from John Young to John M. Silva dated Wednesday, August 31, 2016 titled, "Re: OWASA August 25, 2016 Decision Regarding MST"
  - August 26, 2016 letter – OWASA Board of Directors' Approves Use of OWASA Land for the Mountains-to-Sea Trail

From:	John M. Silva
To:	Board and Leadership
Cc:	O"Conner, Jim; Brenda McCall; Bill Charles; emann3@bellsouth.net; "Ann Charles"; Duckwall, Phil; Dave Walser; Dorney, Diane; Hegedus, Geoffrey; waltzingdog@gmail.com; eghooten@gmail.com; cmellor@mebtel.net; Sue Bagnell
Subject:	OWASA August 25, 2016 Decision Regarding MST
Date:	Monday, August 29, 2016 6:32:18 PM

Dear OWASA leadership,

A public meeting was held by the Orange Water and Sewer Authority (OWASA) on Thursday August 25, 2016 under the auspices of providing public input regarding whether OWASA should allow an add-on segment to the already completed Mountains to Sea Trail (MST).

The proposed add-on segment would go through rural Cane Creek neighborhoods and OWASA land within feet of the Cane Creek Reservoir.

While the proposed route may go through other Cane Creek watershed neighborhoods no neighborhood is as directly impacted as are the Mount Mitchell, Apple Mill, Teer Road and Thunder Mountain neighborhoods.

Please note that at the August 25, 2016 OWASA meeting we counted only five individuals from the Mount Mitchell, Apple Mill, Teer Road and Thunder Mountain neighborhoods (Mr. & Mrs. Smith, Mr. Shy, Mr. Keenan and a woman land owner who stated she was from Apple Mill Rd.) who spoke in favor of the MST add-on trail. Most of the other supporters of the proposed add-on trail were from neighborhoods not directly impacted as the neighborhoods specified above. Many were from out of town and some supporters were from as far away as Raleigh, NC!

We would welcome all the OWASA Board members to join us and some of our neighbors and tour the Mount Mitchell, Apple Mill, Teer Road and Thunder Mountain neighborhoods to see in reality just how rural these neighborhoods are and how the trail as proposed would come within feet of residents' physical homes and property lines. Do you really think having strangers walk by your living room window or bedroom window at any time of the day is comforting to rural residents living in wooded areas with few neighbors?

While there has been significant doubt amongst our neighbors that OWASA was truly engaged in an open and "transparent" evaluation of the need for the proposed add-on MST trial, several neighbors held on to the belief that once OWASA reviewed the concerns of the neighbors, evaluated the real need for an add-on MST trail that would disrupt so many OWASA neighbors, and most importantly evaluate the real risk to the water quality of the Cane Creek Reservoir, the matter at least would be tabled so viable alternatives to the proposed Cane Creek Reservoir pathway could be considered.

Simply stated we were wrong – on many counts.

At the risk that some of the OWASA Board members may not read this letter in its entirety please let us assure OWASA that this is not the end of our neighborhood resistance to this intrusive and potentially litigious pathway through Cane Creek neighborhoods and the Cane Creek Reservoir.

For over three years a majority of the residents in the rural Cane Creek watershed neighborhoods noted above have protested the implementation of this add-on MST trail through our neighborhoods and through OWASA property into the Cane Creek Reservoir.

Cane Creek neighborhoods voicing opposition to the add-on MST trail acted in good faith – the OWASA Board clearly did not.

The OWASA Board's acceptance of a 2009 OWASA document approved by a previous OWASA Board was not vetted with the Cane Creek community. At the August 25, 2016 meeting, your own legal counsel stated that the current OWASA Board ***WAS NOT*** bound to follow or accept the recommendation in the 2009 document. The current OWASA Board had considerable red flag information offered by residents that was never addressed – in fact these concerns were ignored. These concerns were not discussed in your document and not given consideration in the unorganized discussion that followed the public presentations on August 25, 2016.

The OWASA Board essentially wasted many Cane Creek residents time and energy since it was clear

in the document OWASA provided at the August 25, 2016 meeting that the Board was not at all balanced in evaluating the positives and negatives of the proposed add-on MST add-on trail.

We now completely understand why requests and even a proposal of an alternate route was not pursued. The request for an alternate route has been standing for over three years. The residents in protest never received any written feedback regarding an alternate route or specific answers to the many questions posed to date by many Cane Creek residents.

A request to consider alternate routes by the OWASA Board at the August 25, 2016 OWASA meeting would have been a prudent and just action.

Many Cane Creek residents have spent a considerable amount of time and energy communicating with the OC BOCC, Orange County Recreation (David Stancil) and the OWASA Board. Over this three year period we have attended meetings, met individually with administrators, met as neighborhood groups and submitted letters of protest to OWASA, OC recreation, and the OCBOCC.

It is unimaginable that the current OWASA Board would increase the probability of compromising one of the cleanest water sources not just in the Triangle but in the region for an enhancement to the existing MST trail which is complete – in its entirety.

This add-on MST segment is not needed. This is particularly true given that there are already miles of existing hiking trails in Orange County.

Many legitimate concerns have been shared with the OWASA Board. But the most profound lack of logic and responsibility in your decision making process is demonstrated by the following statement:

OWASA will establish the conditions necessary for the use of OWASA property for the MST trail.

What good are conditions if they are not enforceable?

For example, here are some of OWASA's non-enforceable conditions:

1) No hiking on the trail before dawn or after dark.

Who will stop hikers from entering the proposed add-on MST segment before dawn or after dark?

Answer: No One.

2) No camping on or off the MST segment on OWASA property.

Who will know if a large group is partying or camping out near the beautiful vistas this trail segment presents?

Answer: Perhaps only the Cane Creek neighbors most close to this rural trail who are disturbed by the noise or by individuals wandering onto their property.

3) No campfires on the MST or on OWASA property.

Who will stop individuals from making a campfire?

Answer: No One

We can go on but it will only get more ludicrous – no smoking, no dogs, etc.

Does it not bother the OWASA Board and legal counsel that your conditions for use are NOT ENFORCEABLE?

What purpose do conditions serve if they are not enforceable?

Where is your clear thinking on this matter?

The 20/20 hindsight plea will not relieve this Board of this decision in 5 years after a fire like the one that has already happened on the ***MST Bald Knob trail***. The bulldozing necessary to simply get to the trail and the erosion caused would certainly impact the water quality for the greater Chapel Hill

community.

OWASA can continue the record of most previous Boards by doing the right thing for the residents of Chapel Hill, Carrboro, UNC-CH and all the medical research centers dependent on the Cane Creek water supply…it is easy…do not yield to political pressure.

It is not too late to do the right thing for the community and say no to this add-on MST trail through OWASA property, our rural neighborhoods, and the Cane Creek Reservoir. If MST and OC want a connector to Saxapahaw they can find an alternative route with less complications.

What is there greater good here?

An unnecessary add-on recreational trail or the protection of a pristine watershed that provides the life blood – water - to thousands of individuals dependent on the judgment of the OWASA Board.

John Silva, in good faith, withdrew his petition made to the OWASA Board to reject the proposed MST add-on trail at the June 23, 2016 meeting. It was obvious the OWASA Board was not ready to make a decision on this matter and needed more input and time to review the facts regarding this important decision.

We are formally petitioning the OWASA Board to re-visit the August 25, 2016 OWASA Board decision and vote to not support this MST add-on trail through OWASA property, the Cane Creek Reservoir and the rural neighborhoods of Mount Mitchel, Apple Mill, Teer and Thunder Mt.

Furthermore, we request that the OWASA Board requests that Orange County Recreation (Mr. Stancil) provide the Cane Creek community (which includes OWASA) with viable alternatives to the currently proposed add-on MST going through the Cane Creek Reservoir and our rural Cane Creek communities.

The response of the OWASA Board to this letter is greatly appreciated.

Thank you,

John M. Silva

Christine A. Silva

20+ year residents Thunder Mt. Road

Efland, NC

You're receiving this message because you're a member of the **Board and Leadership** group. If you don't want to receive messages from this group, **unsubscribe**.

View group conversations | View group files

From:	John A. Young
To:	John M. Silva
Cc:	Board and Leadership; O"Conner, Jim; Brenda McCall; Bill Charles; emann3@bellsouth.net; Ann Charles; Duckwall, Phil; Dave Walser; Dorney, Diane; Hegedus, Geoffrey; waltzingdog@gmail.com; Hooten, Beth; cmellor@mebtel.net; Sue Bagnell
Subject:	Re: OWASA August 25, 2016 Decision Regarding MST
Date:	Wednesday, August 31, 2016 12:50:19 PM
Attachments:	OWASA MST Resolution 20160826.pdf ATT00001.htm

Dear Mr. and Ms. Silva,

Thank you for participating in the process leading up to the board's August 25 decision.

I will present your written petition, which asks the board reconsider its August 25 vote in favor of allowing the MST to access and cross land that OWASA owns near the Cane Creek Reservoir, to the OWASA board at our next meeting on Thursday, September 8th at 6:00 p.m. in the OWASA Community Room in Carrboro.

Under our rules, the Board can only reconsider the August 25 resolution if one of the board members who voted in favor of the resolution makes a motion to do so. To proceed further, this motion also requires a second by another member who voted in favor of the resolution. If there is a motion and second, then we would vote on the motion. If a motion is approved by at least five affirmative votes, then we will schedule a future board meeting for additional public comment and reconsideration of the August 25 resolution.

Without such a motion, second, and at least five affirmative votes, the board will not, at this time, schedule proceedings to reconsider the resolution and receive additional public comments. Of course, the board will presumably reconsider the MST again at some future meeting(s), such as after the County Commissioners have determined and recommended a pathway across OWASA lands. You, all others on OWASA's list of interested parties, and the general public will receive notification of such future meeting(s) and the opportunity to provide comments.

We understand your desire to continue participating in the planning of the MST. As you will see in the attached August 26 letter to Chair McKee of the Orange County Board of County Commissioners, the OWASA board encourages "authentic engagement with residents to respectfully address the opportunities and concerns they shared with us" as the County staff and Commissioners further develop plans.

The County recently announced a community meeting on Monday, September 19. (OWASA staff tells me the distribution list included OWASA's MST public notice list, as we requested. Please contact Ruth Rouse at OWASA, rrouse@owasa.org, if you do not have details.) I am confident that this meeting is another opportunity for you to engage in a good-faith process that is designed to solicit, understand, and consider the public's concerns and goals and to ultimately make informed decisions about the MST in Orange County.

Thank you,
John Young
Chair, OWASA Board of Directors

You're receiving this message because you're a member of the **Board and Leadership** group. If you don't want to receive messages from this group, **unsubscribe**.

View group conversations | View group files

ORANGE WATER AND SEWER AUTHORITY

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

August 26, 2016

Chair Earl McKee
Orange County Board of County Commissioners
Post Office Box 8181
Hillsborough, NC 27278

Subject: OWASA Board of Directors' Approves Use of OWASA Land for the Mountains-to-Sea Trail

Dear Chair McKee:

At our meeting last night, the OWASA Board of Directors approved the use of OWASA land for the Mountains-to-Sea Trail, provided that the plans and implementation of the trail meet a set of prescribed conditions, which will ensure achievement of these critical goals:

- protection of water quality in Cane Creek Reservoir,
- no expenditure of OWASA funds for the trail, and
- minimization of risks associated with hikers using OWASA property.

Our Board made this decision after a deliberate, thoughtful and open engagement process over the past few months. We considered about 50 oral comments by residents at our meetings on June 23rd and August 25th alongside about 60 written comments. About 80 different residents of Orange County and the surrounding area expressed their views to us.

You will find last night's resolution, which includes the prescribed conditions for use of OWASA land, attached to this letter. A specific trail alignment on OWASA land would require final approval by the OWASA Board to ensure it meets the conditions in our resolution.

We appreciate the support that County staff provided by presenting information at our Board meetings and working with OWASA staff throughout the process. As the County staff and the Commissioners further develop plans for the Mountains-to-Sea Trail, we encourage authentic engagement with residents to respectfully address the opportunities and concerns they shared with us.

Please contact Ed Kerwin, Executive Director (ekerwin@owasa.org or 919-537-4211), or me if we can provide additional information.

Sincerely,

John A. Young, Chair
OWASA Board of Directors

Attachment
c: Mayor Lydia Lavelle, Town of Carrboro (with Attachment)
Mayor Pam Hemminger, Town of Chapel Hill (with Attachment)
Mr. David Andrews, Carrboro Town Manager (with Attachment)
Ms. Bonnie Hammersley, Orange County Manager (with Attachment)
Mr. Dave Stancil, Orange County DEAPR (with Attachment)
Mr. Roger Stancil, Chapel Hill Town Manager (with Attachment)
OWASA Board of Directors
Ed Kerwin, OWASA Executive Director

RESOLUTION APPROVING CONDITIONS FOR USE OF OWASA LAND FOR THE MOUNTAINS-TO-SEA TRAIL

WHEREAS, the Orange Water and Sewer Authority (OWASA) is a public, non-profit utility whose mission is to provide high quality and reliable water, wastewater, and reclaimed water services through responsible and creative stewardship of the resources we manage; and

WHEREAS, OWASA's primary mission is to protect its water supply reservoirs, Cane Creek Reservoir and University Lake; and

WHEREAS, OWASA land and conservation easements on private land in the Cane Creek watershed were acquired for watershed protection purposes to ensure a safe and high-quality supply of water in the Cane Creek Reservoir; and

WHEREAS, Rules governing the protection of public water supplies at 15A NCAC 18C allow the use of trails around public water supplies; and

WHEREAS, the Mountains-to-Sea Trail (MST) is a trail that will extend over 1000 miles from the Great Smoky Mountains to Jockey's Ridge State Park on the Outer Banks and is part of the State Parks System; and

WHEREAS, various portions of the MST are managed by different groups or local governments, and Orange County is the lead group planning the MST in Orange County; and

WHEREAS, in December 2009 the OWASA Board of Directors sent a letter to the Orange County Board of Commissioners which stated that OWASA would allow the use of its property in the vicinity of Cane Creek Reservoir as long as three conditions were met: (1) there is no compromise of water quality in Cane Creek Reservoir, and (2) there is no expenditure of OWASA funds, and (3) arrangements would be made to minimize any additional security risks associated with hikers using the property around the reservoir; and

WHEREAS, in April 2010, the Orange County Board of Commissioners (BOCC) approved a trail planning corridor proposed by North Carolina State Parks after working through the multi-jurisdictional Intergovernmental Parks Work Group, and a portion of the planning corridor is located on OWASA land; and

WHEREAS, the OWASA Board of Directors invited, received, and carefully considered public comment on the use of OWASA land for the MST on June 23, 2016 and August 25, 2016; and

WHEREAS, the *Conditions for Mountains-to-Sea Trail on OWASA Land* meet the conditions for siting the MST on OWASA land provided by the OWASA Board of Directors in December 2009; and

WHEREAS, the Board of Directors has determined that the *Conditions for Mountains-to Sea Trail on OWASA Land* will sufficiently protect the Cane Creek Reservoir water supply and OWASA's property.

NOW, THEREFORE, BE IT RESOLVED BY THE OWASA BOARD OF DIRECTORS THAT:

1. OWASA will allow the MST on its land provided that the defined trail meets the conditions outlined in *Conditions for Mountains-to-Sea Trail on OWASA Land Near Cane Creek Reservoir,* attached hereto*;* and

2. The final trail alignment on OWASA land is subject to approval by the OWASA Board of Directors to ensure it meets the *Conditions for Mountains-to-Sea Trail on OWASA Land Near Cane Creek Reservoir,* attached hereto, and as amended hereafter under OWASA standard Board operating practices.

Adopted this 25th day of August, 2016.

John A. Young, Chair

ATTEST:

Barbara M. Foushee, Secretary

ORANGE WATER AND SEWER AUTHORITY

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

Conditions for Mountains-to-Sea Trail on OWASA Land
August 25, 2016

Overview

OWASA land and conservation easements on private land in the Cane Creek watershed were acquired for watershed protection purposes to ensure a safe and high-quality supply of water in the Cane Creek Reservoir, the primary source of drinking water for the Carrboro-Chapel Hill community. Any use of OWASA-owned land must be done in such a way as to not negatively impact OWASA's core mission of watershed protection and be fully consistent with all applicable policies and requirements regarding use of OWASA's assets and resources.

Watershed Protection

The conditions included in this section are intended to protect the water quality in Cane Creek Reservoir. The rationale behind some of these conditions is provided:

- A protected 50 foot riparian buffer around streams and lakes is common. Cane Creek Reservoir is located within the Jordan Lake watershed, and rules to protect Jordan Lake include riparian buffer rules (15A NCAC 02B .0267). These rules do allow trails within 50 feet of a water body covered by the rule as long as there is no practicable alternative.
- Rules governing the protection of public water supplies (15A NCAC 18C .1201) do not allow recreational activities on the water of certain reservoirs without the permission of the Commission for Public Health or the Department of Environmental Quality. Under the agreement between OWASA and the Commission for Public Health, OWASA may allow boating and fishing (with specific restrictions) on Cane Creek Reservoir, but swimming and wading are explicitly excluded.
- One of the main causes of impairment of water quality nationally is from erosion and sedimentation. Allowing only a natural trail for hiking only;

keeping the trail 50 feet from the lake; designing the trail to avoid streams, wetlands, and steep slopes when practicable; stabilizing slopes; constructing the trail during dry periods; and following best practices to design, construct and maintain the trail will minimize the potential for sediment impacts to the reservoir.

The following conditions will help protect Cane Creek Reservoir.

1. The trail shall be a natural trail for hiking only.
2. Hikers must stay on the trail. Leaving the trail is considered trespassing.
3. No swimming or wading permitted.
4. No pets allowed. Service animals to assist those with disabilities are permitted on a leash.
5. There shall be signs on the trail where hikers enter OWASA land informing them of the trail use requirements.
6. The trail shall be no more than 3 feet wide and constructed of natural material (no impervious surfaces).
7. Trail planning, design, and construction should avoid removing large trees or rocks. Trees should be protected during construction.
8. The trail shall be at least fifty (50) feet from reservoir at normal pool elevation (500 feet).
9. There shall be no large motorized equipment used for trail construction.
10. The trail shall avoid wetlands and streams and where practicable, the trail shall be located fifty (50) feet from streams. When wetlands and streams cannot be avoided, cross them in narrower places and bridge the wetland/stream. Materials for bridges shall not contain materials that could leach and impact water quality. Bridge design shall not cause any upstream drainage issues.
11. There shall be no bridge crossings over portions of the Cane Creek Reservoir (lake conditions at normal pool elevation of 500 feet).
12. The trail shall avoid steep slopes; where this is not feasible, the trail shall be constructed and maintained in a manner to prevent erosion.
13. Trail construction will not cause sediment runoff to Cane Creek Reservoir or tributaries.
14. Construction near streams and wetlands shall be completed during dry periods.

15. Slopes shall be stabilized as soon as reasonably possible.
16. Best management practices regarding watershed protection and fire prevention shall be followed for trail planning, design, construction, operation and maintenance.
17. Any trash and food scraps must be packed out. No littering.

Minimize Risks from Trail Use

The conditions included in this section are intended to minimize additional risks from having hikers on OWASA property. The Agreement OWASA has with the Commission for Public Health (see more details in Watershed Protection section above) also has clauses which pertain to fishing, boating, and hunting as summarized below:

- Boating access is restricted to areas designated by OWASA, and thus the reservoir should not be accessed from areas other than from our public access location. This enables OWASA to inspect boats used on the reservoir to ensure they do not carry aquatic weeds, are clean and free of trash, meet US Coast Guard standards, and are in good physical condition for water worthiness and safety equipment. Only electric trolling motors are allowed, and must be secured to the boat in an approved manner with the battery secured in a battery box.
- Fishing is restricted to boats launched at OWASA's public access point when it is open, designated areas on OWASA docks, and designated bank areas at OWASA's public access point.
- No hunting or trapping is allowed on OWASA's land at the reservoir.

While the agreement is focused on the use of the reservoir, the agreement specifies boats cannot be within 150 feet of the water supply intake structure. This condition minimizes risk to the water supply and potential safety issues. Similarly, not allowing the trail near the dam, spillway, and other structures minimizes risk to the structures and potential safety issues for the public.

The agreement also states that the lake may only be open during daylight hours. Restricting use of the trail during daylight hours along with not allowing camping will minimize the risk from campfires. Prohibiting smoking minimizes the risk of a man-made forest fire as well.

In addition to the conditions in the agreement with the Commission for Public Health, there are other conditions staff believes are important for reducing risk. Establishing written procedures and training regarding rules, requirements and emergency management will enable OWASA and public safety officials and law enforcement to respond quickly and effectively in the event of an emergency.

The potential for issues will be greatest at trailheads and parking areas. Thus, OWASA will not permit a trailhead or parking area to be located on its property.

Other conditions listed below will help prevent erosion and minimize the noise impacts from the trail for our neighbors.

The following conditions apply to minimize risks from the Mountains-to-Sea Trail (MST) on OWASA land.

1. The trail hours will be from dawn to dusk.
2. No fires.
3. No camping.
4. No picnic areas.
5. No use of alcohol.
6. No smoking.
7. No fishing.
8. No hunting.
9. No horseback riding.
10. No use of drones except as may be permitted in accordance with the Federal Aviation Administration.
11. No boat launching.
12. No use of bicycles, motor bikes, ATVs or any other types of vehicles (barriers prohibiting such access may be required).
13. There shall be no access to the trail near the Cane Creek Reservoir Dam, spillway, or other OWASA facility/structure.
14. Trailheads and parking areas shall not be located on OWASA property.
15. Possession of weapons on these premises is prohibited, except by active law enforcement officers, or as may be allowed under a valid Concealed Carry Permit. The discharge of any firearm upon or into these premises is prohibited.
16. No threatening, assaultive, or abusive behavior.

17. Violation of any rule may result in legal action against the hiker(s).
18. Establish written procedures and training for enforcement of rules and requirements, emergency management including EMS, police, and fire for trail security and emergency response.

General

The general conditions also help protect Cane Creek Reservoir, minimize risks from hiking, minimize OWASA's costs, and reduce impacts to neighboring property owners.

1. The County or its designee shall obtain all necessary federal, state, and local permits.
2. Planning, design, construction, operation, maintenance and monitoring of the MST on OWASA land shall be the responsibility of the County or its designee and must be done in compliance with all federal, state, and local requirements. OWASA shall have the right to review design and construction plans prior to commencement of work on its land, and to stop work it deems not in compliance with its approvals.
3. The exact location of the trail on OWASA property will be approved by OWASA and it may be altered by OWASA if necessary either pre- or post-construction.
4. Existing restrictions on OWASA's lands may require approvals from agencies with interest in the property or co-owners to allow MST uses.
5. OWASA retains the right to manage its land.
6. OWASA retains the right to close the trail for safety and security reasons.
7. OWASA seeks a Memorandum of Agreement, Interlocal Agreement, and/or trail easement which outlines terms and conditions of the trail on our property. OWASA reserves the right to revoke the agreement.
8. OWASA prefers that the trail be a minimum of fifty (50) feet inside our property boundary to provide some screening to our neighbors. If this is not feasible, the County shall work with the neighboring property owner to develop terms and conditions on use of the trail that will minimize potential impacts to the property owner.
9. The County shall secure easements from private land owners adjacent to the trail endpoints on OWASA land prior to opening the trail on OWASA

land. No construction on OWASA land shall be initiated until connection to at least one existing MST segment has been established through plans and secured easements.

10. No unauthorized removal of natural or cultural resources.

No Expenditure of OWASA funds

This condition meets the third requirement of OWASA Board of Directors' December 2009 letter supporting the use of OWASA land for the MST.

1. Consistent with its obligations and requirements, OWASA will not spend any funds for trail planning, design, construction, operation and maintenance, including the monitoring and enforcement of applicable requirements and regulations.

Agenda Item 2:

Preliminary Twelve Month Financial Report for the Period Ended June 30, 2016

Purpose

The financial report for the twelve month period ended June 30, 2016 is presented to inform the Board of Directors of OWASA's financial position and financial performance in relation to budget.

Background:

The financial report consists of a Statement of Net Position, an Income Statement that includes a budget to actual comparison, graphical presentations of financial performance indicators and a Financial Management Policy Report Card.

Contents include:

- Statement of Net Position
- Income Statement
- Graphs of Key Performance Indicators
- Financial Management Policy Report Card

Fiscal Performance

As shown on page 10 of the financial report, all financial performance measurement targets were met for the period.

Average drinking water sales for the period was 6.03 million gallons per day (MGD), 6.20 was projected. Combined drinking and reclaimed water sales for the period averaged 6.63 MGD versus a projection of 6.95.

Total Operating Revenue was 0.4% or about $158,000 over budget.

Revenue from new system connections was over budget by about $438,000. Timing of meter sets is projected based on data available at the time of budget setting. The primary reason for being over budget is that several large meters that were anticipated to be installed in FY 2015 were delayed and spilled over into FY 2016.

Total operating expenses for the period were under budget by about $970,000.

- General and Administrative expenses were under budget by about $400,000. Consulting costs accounted for most of the variance. Costs associated with Energy Management, the Total Compensation Study, and the Long Range Water Supply Plan, in total, were under budget by about $325,000.
- Expenses in Water Supply and Treatment were over budget by about $188,000. Chemical expenses were over budget due to raw water quality; abnormal rainfall resulted in higher organic carbon and turbidity. Lab costs were also greater than budget due to increased sampling at our lakes, in our storage tanks, and at customer sites. Overtime costs exceeded budget primarily as a result of vacant operator positions.

- Water Distribution expenses were about $67,000 under budget. Most of the variance is attributable to construction projects performed by OWASA personnel which were more than what was budgeted for the twelve months. (Labor and other costs associated with construction projects performed by OWASA crews are capitalized and therefore reduce expenses of the department.)
- Wastewater Treatment Plant (WWTP) expenses were about $550,000 under budget. Costs related to a consulting project related to our plant monitoring and control system were about $130,000 under budget. Maintenance costs were under budget by almost $200,000; due to extended absences of key staff, several planned maintenance projects did not take place. Continued optimization of WWTP operations resulted in lower Chemical and Electricity costs ($80,000 and $50,000 under budget, respectively). Waste disposal costs related to the biosolids program were under budget by $115,000 due to increasing the percentage of land-applied biosolids versus transporting it to a third-party for composting
- Sewer Collections department expenses were about $140,000 under budget. Lower than budgeted maintenance costs account for about $65,000 of the variance. Wages were under budget for the year by about $30,000 due to position vacancies and health insurance costs were about $21,000 under budget.

Net Income less Debt Service for the period was approximately $1.6 million or 20% more than budget.

Capital equipment expenditures were almost $540,000 under budget. Delivery of two pieces of equipment (a utility truck and a truck for cleaning sewers) costing approximately $465,000 that were scheduled to be purchased in FY 2016 was delayed. We will most likely need to amend the FY 2017 budget to account for these funds being expended in FY 2017 instead of FY 2016. IT equipment costs were under budget because of the decision to postpone purchase of a lab information management system pending evaluation of the functionality of the new supervisory control and data acquisition (SCADA) system.

Capital Improvements Program (CIP) expenditures were $7.5 million for the year; this is net of about $407,000 in expenditures for the Rogers Road Sewer Extension Project (OWASA is being reimbursed for the project's costs).

Detailed information on FY 2016 CIP projects is included in the Semi-annual CIP Status Report beginning on page six of the agenda for the August 25, 2016 Board meeting.

Action Requested:

Receive and discuss the Preliminary Financial Report for the twelve month period ended June 30, 2016.

Information:

- Financial Report for June 30, 2016

Orange Water and Sewer Authority

Preliminary Financial Report
For the Twelve Month Period Ended
June 30, 2016

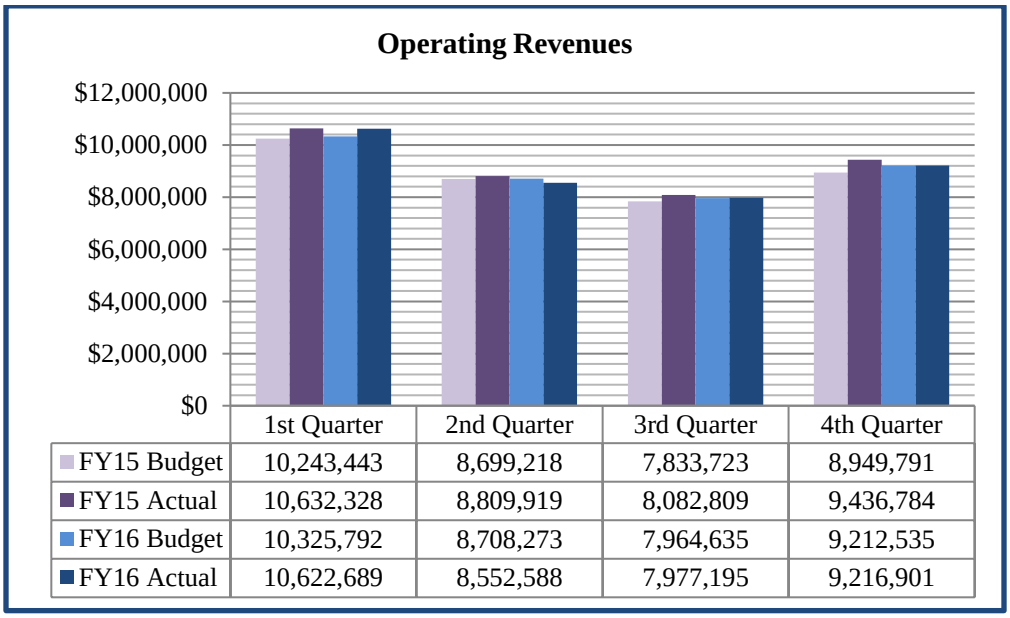
Orange Water and Sewer Authority
Statement of Net Position
June 30, 2016
(unaudited)

Assets	
Current Assets	
Cash	$27,872,710
Receivables	4,857,484
Inventory	892,145
Prepaid expenses	298,684
Restricted cash	7,193,045
Total Current Assets	41,114,068
Noncurrent Assets	
Capital assets (net of depreciation)	268,334,749
Other noncurrent assets	31,227,923
Total Noncurrent Assets	299,562,672
Total Assets	$340,676,740
Liabilities and Net Position	
Current Liabilities	
Accounts payable and accrued expenses	$3,538,975
Unearned income	214,972
Customer deposits	1,079,661
Total Current Liabilities	4,833,608
Noncurrent Liabilities	
Bonds payable	73,624,000
Other noncurrent liabilities	8,167,689
Total Noncurrent Liabilities	81,791,689
Net Position	
Contributed capital	115,628,125
Net position at the beginning of the year	131,762,085
Year-to-date accrual basis net income	6,661,233
Total Liabilities and Net Position	$340,676,740
Net income reconciliation:	
Accrual basis net income	$6,661,233
Depreciation, other post-employment benefits, and interest expense	11,304,816
Modified accrual basis net income	$17,966,049

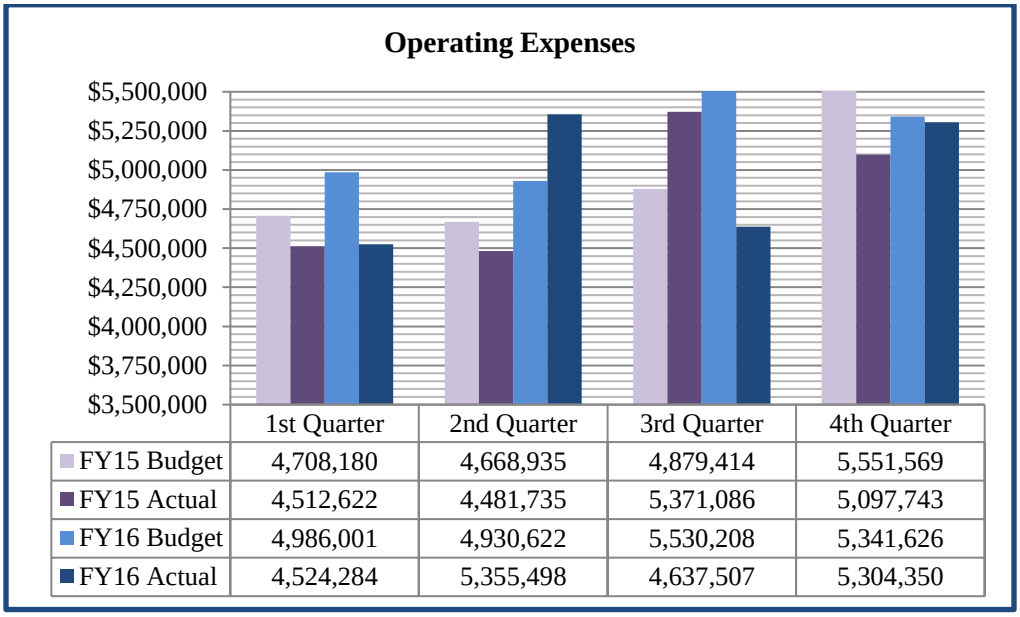
Orange Water and Sewer Authority
Income Statement
For the Twelve Month Period Ended June 30, 2016
(unaudited)

	Actual through June 30, 2016	Budget through June 30, 2016	Variance (effect on net change in Fund Balance)	Percent Variance
Operating Revenue:				
Water	$17,894,908	$17,990,169	($95,261)	-0.5%
Sewer	16,758,694	16,794,115	(35,421)	-0.2
Reclaimed Water	442,785	452,250	(9,645)	-2.1
Service Initiation Fees	169,660	158,421	11,239	7.1
Other	1,347,623	1,048,487	299,136	28.5
Refunds and Allowances	(244,297)	(232,207)	(12,090)	5.2
Total Operating Revenue	36,369,373	36,211,235	158,138	0.4
Non-operating Income:				
Customer Fees	1,397,652	959,582	438,070	45.7
Interest	20,663	34,571	(13,908)	(40.2)
Total Non-operating Income	1,418,315	994,153	424,162	42.7
Total Income	37,787,688	37,205,388	582,300	1.6
Operating Expense:				
General and Administrative	6,403,637	6,805,438	401,801	5.9
Water Supply and Treatment	4,889,336	4,701,591	(187,745)	(4.0)
Water Distribution	2,781,136	2,848,248	67,112	2.4
Wastewater Treatment	4,561,981	5,106,125	544,144	10.7
Wastewater Collection	1,185,549	1,327,055	141,506	10.7
Total Operating Expense	19,821,639	20,788,457	966,818	4.7
Net Income (modified accrual)	17,966,049	16,416,931	1,549,118	9.4
Debt Service	8,254,272	8,316,327	62,055	0.7
Net Income less Debt Service	9,711,777	8,100,604	1,611,173	19.9
Less: CIP Expenditures	7,538,017	10,615,000	3,076,983	29.0
Capital Equipment Expenditures	332,252	875,000	542,748	62.0
Net Change in Fund Balance	$1,841,508	($3,389,396)	$5,230,904	

Orange Water and Sewer Authority
Select Financial Data
For the Twelve Month Period Ended June 30, 2016



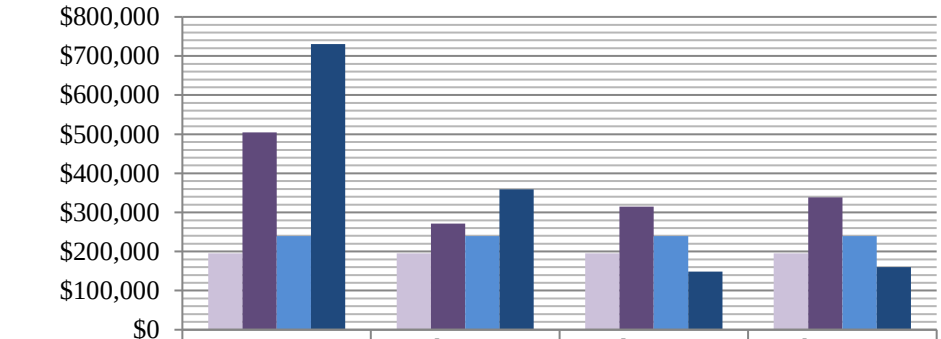
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
FY15 Budget	10,243,443	8,699,218	7,833,723	8,949,791
FY15 Actual	10,632,328	8,809,919	8,082,809	9,436,784
FY16 Budget	10,325,792	8,708,273	7,964,635	9,212,535
FY16 Actual	10,622,689	8,552,588	7,977,195	9,216,901



	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
FY15 Budget	4,708,180	4,668,935	4,879,414	5,551,569
FY15 Actual	4,512,622	4,481,735	5,371,086	5,097,743
FY16 Budget	4,986,001	4,930,622	5,530,208	5,341,626
FY16 Actual	4,524,284	5,355,498	4,637,507	5,304,350

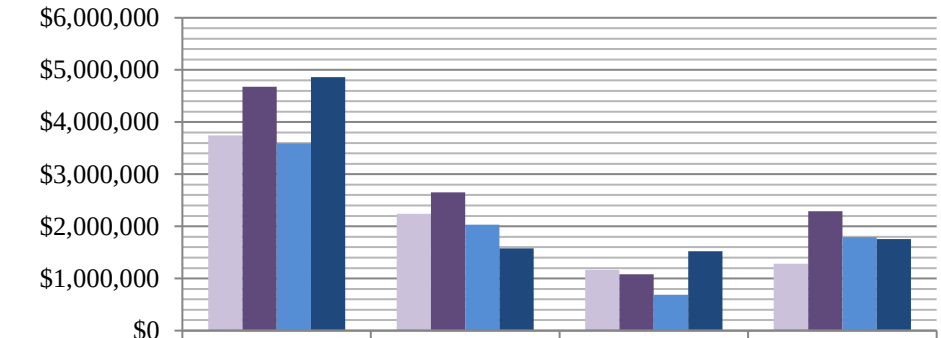
Orange Water and Sewer Authority
Select Financial Data
For the Twelve Month Period Ended June 30, 2016

Customer Fees (Service Availability Fees)



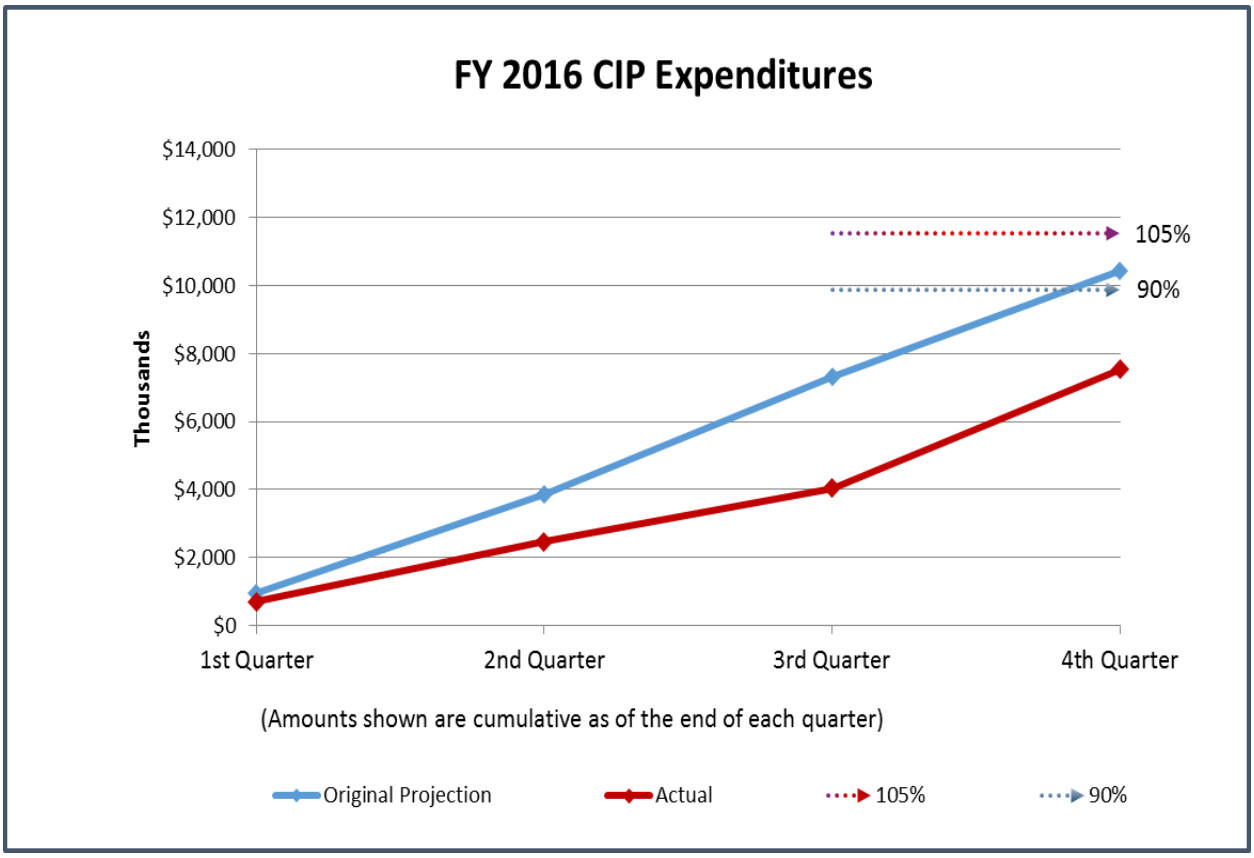
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
FY15 Budget	195,593	195,593	195,593	195,593
FY15 Actual	504,869	271,531	314,656	338,186
FY16 Budget	239,896	239,894	239,896	239,897
FY16 Actual	730,219	358,748	148,546	160,139

Net Revenue less Debt Service



	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
FY15 Budget	3,747,285	2,242,305	1,166,331	1,282,244
FY15 Actual	4,678,908	2,654,224	1,082,376	2,292,025
FY16 Budget	3,591,248	2,029,106	685,883	1,794,367
FY16 Actual	4,859,502	1,578,482	1,519,723	1,754,070

Orange Water and Sewer Authority
Select Financial Data
For the Twelve Month Period Ended June 30, 2016

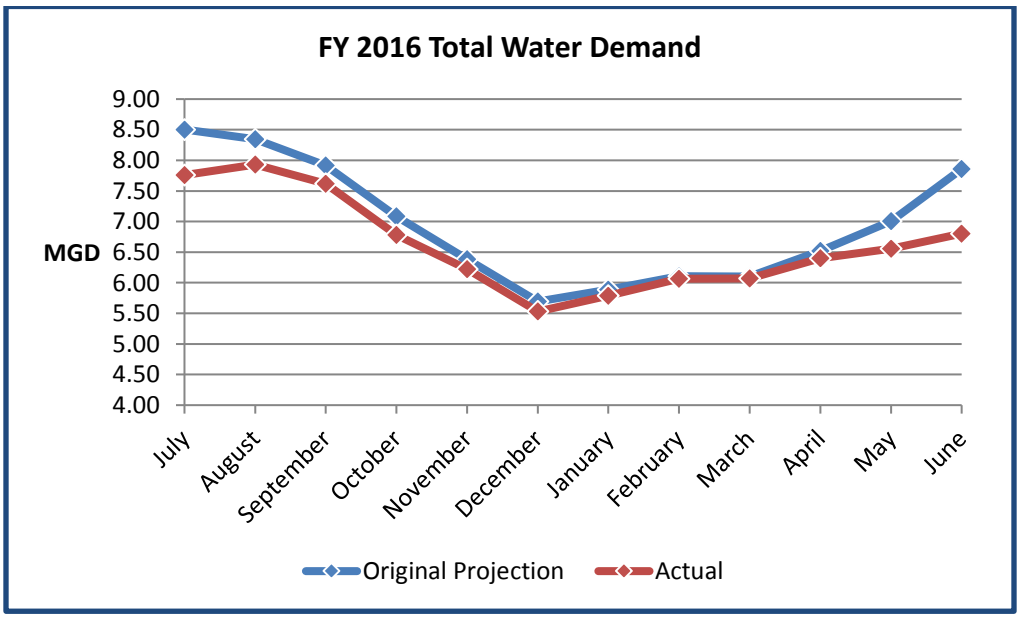


Orange Water and Sewer Authority
Select Financial Data
For the Twelve Month Period Ended June 30, 2016

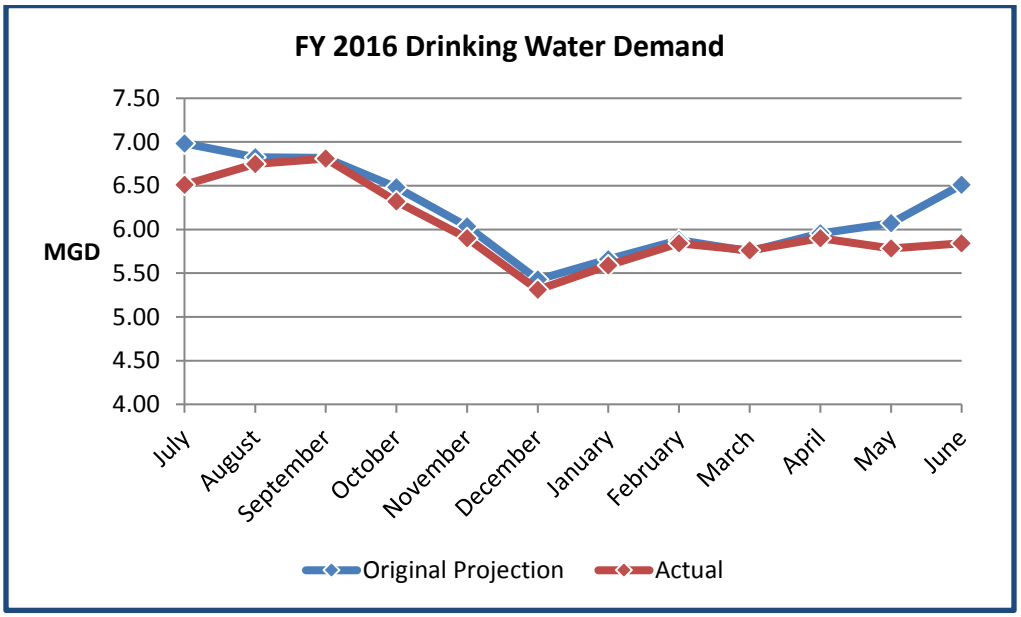
FY 2016 Water Sales Projection (Average Day)

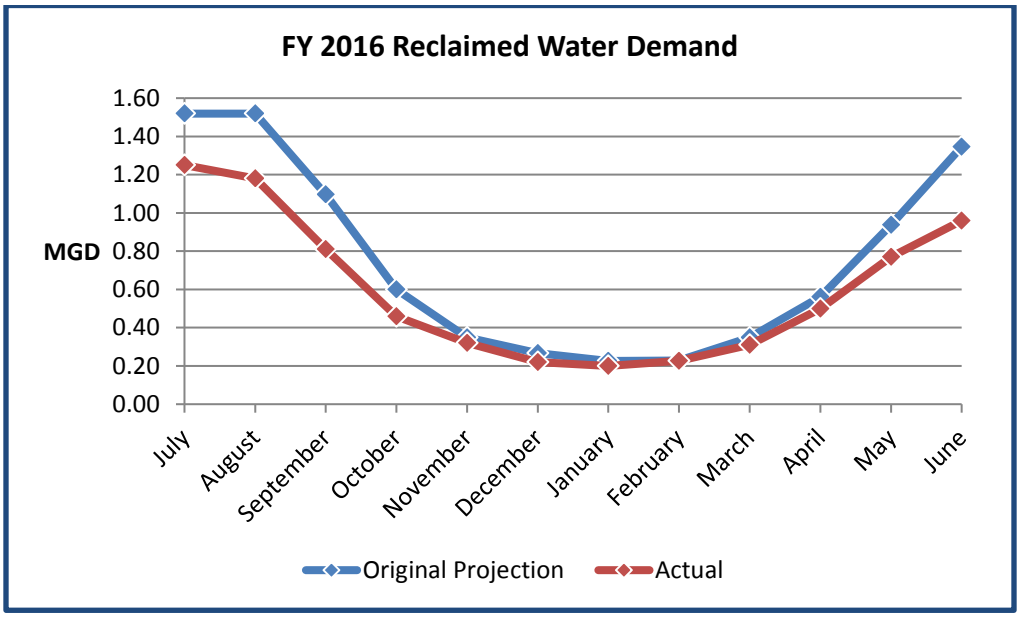
	Original FY 2016 Sales Projections		Actual FY 2016 Water Sales		Revised FY 2016 Sales Projections	
	DW	RCW	DW	RCW	DW	RCW
July	6.98	1.52	6.51	1.25	6.51	1.25
August	6.83	1.52	6.75	1.18	6.75	1.18
September	6.82	1.10	6.81	0.81	6.81	0.81
October	6.48	0.60	6.32	0.46	6.32	0.46
November	6.04	0.35	5.90	0.32	5.90	0.32
December	5.43	0.27	5.31	0.22	5.31	0.22
January	5.66	0.23	5.59	0.20	5.59	0.20
February	5.88	0.23	5.84	0.23	5.84	0.23
March	5.75	0.35	5.76	0.31	5.76	0.31
April	5.96	0.56	5.90	0.50	5.89	0.50
May	6.07	0.94	5.78	0.77	5.78	0.77
June	6.51	1.35	5.84	0.96	5.84	0.96
Average	6.20	0.75	6.03	0.60	6.03	0.60

Estimates shown in red

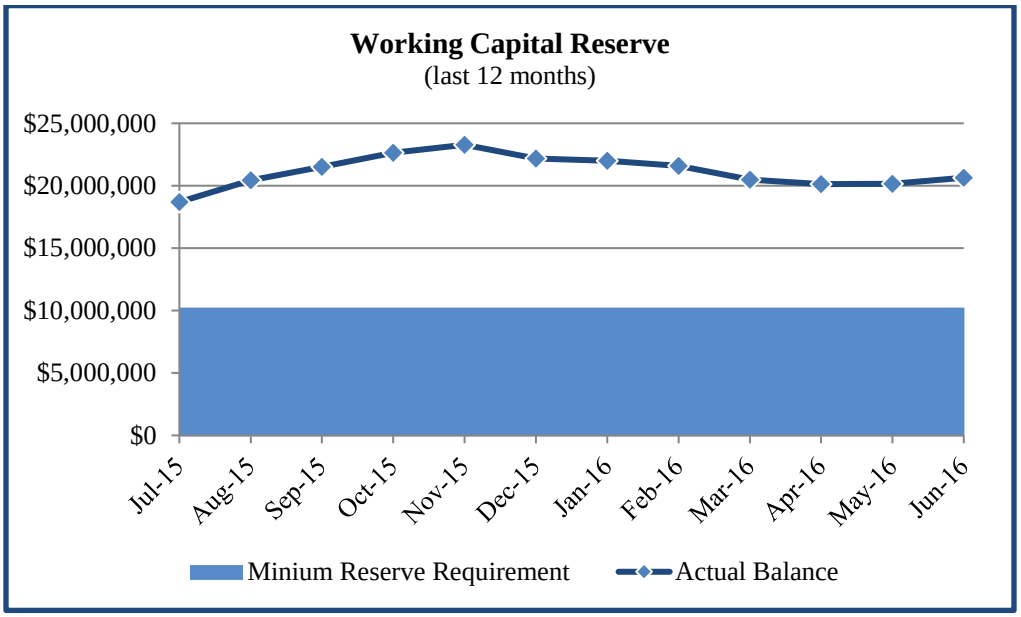


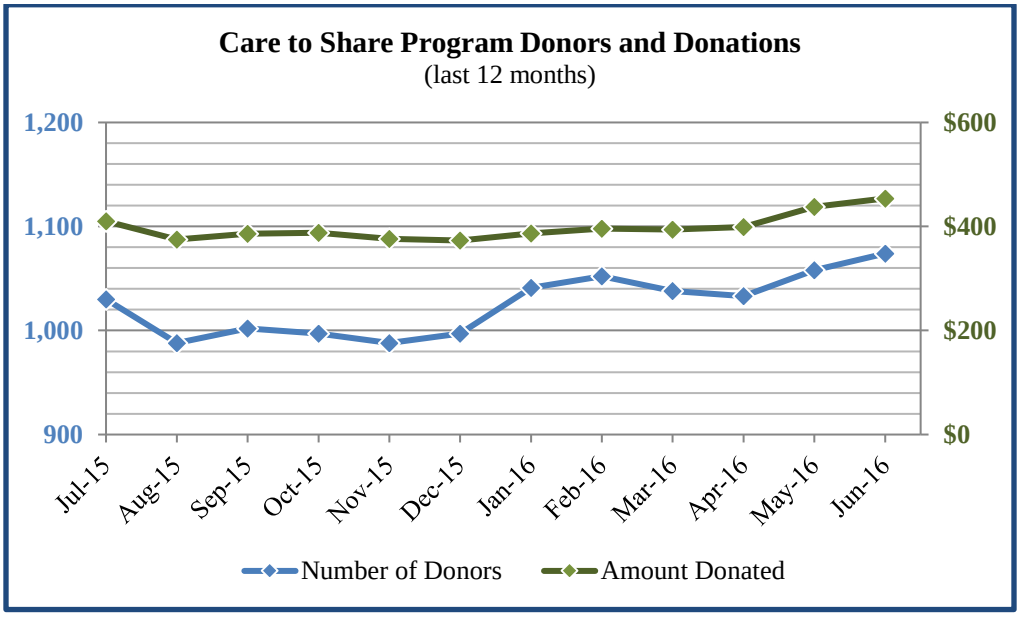
Orange Water and Sewer Authority
Select Financial Data
For the Twelve Month Period Ended June 30, 2016





Orange Water and Sewer Authority
Select Financial Data
For the Twelve Month Period Ended June 30, 2016





Orange Water and Sewer Authority
Financial Management Policy Report Card
For the Twelve Month Period Ended June 30, 2016

Measurement	Objective	FY15 Results	FY16 Goal	YTD FY16 Results
Working Capital Reserves	Greater of four months Operating expenses or 20% of succeeding three years CIP	$22.1M	$10.2M	$20.6M
Capital Improvements Reserve	2% of Net Capital Assets (Funding $400,000 per year until reach goal of approximately $6M)	$2.4M	$2.8M	$2.8M
Rate / Revenue Stabilization Reserve	5% of annual Water and Sewer Revenue (Funding $250,000 per year until reach goal of approximately $2M)	$1.5M	$1.7M	$1.7M
Debt Burden to Asset Value	Total Debt not more than 50% of Total Assets	27%	≤ 50%	25%
Sufficiency of Revenues above Debt Requirements	Annual Debt Service no more than 35% of Gross Revenue	21%	≤ 35%	23%
Cash Financing of Capital	Annual revenues and reserves provide at least 30% of CIP funding	91%	≥ 30%	100%
Debt Service Coverage Ratio	Annual Net Income not less than two times Annual Debt Service	2.3	2.0	2.2
Service Affordability Ratio [1]	Average annual OWASA bill not more than 1.5% of area median household income	1.42%	1.5%	1.39%

M = million

[1] FY 2016 Calculation based on median household income of $60,802 (per 2015 U.S. Census Bureau) and average monthly household water use of 4,000 gallons.

Agenda Item 3:

Discuss Multi-Family, Master-Metered Rate Structure Alternatives

Purpose:

Based on analyses and discussions during the rate study conducted in Fiscal Year (FY) 2015, the Board established multi-family, master-metered (MFMM) customers as a separate class of customers for the purpose of rate-setting. The Board is considering a new rate structure for charging MFMM customers for water and services.

Overview:

The cost-of-service rationale for establishing a MFMM rate class is that water use trends of MFMM customers are significantly different from those of other general service customers (i.e. water use is less seasonal). It is staff's understanding that the Board would like to establish a new rate structure for charging MFMM customers for water services for the purposes of improving customer understanding and addressing affordability issues. If a change is made, staff understands that the Board would like to have the new MFMM rate structure in-place before May 1, 2017 (the date when peak season rates go into effect).

Action Requested:

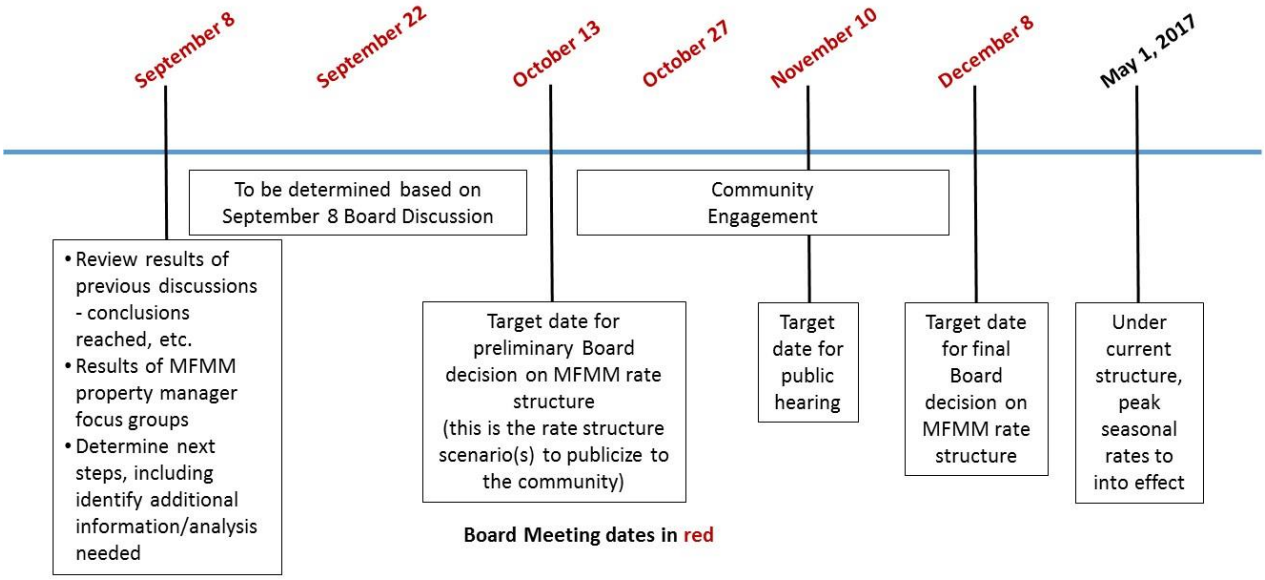
Consider the analysis of rate structure alternatives for the MFMM rate class and provide guidance to staff.

Information:

- Background Information for Discussion of Multi-Family, Master-Metered Rate Structure Alternatives
- Attachment 1 – OWASA's Multi-Family, Master-Metered Customers: Summary Statistics
- Attachment 2 – Customer Impact Examples
- Attachment 3 – Technical Memorandum: Regulation of Third-Party Re-Billing

Purpose

Based on analyses and discussions during the rate study conducted in Fiscal Year (FY) 2015, the Board established multi-family, master-metered (MFMM) customers as a separate class of customers for the purpose of rate-setting on February 11. The cost-of-service rationale for this decision is that water use trends of MFMM customers are significantly different from those of other general service customers (i.e. water use is less seasonal). It is staff's understanding that the Board would like to establish a rate structure for charging MFMM customers for water services for the purposes of improving customer understanding and addressing affordability issues. If a change is made, it is staff's understanding that the Board would like to have the new MFMM rate structure in-place before May 1, 2017 (the date when peak season rates go into effect). A timeline for accomplishing this is shown below.



Background

MFMM customers are properties served by one (or more) meter(s) that subsequently serves more than one residence or dwelling unit. Examples in our system include apartment complexes and some condominiums, duplexes, triplexes, etc. Currently, the seasonal rate structure (shown below) applies to MFMM customers.

Service	Fixed Monthly Service Charge (based on meter size)	Commodity Charge (per 1,000 gallons)	
		Peak Season (May-Sept)	Off-peak Season (Oct-Apr)
Water	$14.70 - $1,002.06	$7.91	$4.16
Sewer	$12.00 - $485.82	$6.48	

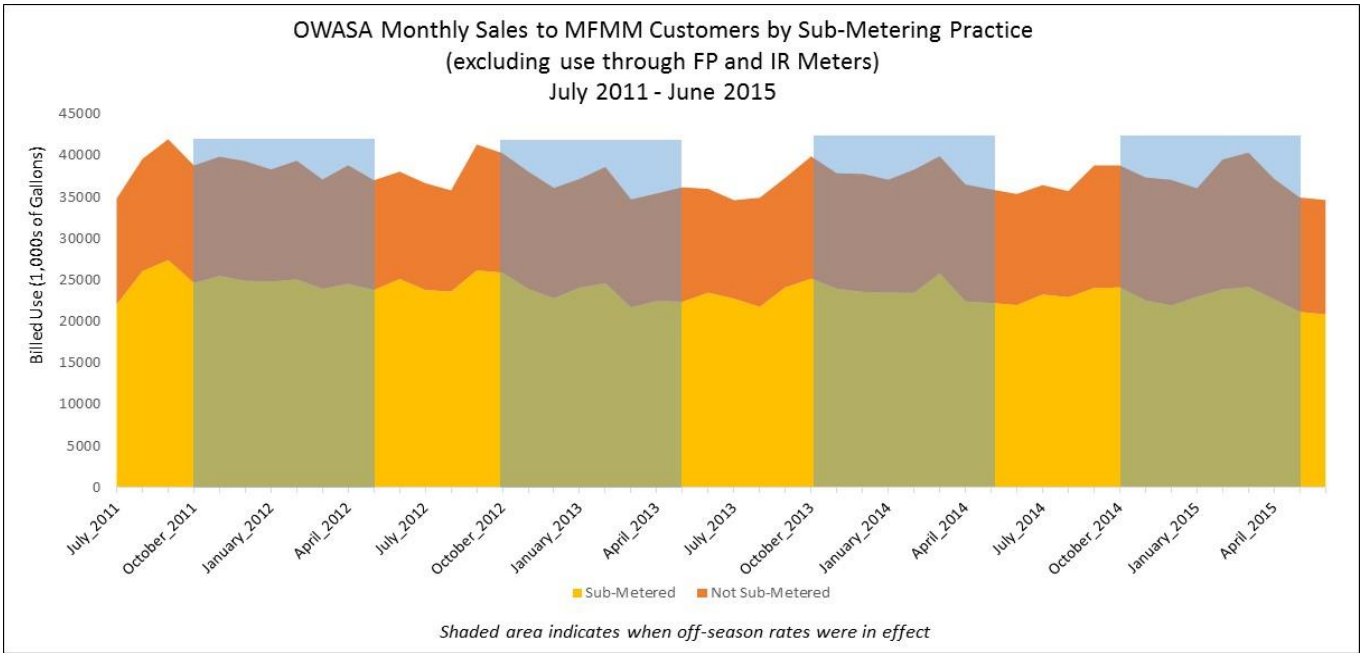
About one-third of the MFMM locations have private sub-metering systems and use these systems to measure and re-bill each tenant's water use. Sub-meter reading and re-billing is typically performed by a third-party service provider. Property owners and managers have told us that they are motivated to install and manage such a system because it reduces overall costs; tenants see a direct link between their water use and their monthly bills. We estimate that this type of system is in-place for over 6,000 individual residences and anticipate this number to increase in coming years.

Insight from MFMM Landlord and Property Manager Focus Groups

To help inform the Board's consideration of an alternative rate structure for MFMM customers (as well as to inform OWASA's Affordability Outreach Program), OWASA staff invited MFMM landlords and property managers from our service area to participate in focus groups in late July 2016. The topics of discussion in the focus groups were water use, water efficiency, and rates. The focus groups were organized based on whether the complexes were sub-metering and re-billing tenants for their water use. One focus group was comprised of three representatives from MFMM complexes that sub-meter and re-bill their tenants for water use. The other focus group was comprised of ten representatives from MFMM complexes that do not sub-meter and re-bill their tenants for water use.

Participants in the focus groups were asked to respond on what they liked and didn't like about various commodity charge structure alternatives, including seasonal, uniform, and increasing block rate structures (like those charged to OWASA's single-family residential customers). They were also invited to comment on whether the water use in their complex fluctuated seasonally, and if so, why.

As seen in the aggregate trends presented in the graph below, the individual complexes represented by the focus group participants did not report large seasonal fluctuations in water use.



Complexes and most of their tenants used about the same amount of water each month of the year regardless of the unit price for water. Some of the represented complexes had pools. Focus group participants reported that the practice of pool refilling was influenced more by regulations that require pools to be drained and refilled when broken glass falls into them; rate structures are not a factor.

For those complexes that sub-meter and re-bill tenants, the seasonal rate change can lead to problems for them and their tenants. The property managers reported a significant increase in work orders regarding non-existent leaks in the spring when rates increase. They also believe it contributes to tension and mistrust between the managing company and their tenants. Whether sub-metering and re-billing or not, participants in both focus groups expressed that the seasonal rate structure complicates the budgets of households and property managers.

A second challenge can result from the twice-per-year change in price. The third-party service provider must change the rates they use for sub-meter billing each time our rates change. Some of the property managers that participated in the focus group mentioned that the service providers do not always make the rate change which results in tenants receiving incorrect bills. Tenants of some properties have also informed us about this

Profile of Customers in the MFMM Rate Class

To supplement the Board's consideration of rate structure alternatives, Attachment 1 provides summary statistics for the MFMM rate class, including the number of MFMM customers, meter sizes serving them, number of irrigation meters, seasonality of water use, timing of peak water use, etc. Information regarding the number of dwelling units served by each MFMM meter are estimates compiled from a series of sources.

Alternative Rate Structures to Consider

The Board has provided the following guidance to staff regarding rate structure alternatives.

- Alternatives should be revenue neutral for the MFMM rate class; changes to the rate structure for MFMM customers should not impact other customers or rate classes.
- The purpose of the modifications will be to improve customer understanding and address affordability issues.
- Modifications to the fixed monthly service charge and the commodity charge will be considered. No changes will be made to the sewer commodity charge.
- The Board would like to consider fixed monthly service charges based on the size of meter serving the property (the approach currently in place) and based on the number of dwelling units of the property.
- The Board would like to consider a modification to the seasonal rate structure that reduces the differential between peak and off-peak usage rates.

Discussion of the Customer Impact of Rate Structure Alternatives

Attachment 2 provides a few examples of the monthly and annual customer bill impact of water rate structure modifications according to the Board's previous guidance. In each example, two modifications to the monthly commodity charge are compared to the current water usage charge. The modifications are summarized in the following table.

Commodity Charge	Current	Reduced Peak (seasonal rates with reduced peak/off-peak differential)	Uniform (one year-round rate)
Water rate per 1k gals (May-Sept.)	$7.91	$6.53	$5.67
Water rate per 1k gals (Oct.-Apr.)	$4.16	$5.10	
Sewer rate per 1k gals (all year)	$6.48		

Each example is defined based on the number of dwelling units served by the master-meter, the size of the master-meter, the method for calculating the fixed monthly service charge, and the variability of monthly water use.

Fixed Monthly Service Charge Based on Meter Size

Currently, our fixed monthly service charge for MFMM customers is based on the size of the meter serving the property. If this continues to be our approach for fixed monthly service charges, and the only rate structure change made is to the commodity charge, a customer's annual charges (assuming no change in the volume of water used) would remain the same. See Attachment 2, Examples A and B1.

These examples demonstrate the isolated customer impact of only modifying the commodity charge. For the "Reduced Peak" alternative, MFMM customers would see a smaller increase in costs when rates go from off-peak to peak, and a smaller decrease when rates go from peak to off-peak. For the "Uniform" alternative, there would be no month-to-month change in costs resulting from changes to the rate structure.

When comparing a seasonal rate structure to a uniform rate structure, the vast majority of the focus group participants favored a uniform rate structure. For those complexes that sub-meter and re-bill their tenants, they believe this type of rate structure would be easier to explain and budget. Additionally, they believed it would decrease the unfounded work orders and tension between the property managers and tenants. One focus group participant suggested that a uniform rate structure could actually better promote conservation because the bill would be more straight-forward month-to-month. Property managers that did not sub-meter and re-bill their tenants saw a benefit for their own budgeting purposes.

Fixed Monthly Service Charge Based on Number of Dwelling Units

If we change the fixed monthly service charge from basing it on meter size to basing it on a property's number of dwelling units, a customer's annual water and sewer costs will change: some more significantly than others.

Under this method, a per-dwelling-unit service charge is determined. Working with our consultants, we estimated the per-dwelling-unit charge should be $5.01. The degree of the impact on a customer's costs depends on the number of dwelling units of the property. As shown in Attachment 1, we have MFMM customers with as few as two dwelling units and others with several hundred. The following shows the general impact of this approach on customers' water and sewer costs.

Number of dwelling units	Impact on annual water and sewer costs
About the median for a particular meter size	Fairly insignificant
Higher than the median for a particular meter size	Higher annual costs
Lower than the median for a particular meter size	Lower annual costs

At the March 24, 2016 Board meeting, examples of the impact on different customer scenarios were discussed. See Attachment 2, Examples B2, C and D.

Impact at Household Level

The modifications presented in this memo and in Attachment 2 summarize the changes for MFMM customers at the landlord/property manager level, not the individual household level. As discussed earlier, how these modifications impact water use and affordability at the household level is largely influenced by whether the tenants are sub-metered and re-billed for their water use.

For the households whose water use is covered in their rent or homeowner fees, the impact is indirect and difficult to generalize. For households that are sub-metered and re-billed by a third-party for their water use, the impact will be more direct.

Although the impact is more direct, the rates OWASA charges complexes for water and sewer services are not necessarily directly transferred through to tenants. The North Carolina Utilities Commission (NCUC) regulates water and sewer service re-billing arrangements of MFMM properties with at least 15 contiguous dwelling units. To help the Board understand how the rate structure modifications would be transferred through to individual households/tenants, we have provided a technical memo that explains the NCUC's regulations (Attachment 3).

Staff Recommendation

Commodity Rate

Staff believes reducing the differential between the peak vs. off-peak seasonal rates is justified by this rate class' water use patterns, and we believe that it helps meet the goals of improving customer understanding and addressing affordability issues. Replacing the seasonal rate structure for MFMM customers with a uniform rate goes further towards meeting these goals.

Fixed Monthly Service Charge

From a cost-of-service standpoint, justification exists for basing the fixed monthly service charge on meter size or by the number of dwelling units. However, the dwelling unit approach ads complexity to administering and maintaining our customer database and billing system. For this analysis, we have collected information about the number of dwelling units for each property but we would need to implement a process for verifying this information for existing customers, as well as new customers. Incorrect information about a MFMM's property would result in billing errors. Data integrity could be addressed but it would be an ongoing issue.

Action Requested

Consider the analysis of rate structure alternatives for the MFMM rate class and provide guidance to staff.

Next Steps

Once the Board considers the analysis of rate structure alternatives and makes a preliminary decision, we will need to develop a plan to engage with the community to get feedback from customers and other stakeholders. The Board will consider the public's feedback before making a final decision.

Attachments: 1 – OWASA's Multi-Family, Master-Metered Customers: Summary Statistics
2 – Customer Impact Examples
3 – Technical Memorandum: Regulation of Third-Party Re-Billing

OWASA's Multi-Family, Master Metered Customers: Summary Statistics on a New Rate Class

588	Water Meters
36	Fire Protection Meters
11	Irrigation Meters
537	Locations
193	Owners
Serving	
~12,800	Dwelling Units

Water Meters Per Owner

61% of MFMM owners have only 1 water meter

Sources of Information on # of Dwelling Units

a) NC Utilities Commission for developments with approved sub-metering and re-billing systems
b) the Orange County parcel database
c) information provided from property managers
d) our customer information system and water system as-built records

What we don't know about Multi-Family, Master-Metered Customers

1. Occupancy rates throughout the year
2. Number of bathrooms per dwelling unit
3. Number of bedrooms per dwelling unit
4. Number and types of water fixtures
5. Whether common water fixtures (like pools, laundry facilities, grounds irrigation) are metered separately from residences

Sub-Metering and Re-billing

Approximately 1/3 of MFMM locations are sub-metered and re-billed.

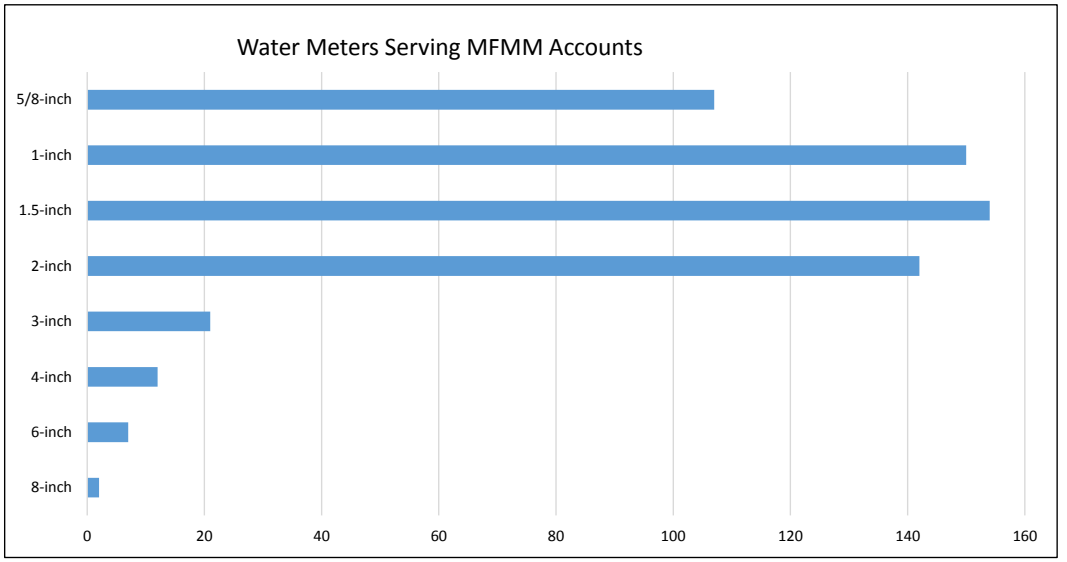
Abbreviations

MFMM: Multi-Family, Master Metered
WR-A: Non-University Water Meters
FP: Fire Protection
IR: Irrigation

Fiscal Year 2015 Revenue

TOTAL	Water		Sewer		Irrigation		Fire Protection	
	SC	CC	SC	CC	SC	CC	SC	CC
$6,242,200	$503,000	$2,557,000	$271,000	$2,886,000	$8,000	$17,000	NA	$200

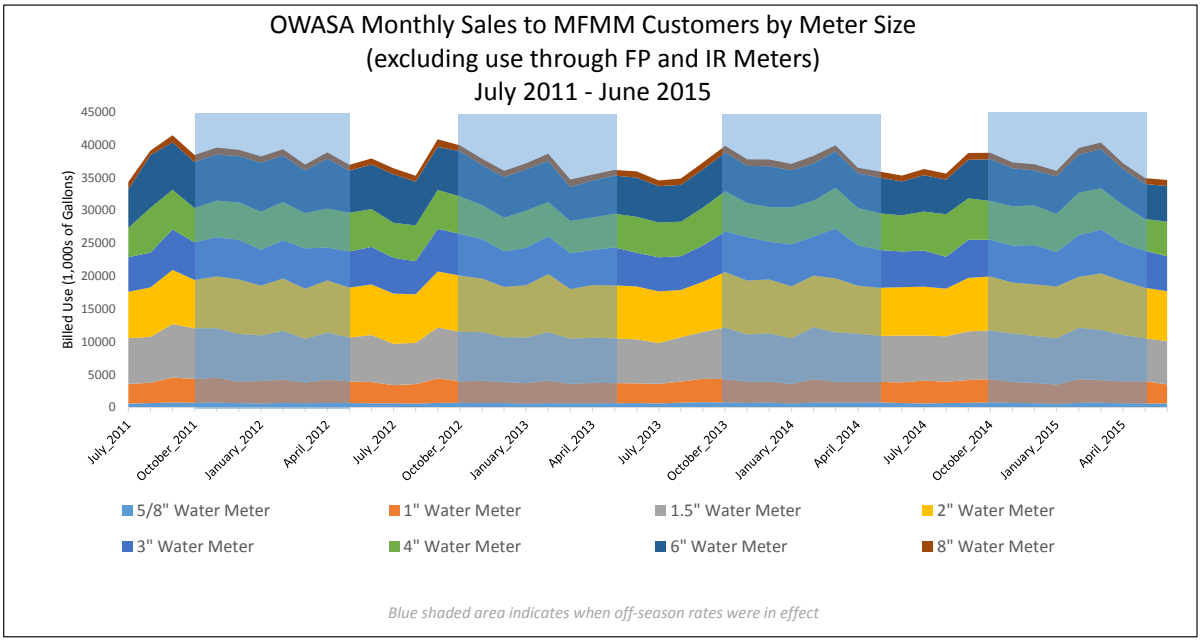
**SC: Service Charge* **CC: Consumption Charge*

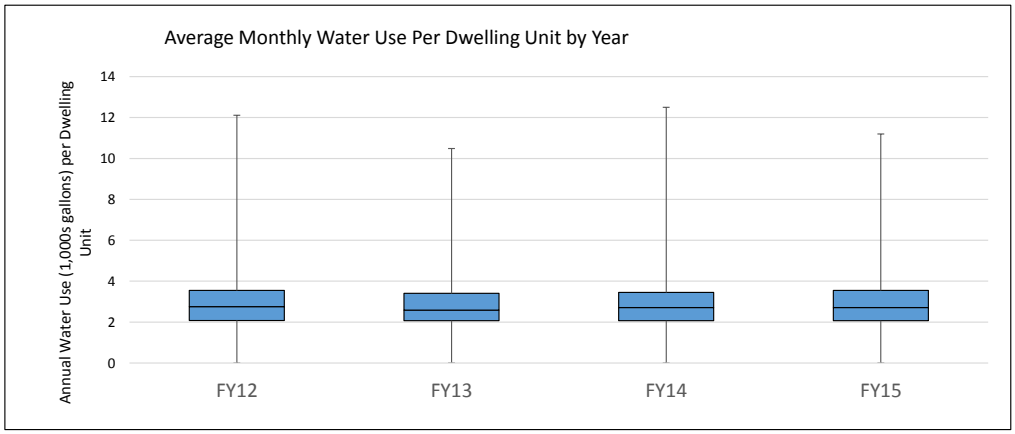


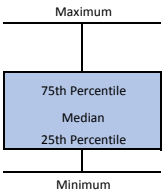
Estimated Number of Dwelling Units Served by Water Meters

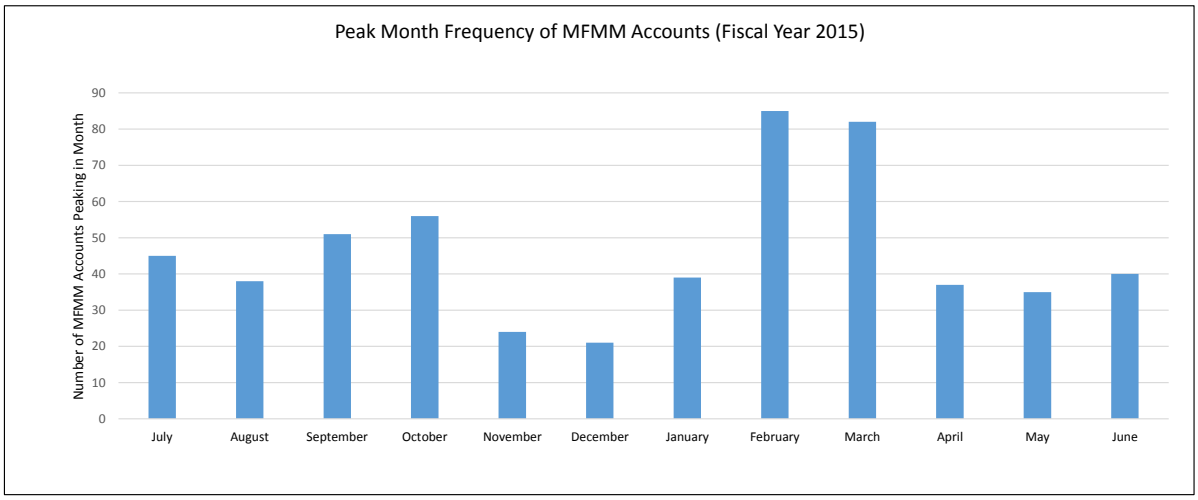
Meter Size	# of Dwelling Units Served				
	Minimum	25th Percentile	Median	75th Percentile	Maximum
5/8-inch	2	2	2	2	6
1-inch	2	5	6	8	66
1.5-inch	4	12	16	20	102
2-inch	8	20	36	94	152
3-inch	43	61	88	118	144
4-inch	40	97	140	191	296
6-inch	61	168	194	321	332
8-inch	188				192

OWASA's Multi-Family, Master Metered Customers: Summary Statistics on a New Rate Class









Customer Example A - Monthly Service Charge Based on Size of Meter Serving Property

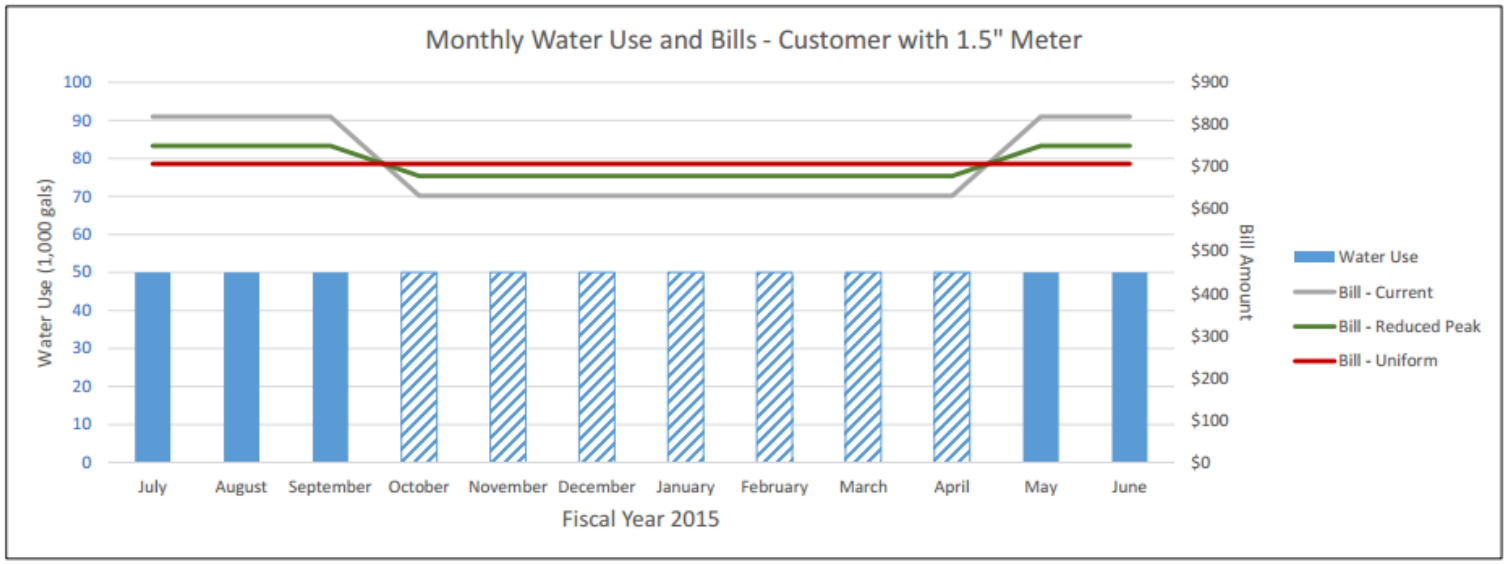
Customer Profile	
Comparison to other MFMM customers with same meter size	Median
Number of Dwelling Units (D/U)	16
Meter size	1.5"

Current Rates		
Rate Element	**Method**	**Rate**
Monthly service charge	Meter size	99.39
Water commodity rate	Peak	7.91
Water commodity rate	Off-peak	4.16
Sewer commodity	Uniform	6.48
Annual bill		8,515.00

Reduced Peak Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	Meter size	99.39	
Water commodity rate	Peak	6.53	
Water commodity rate	Off-peak	5.10	
Sewer commodity	Uniform	6.48	
Annual bill		8,515.00	None

Uniform Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	Meter size	99.39	
Water commodity rate	Peak	5.67	
Water commodity rate	Off-peak	5.67	
Sewer commodity	Uniform	6.48	
Annual bill		8,515.00	None

No change in total annual costs between current rates, reduced peak rates, and uniform rates.



Example A

Customer Example B1 - Monthly Service Charge Based on Size of Meter Serving Property

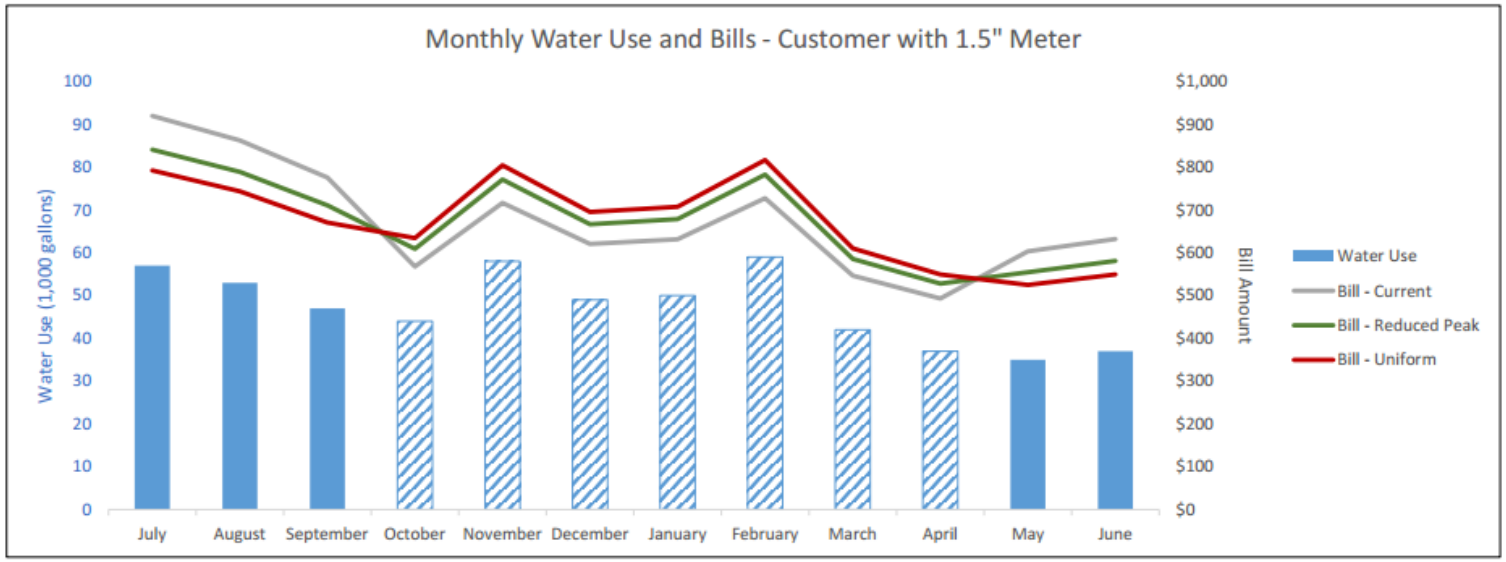
Customer Profile	
Comparison to other MFMM customers with same meter size	Median
Number of Dwelling Units (D/U)	16
Meter size	1.5"

Current Rates		
Rate Element	**Method**	**Rate**
Monthly service charge	Meter size	99.39
Water commodity rate	Peak	7.91
Water commodity rate	Off-peak	4.16
Sewer commodity	Uniform	6.48
Annual bill		8,095.00

Reduced Peak Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	Meter size	99.39	
Water commodity rate	Peak	6.53	
Water commodity rate	Off-peak	5.10	
Sewer commodity	Uniform	6.48	
Annual bill		8,095.00	None

Uniform Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	Meter size	99.39	
Water commodity rate	Peak	5.67	
Water commodity rate	Off-peak	5.67	
Sewer commodity	Uniform	6.48	
Annual bill		8,095.00	None

No change in total annual costs between current rates, reduced peak rates, and uniform rates.



Example B1

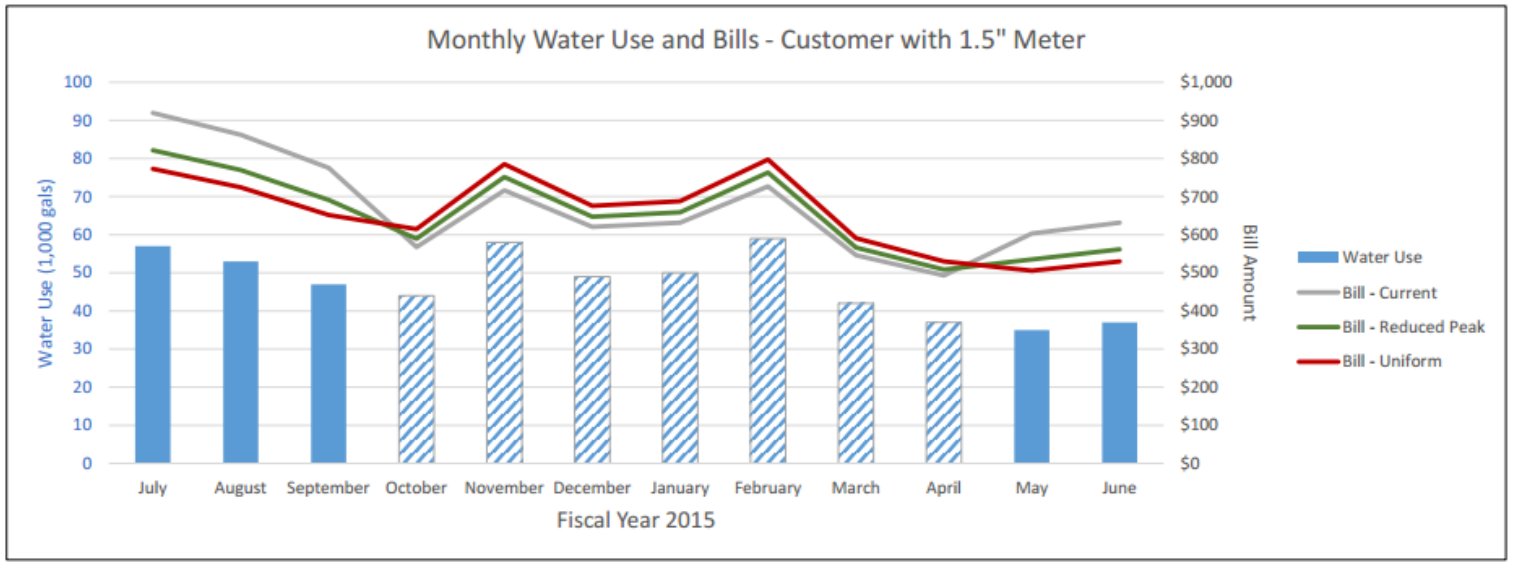
Customer Example B2 - Monthly Service Charge Based on the Number Dwelling Units of the Property

Customer Profile	
Comparison to other MFMM customers with same meter size	Median
Number of Dwelling Units (D/U)	16
Meter size	1.5"

Current Rates		
Rate Element	**Method**	**Rate**
Monthly service charge	Meter Size	99.39
Water commodity rate	Peak	7.91
Water commodity rate	Off-peak	4.16
Sewer commodity	Uniform	6.48
Annual bill		8,095.00

Reduced Peak Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	D/U	80.18	
Water commodity rate	Peak	6.53	
Water commodity rate	Off-peak	5.10	
Sewer commodity	Uniform	6.48	
Annual bill		7,866.00	(229.00)

Uniform Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	D/U	80.18	
Water commodity rate	Peak	5.67	
Water commodity rate	Off-peak	5.67	
Sewer commodity	Uniform	6.48	
Annual bill		7,867.00	(228.00)



Example B2

At or near the median number of dwelling units for a particular meter-size, a property's annual water and sewer costs would not change much. In this example, costs would be reduced from current levels by 2.8%.

Customer Example C - Monthly Service Charge Based on the Number Dwelling Units of the Property

Customer Profile	
Comparison to other MFMM customers	75th
with same meter size	Percentile
Number of Dwelling Units (D/U)	96
Meter size	2"

Current Rates

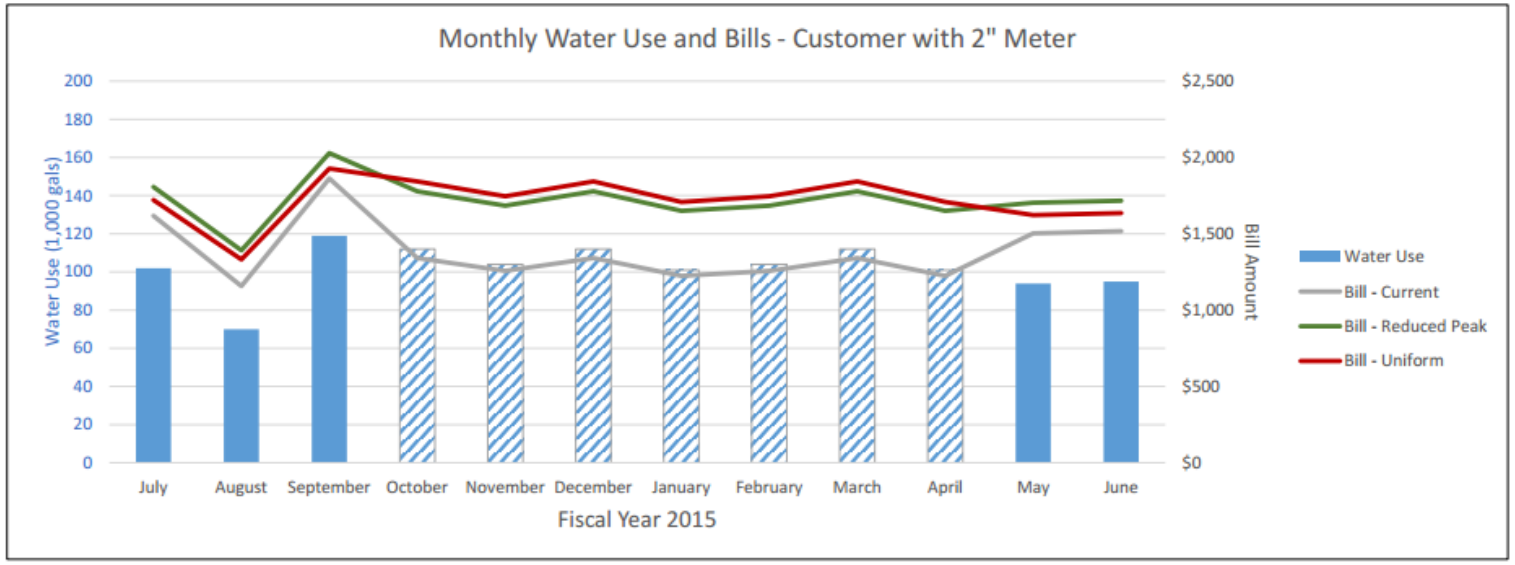
Rate Element	Method	Rate
Monthly service charge	Meter Size	150.10
Water commodity rate	Peak	7.91
Water commodity rate	Off-peak	4.16
Sewer commodity	Uniform	6.48
Annual bill		16,646.00

Reduced Peak Rates

Rate Element	Method	Rate	Change in Annual Bill
Monthly service charge	D/U	481.06	
Water commodity rate	Peak	6.53	
Water commodity rate	Off-peak	5.10	
Sewer commodity	Uniform	6.48	
Annual bill		20,653.00	4,007.00

Uniform Rates

Rate Element	Method	Rate	Change in Annual Bill
Monthly service charge	D/U	481.06	
Water commodity rate	Peak	5.67	
Water commodity rate	Off-peak	5.67	
Sewer commodity	Uniform	6.48	
Annual bill		20,675.00	4,029.00



Example C

In this example, the property is in the 75th percentile for customers with 2" meters (96 dwelling units). Its annual costs would increase by 24%.

Customer Example D - Monthly Service Charge Based on the Number Dwelling Units of the Property

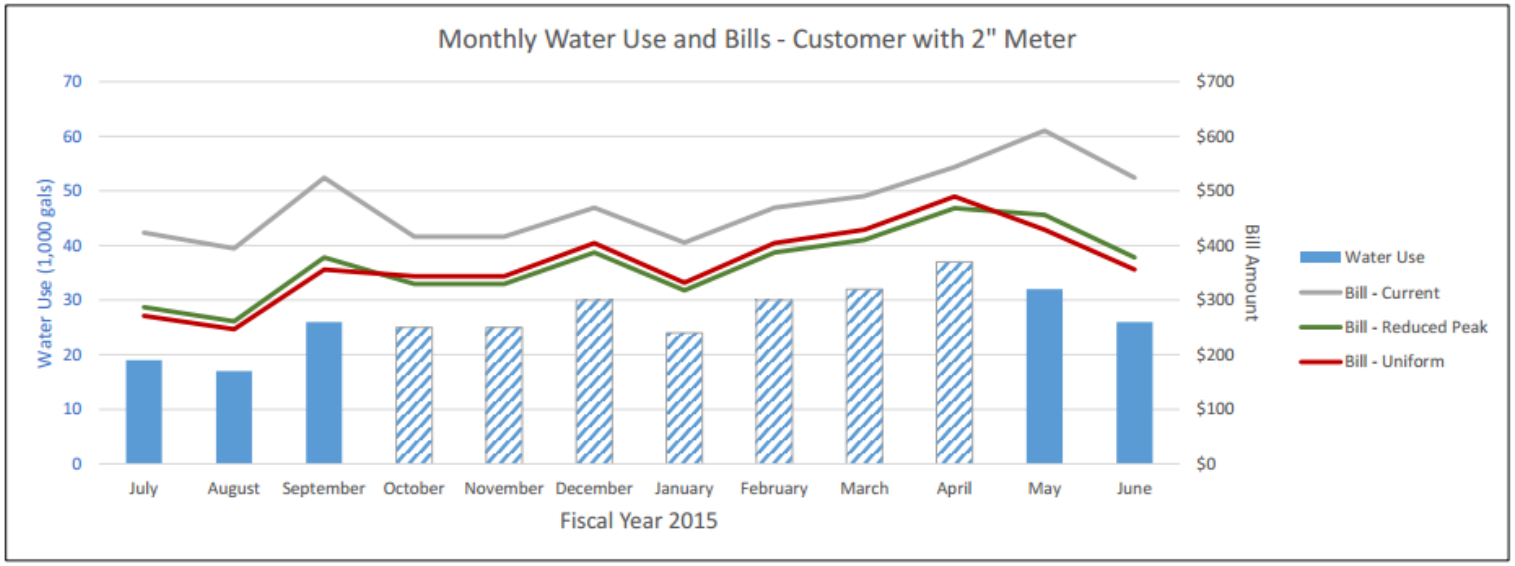
Customer Profile	
Comparison to other MFMM customers	25th
with same meter size	Percentile
Number of Dwelling Units (D/U)	8
Meter size	2"

Current Rates		
Rate Element	**Method**	**Rate**
Monthly service charge	Meter Size	150.10
Water commodity rate	Peak	7.91
Water commodity rate	Off-peak	4.16
Sewer commodity	Uniform	6.48
Annual bill		5,688.00

Reduced Peak Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	D/U	40.09	
Water commodity rate	Peak	6.53	
Water commodity rate	Off-peak	5.10	
Sewer commodity	Uniform	6.48	
Annual bill		4,393.00	(1,295.00)

Uniform Rates			
Rate Element	**Method**	**Rate**	**Change in Annual Bill**
Monthly service charge	D/U	40.09	
Water commodity rate	Peak	5.67	
Water commodity rate	Off-peak	5.67	
Sewer commodity	Uniform	6.48	
Annual bill		4,408.00	(1,280.00)

In this example, the property is in the 25th percentile for customers with 2" meters (8 dwelling units). Its annual costs would decrease by 23%.



Example D

Technical Memorandum for the OWASA Board of Director's Consideration of an Alternative Rate Structure for MFMM Customers

The Regulation of Third-Party Re-Billing

Purpose

This memo provides information on the regulation of re-billing (reselling) in the state of North Carolina.

Background

OWASA's service area includes about 600 accounts classified as multi-family, master-metered (MFMM) customers. MFMM customers are properties where a single water meter serves more than one residential dwelling unit. This group of customers includes duplexes, triplexes, apartment complexes, etc. There are about 12,800 dwelling units served by these MFMM accounts.

MFMM account holders ("landlords") receive a bill from OWASA based on the water and sewer use of the entire account, not individual dwelling units. Individual residents of dwelling units do not receive a bill directly from OWASA. Some landlords have installed private sub-metering systems that allow the landlord to measure the water-use of each dwelling unit and re-bill the tenants for each tenant's share of the overall water-use of the property. The water-use of about sixty percent of the dwelling units served by a MFMM accounts are sub-metered and re-billed for their water and sewer services by the landlord. Landlords without a private sub-metering system have no way to measure dwelling unit water-use; their tenants do not pay for water and sewer services separately.

The North Carolina Utilities Commission (NCUC) regulates sub-metering and re-billing arrangements between landlords and their tenants. The NC Public Staff is an independent agency created to review, investigate, and make appropriate recommendations to the NC Utilities Commission. The following memo explains the details of that regulation.

From Legislation to Operation

G.S. 62-110(g) authorizes landlords to resell water and sewer services to persons who occupy the same contiguous premises "for the purpose of encouraging water conservation" and charges the NCUC to adopt rules to facilitate such arrangements. NCUC Rule 18 governs how landlords charge tenant's for the costs of providing water or sewer service when landlords sub-meter and re-bill. The rules only apply to complexes with 15 or more contiguous units. Approximately 200 of OWASA's 600 MFMM accounts serve less than 15 contiguous units. These landlords may sub-meter and re-bill, but they are not regulated in doing so.

Included in the rule is general guidance on how a supplier's (in this case OWASA's) rates should be passed through to tenants. The following describes how the NCUC allows landlords to re-bill a supplier's rates.

Fixed charges: Landlords are permitted to pass along a supplier's base (i.e. fixed) charge by dividing the base charge by the number of units served by the meter. Additionally, landlords are permitted to add a "per dwelling unit administration fee" of $3.75 to cover the landlord's cost of meter reading, billing, and collecting.

Usage charges: Landlords may pass-through to tenants only a tenant's proportional share, based on water-use, of the amount of the complex's water and sewer bill. (There is an exception provided to properties built prior to 1989 without the plumbing configuration to sub-meter a dwelling unit's total water usage.[1]) For landlords that are charged a uniform or seasonal rate, calculating the usage rate that they charge their tenants is straightforward; they simply pass through the uniform or seasonal rate.

It is not as straightforward for the landlords that are charged block rates. Although there is nothing that explicitly prevents the direct pass through of block rate charges, for the landlords that are charged block rate structures, the NCUC has only approved reselling arrangements that result in tenants being charged a blended uniform rate. That blended uniform rate is calculated by taking the average unit price at 4,000 gallons of use per month under the block rate structure.

The following example is an excerpt from a petition by a MFMM customer served by Charlotte Water and demonstrates how this blended rate is calculated. In this case, Charlotte Water applies their residential increasing block rate to MFMM accounts on a 'per dwelling unit' basis. (Charlotte Water uses cubic feet for billing purposes, not gallons, so a conversion is necessary.)

[1] **Exception – hot water capture, cold water allocation:** In cases where the MFMM property was built prior to 1989 and the landlord determines that due to the plumbing configuration of the building, measurement of the tenant's total water use is impractical or not economical, the provider may estimate each tenant's total water use based upon the hot water use of each tenant as a percentage of all of the tenants' hot water use. In these cases, the landlord must subtract out 20% of the entire complex's water use to account for common areas.

Charlotte Mecklenburg Utilities
Effective July 1, 2015

Tier	Price per ccf	# of ccf	Total Price	Notes
Tier 1	$1.58	4	$6.32	
Tier 2	$2.04	1.35	$2.75	
Total			$9.07	
Total Price for 5.35 ccf			$9.07	$9.07 / 5.347594 ccf = $1.70
Average Price per ccf			$1.70	
Sewer			$4.51	

Number of ccf in 4,000 gallons = 5.347594

1,000 gallons = 748 cubic feet (0.748 ccf)

As you can see, rather than being charged $1.58 for the first 4 ccf and $2.04 for the remaining 1.35 ccf in Tier (Block) 2, tenants are charged a uniform rate of $1.70 per ccf for all water use (plus $4.51/ccf for sewer).

The practice described above is used to calculate a blended uniform rate whether the block rates are charged on a "per dwelling unit" basis (as illustrated above) or against the total water use of the building (e.g. Winston-Salem and Forsyth County). Given that it is not a direct pass through of the usage rate charged by the supplier, a landlord may actually realize a modest profit or loss under this arrangement. According to members of the Public Staff, the NCUC has not deviated from this practice because they want a statewide uniform approach to reselling under block rate structures that helps to make sure the landlord recovers about what is paid to serve the units with water and sewer service.

Discussion

Currently, the seasonal rates charged by OWASA to MFMM customers are passed through directly to those tenants that are sub-metered and re-billed by their landlord. If the Board of Directors approved a different seasonal (or uniform) usage rate for MFMM account holders, that would remain a direct pass-through to tenants. If the Board of Directors adopted a block rate structure for MFMM customers, the current practice by the NCUC indicates that it would be blended into a uniform rate based on 4,000 gallons of water-use per month.

This monthly water-use assumption is high for our MFMM customers with 15 or more dwelling units, where average monthly water-use in Fiscal Year 2015 was 2,930 gallons. In other words, this method of calculating a blended uniform rate would result in slightly higher water usage charges for those units that use less than 4,000 gallons per month than if they were individually metered and billed directly by OWASA.

It's important to note that using 4,000 gallons to calculate a blended uniform rate does not mean that tenants will be billed for 4,000 gallons; 4,000 gallons is merely the amount upon which the rate applied to their individual usage is determined.

Agenda Item 4:

Discuss and Approve Energy Management Program Evaluation Criteria and Approach, including the Incorporation of a Social Cost of Carbon

Purpose:

To obtain the Board of Director's feedback on and approval of the proposed Energy Management Program, including a framework to evaluate and prioritize clean energy projects for in-depth business case evaluations, and corresponding Stakeholder Engagement Plan

To obtain the Board of Director's guidance on the use of a social cost of carbon in the evaluation of clean energy projects

Background:

Strategic Initiative #5 of OWASA's Strategic Plan for Fiscal Years 2014-2017 is to Implement an Energy Management Plan.

On June 25, 2015, the OWASA Board of Director's reviewed a summary of historic energy use and energy efficiency improvements made in recent years and set draft framing objectives for OWASA's Energy Management Plan.

On May 26, 2016, the OWASA Board of Director's approved the Revised Charter for the Energy Management Plan and authorized staff to proceed with the development of an Energy Management Program, including the identification and evaluation of clean energy opportunities.

On August 24, 2016, the Natural Resources and Technical Services (NRTS) Committee reviewed, discussed, and supported (with revisions noted in the minutes of that meeting) staff's proposed Energy Management Program and corresponding Stakeholder Engagement Plan. The NRTS Committee also discussed the use of a social cost of carbon in the Energy Management Program and recommended that the Federal Interagency Working Group's central value for the social cost of carbon (valued at $36/metric ton in 2015) be used and identified separately in the business case evaluation of each clean energy project.

Action Requested:

Staff requests the Board of Director's approval of the proposed Energy Management Program and corresponding Stakeholder Engagement Plan.

Staff requests the Board of Director's guidance whether to use a social cost of carbon in our business case evaluation of clean energy projects, and if so, at what level.

Information:

- Energy Management Program, Stakeholder Engagement Plan, and the Social Cost of Carbon

Energy Management Program, Stakeholder Engagement Plan, and the Social Cost of Carbon

Purpose

Staff seeks the Board of Director's feedback on and approval of the proposed Energy Management Program (Attachment #1), including a framework to evaluate and prioritize clean energy projects for in-depth business case evaluations, and corresponding Stakeholder Engagement Plan (Attachment #2).

On a related, but not conditional topic, staff seeks the Board of Director's guidance on the use of a social cost of carbon in the evaluation of clean energy projects.

Background

On June 25, 2015, the OWASA Board of Director's reviewed a summary of historic energy use and energy efficiency improvements made in recent years and set the following goals and objectives for energy management.

1. Reduce use of purchased electricity by 35% by the end of Calendar Year (CY) 2020 compared to CY 2010 baseline
2. Reduce use of purchased natural gas by 5% by CY 2020 compared to CY 2010 baseline
3. Beneficially use all wastewater treatment plant (WWTP) biogas by 2022, provided the preferred strategy is projected to have a positive payback within the expected useful life of the required equipment
4. Formally engage local governments and partners in discussion about potential development of a biogas-to-energy project at the Mason Farm WWTP
5. Seek proposals for third-party development of renewable energy projects on OWASA property

The enclosed documents summarize a proposed approach to instituting an Energy Management Program at OWASA that objectively and sustainably meet those goals and objectives. In addition, staff designed the program described in Attachment #1 to:

- Foster a clean energy culture at OWASA through employee engagement and continuous improvement and innovation,
- Ensure strategic and prompt pursuit of clean energy opportunities, and
- Pursue cost-effective clean energy strategies.

A corresponding Stakeholder Engagement Plan (Attachment #2) proposes how to engage defined stakeholders in the implementation of this Program, including reference to supplemental Community Engagement Plans for high-profile, community-oriented clean energy projects.

A key community engagement opportunity and policy consideration in OWASA's evaluation of clean energy projects is whether to include a "credit" for the social cost of carbon in our business

case evaluations, and if so, at what level. Doing so would expand the extent of clean energy projects we can "cost-effectively" pursue, but will not result in actual financial savings for our customers. Attachment #3 provides background and context for the Board of Director's consideration in the use of a social cost of carbon in the business case evaluation of clean energy projects.

On August 24, 2016, the Natural Resources and Technical Services (NRTS) Committee reviewed, discussed, and supported (with revisions noted in the minutes of that meeting) staff's proposed Energy Management Program and corresponding Stakeholder Engagement Plan. The NRTS Committee also discussed the use of a social cost of carbon in the Energy Management Program and recommended that the Federal Interagency Working Group's central value for the social cost of carbon (valued at $36/metric ton in 2015) be used and identified separately in the business case evaluation of each project.

Action Requested

Certainly, the Energy Management Program and Stakeholder Engagement Plan are related to the consideration and use of a social cost of carbon. However, should the Board request additional time and engagement to consider the social cost of carbon, it is staff's intention that the Energy Management Program and corresponding Stakeholder Engagement Plan can proceed with or without the establishment and use of a social cost of carbon.

Staff requests the Board of Director's approval of the proposed Energy Management Program and corresponding Stakeholder Engagement Plan and guidance whether to use a social cost of carbon in our business case evaluation of clean energy projects, and if so, at what level.

Attachments

1: Summary of Proposed Energy Management Program and Project Evaluation Framework
2: DRAFT Stakeholder Engagement Plan for Energy Management Program
3: Draft Memo on Using a Social Cost of Carbon to Evaluate Clean Energy Projects: A Potential Policy Approach for OWASA

Proposed Energy Management Program and Project Evaluation Framework

Timeline for Development of Energy Management Program and Plan

- ✓ August 24: Natural Resources and Technical Services (NRTS) Committee meeting to discuss proposed project evaluation framework and stakeholder engagement plan
- September 8: Board meeting to discuss and approve project evaluation framework and stakeholder engagement plan
- February 9: Board to review draft Energy Management Plan
- February 23 (or later if necessary): Board to approve Energy Management Plan

Definitions

- Energy Management Program: OWASA's approach for identifying, evaluating, prioritizing, and tracking clean energy projects
- Energy Management Plan: The primary document that describes the policies, procedures, employee education and awareness, and actions and investments that together comprise our Energy Management Program; updated annually
- Implementation Plan: Proposed actions and strategies, timetable, resource requirements, and expected outcomes; updated annually as a component of the Energy Management Plan
- Clean energy project: An energy management, energy efficiency, or renewable energy project

Energy Management Goals and Objectives

Set by OWASA Board of Directors in June 2015

1. Reduce use of purchased electricity by 35% by the end of Calendar Year (CY) 2020 compared to CY 2010 baseline
2. Reduce use of purchased natural gas by 5% by CY 2020 compared to CY 2010 baseline
3. Beneficially use all wastewater treatment plant (WWTP) biogas by 2022, provided the preferred strategy is projected to have a positive payback within the expected useful life of the required equipment
4. Formally engage local governments and partners in discussion about potential development of a biogas-to-energy project at the Mason Farm WWTP
5. Seek proposals for third-party development of renewable energy projects on OWASA property

Energy Management Program Goals

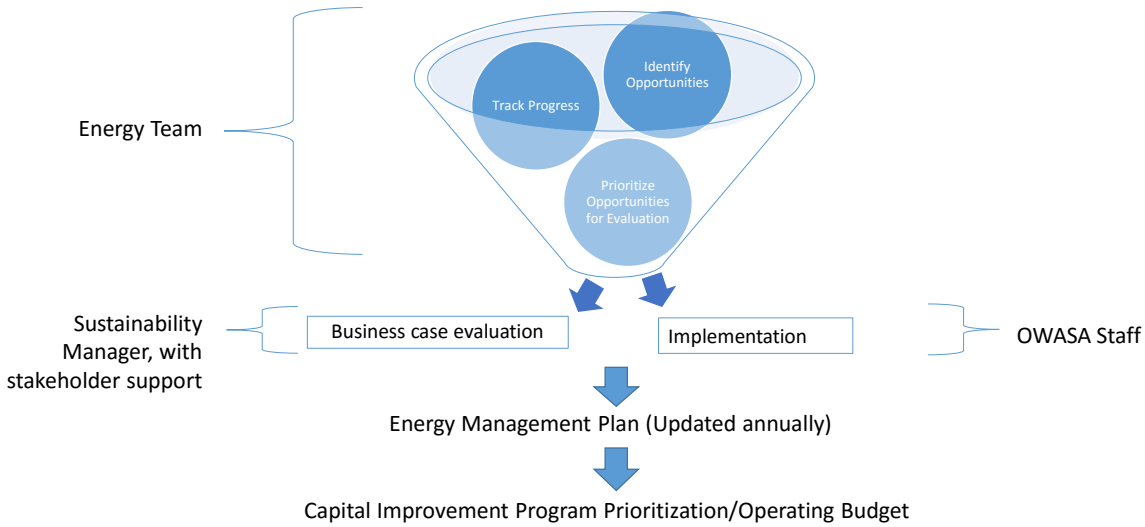
Defined by OWASA Staff

- Achieve energy management goals and objectives set by Board of Directors
- Foster a clean energy culture at OWASA through employee engagement and continuous improvement/innovation
- Ensure strategic and prompt pursuit of clean energy opportunities
- Pursue cost-effective clean energy opportunities

Basic Components of an Energy Management Program

1. ✓ Establish Organizational Commitment and Set Goals and Objectives
2. ✓ Develop a Baseline of Energy Use
3. Evaluate the System and Collect Data (In progress)
4. Identify Clean Energy Opportunities (In progress)
5. Prioritize Opportunities for (further) Evaluation or Implementation
6. Evaluate Opportunities
7. Fund and Implement Projects
8. Track Progress and Report

Energy Management Program (Ongoing Process)



Role of the OWASA Energy Team

- Represent diversity of perspectives and functions of OWASA
- Serve as energy management champions and liaisons

- Meet Quarterly
  - Track progress
  - Identify clean energy opportunities
  - Evaluate clean energy opportunities

- Assist Sustainability Manager in conducting business case evaluations

Identifying Clean Energy Opportunities

- How
  - Board member nomination
  - Internal review and nomination
  - Review of best practices
  - Audit/assessments
- Resources
  - Staff/Project Consultants /Utilities/Service Providers
  - Department of Energy Better Buildings Program
  - Inter-Agency Clean Energy Working Group
  - Industry conferences and reports

- What
  - Capital program or equipment replacement
  - Process change
  - Operational change
  - Automation or controls
  - Maintenance improvements
  - Business measures

Opportunity for new projects, as well as modifications of planned projects

Evaluation Criteria

The following criteria will be used to qualitatively evaluate and prioritize clean energy opportunities for implementation or more detailed business case evaluation. Staff seeks the Board's feedback on the comprehensiveness of these criteria.

- Financially Responsible (High level)
- Realistic/Implementable
- Operational Impacts
- Energy/Carbon Reduction Potential
- Coordinates with Other Projects
- Community Impacts

Incorporates criteria from:

- Project objectives defined in OWASA's Energy Management Program's Project Charter
- City of Raleigh's Climate and Energy Action Plan
- City of Asheville's Sustainability Management Plan
- Department of Energy's Guide to Community Energy Action Planning

Evaluation Criteria

- Financially Responsible (High level)
  - Likely a good use of public funds
  - Financial viability of similar projects in similar organizations and circumstances
  - Opportunities for outside funding/financing
- Realistic/Implementable
- Operational Impacts
- Energy/Carbon Reduction Potential
- Coordinates with Other Projects
- Community Impacts

Evaluation Criteria

- Financially Responsible (High level)
- Realistic/Implementable
  - Degree to which strategy has been proven at a scale relevant to our operation
  - Organizational capacity to undertake and manage the project
  - Reasonable amount of staff time to implement
- Operational Impacts
- Energy/Carbon Reduction Potential
- Coordinates with Other Projects
- Community Impacts

Evaluation Criteria

- Financially Responsible (High level)
- Realistic/Implementable
- Operational Impacts
  - Consistent with how OWASA wants to operate
  - Degree to which strategy helps to resolve an existing or expected problem
  - Impact on safety, comfort, and productivity
- Energy/Carbon Reduction Potential
- Coordinates with Other Projects
- Community Impacts

Evaluation Criteria

- Financially Responsible (High level)
- Realistic/Implementable
- Operational Impacts
- Energy/Carbon Reduction Potential
  - Potential to reduce OWASA's energy use
  - Potential to reduce OWASA's carbon emissions
- Coordinates with Other Projects
- Community Impacts

Evaluation Criteria

- Financially Responsible (High level)
- Realistic/Implementable
- Operational Impacts
- Energy/Carbon Reduction Potential
- Coordinates with Other Projects
  - Interdependency with other project(s) increases potential to save energy (e.g. concurrent upgrades to HVAC system and building envelope)
  - Potential to take advantage of economies of scale to save money and/or staff time
- Community Impacts

Evaluation Criteria

- Financially Responsible (High level)
- Realistic/Implementable
- Operational Impacts
- Energy/Carbon Reduction Potential
- Coordinates with Other Projects
- Community Impacts
  - Stakeholder enthusiasm
  - Coordinates with community initiatives

Applying the Evaluation Criteria

- Energy Team will evaluate each opportunity and summarize in a brief narrative and ordinal ranking against each criteria (high/medium/low)
- Clean energy opportunities prioritized in the process move to implementation or a more detailed business case evaluation

Business Case Evaluation or Implementation?

Projects and strategies where energy management is a secondary objective will be proposed in annual budget or implemented.

Example: Replacement of backwash pump at Water Treatment Plant

Projects and strategies that have a primary objective of achieving energy management goals will move to the next phase: business case evaluation.

Example: Rooftop solar panel installation

Business Case Evaluation

- Method: Life-cycle Cost Analysis
  - Threshold: Positive net present value
- Financial considerations (Compared against baseline)
  - Design and construction costs
  - Avoided cost of energy
  - Cost of operations and maintenance
  - Utility rebates and other incentives
  - *Potential to analyze project with and without applying a social cost of carbon as a benefit (i.e. revenue) in the business case (see Attachment 3)*
- *Community engagement critical for those projects whose business case is "made" by incorporating a social cost for carbon*
- Clean energy projects that surpass the business case threshold will be prioritized in OWASA's Capital Improvement Program or proposed in our annual Operating Budget

OWASA's Energy Management Program
Stakeholder Engagement Plan
DRAFT – September 2016

Stakeholder participation in OWASA's Energy Management Program will help ensure a high-impact program consistent with the values of OWASA and the community we serve. The following plan proposes how stakeholder engagement will be encouraged throughout the program's implementation.

The OWASA Board of Directors has set the course for OWASA's Energy Management Program by formalizing our organizational commitment to and setting goals and objectives for energy management. OWASA Staff have compiled a historical assessment of energy use, and 2010 was selected as the baseline year against which our future progress will be evaluated. The following plan summarizes stakeholder engagement in steps 3 through 8.

Basic Components of an Energy Management Program
1. Establish Organization Commitment and Set Goals
2. Develop a Baseline of Energy Use
3. Evaluate the System and Collect Data
4. Identify Clean Energy Opportunities
5. Prioritize Opportunities for Evaluation or Implementation
6. Evaluate Opportunities
7. Fund and Implement Projects
8. Track Progress and Report

In accordance with the Board-approved guidelines for community engagement plans, the following plan proposes groups of stakeholders to OWASA's Energy Management Program. It proposes outcomes/objectives, strategies for engaging each group, and methods for measuring the effectiveness of that engagement. Additionally, it describes the formation of a new group of stakeholders: an OWASA Energy Team.

Stakeholder Definition and Analysis

OWASA Customers: OWASA exists to serve our customers, and we aspire to reflect the community's values. As such, the evaluation framework we use in our energy management program should strive to reflect our community's balance of environmental, economic, and social values. By instituting an official Energy Management Program, we ensure a strategic and transparent approach to energy management at OWASA. Additionally, in developing community engagement plans for high-profile, community-oriented projects, we strive to bring together valuable input for decision-making purposes.

OWASA Board of Directors: The Board of Directors has established overall goals and objectives for OWASA's Energy Management Program. In establishing (and revising as appropriate) the framework used by staff to prioritize and evaluate clean energy opportunities, they embed the Board's and our community's values into our decision-making. In its implementation, they have authority to fund initiatives to meet those objectives as part of OWASA's overall budget.

OWASA Staff: OWASA employees are on front-lines of our energy use and management. They stand in the best position to identify opportunities and successfully implement strategies to meet our energy management objectives. Our staff can help lead the way in protecting the environment and saving money by continuously seeking opportunities to decrease our use of purchased energy.

> **OWASA Energy Team:** The Energy Team will serve as a new and important sub-set of OWASA employees. The team will be comprised of a diverse group volunteers from across the organization. Led by OWASA's Sustainability Manager, this team will be the most engaged group of individuals in identifying, evaluating, and monitoring OWASA's clean energy projects. This team is described in more detail later in the document. OWASA Staff's engagement on the Energy Team will help ensure that we do the right projects and do those projects right.

Consultants Hired by OWASA: OWASA regularly works with engineering firms and other consultants to design and build our energy-using infrastructure. By highlighting our energy management goals and objectives to those with whom we work, we help ensure those goals and objectives are embedded in their work, as well. Through engagement with consultants that we work with, we hope to foster a systems thinking approach to our use of energy and innovative strategies to reducing it.

Technical Assistance Providers: OWASA is open to learning from others on how to achieve our energy management goals and welcomes others to learn from us. There are a host of low-to-no cost technical assistance providers that can help us identify and evaluate clean energy projects, including federal agencies (e.g. Department of Energy, specifically resources from the Better Plants Program), state agencies (e.g. State Energy Office), non-profit organizations, and academic groups. Engaging these groups helps to bring in outside expertise and the opportunity for partnership and leadership.

Inter-Local Clean Energy Working Group: OWASA is committed to working collaboratively with our regional partners to help improve the efficiency, impact, and community involvement in achieving common objectives. For the past year, OWASA has convened a group of staff from agencies in the region to identify collaboration opportunities for energy management. This group includes the University of North Carolina, the Towns of Chapel Hill and Carrboro, Orange County, and the Chapel Hill-Carrboro City Schools. In addition to the staff of these organizations, their Boards and leadership are important stakeholder to our programs and, potentially, some of the clean energy opportunities we pursue.

Engagement Outcomes/Objectives and Strategies

Stakeholder Group	Engagement Outcomes/Objectives	Engagement Strategies
OWASA Customers	Provide balanced, objective, accurate, and consistent information to assist in the community's understanding of OWASA's commitment to and pursuit of energy management and sustainability To solicit input on the design and implementation of high-profile, community-oriented projects	Active promotion (i.e. newsletter, website, outreach presentations) of an annually updated Energy Management Plan, including the use and documentation of an evaluation and prioritization framework and progress against energy management goals and objectives Energy metric on KPI Dashboard published on website (updated monthly) Engagement in the exploration and analysis of high-profile, community-oriented clean energy projects (TBD in project specific community engagement plan)
OWASA Board of Directors	Establish (and revise as necessary) evaluation framework for energy management program Ensure alignment of clean energy projects with other initiatives Provide funding to achieve energy management objectives	Meetings with NRTS Committee and OWASA Board of Directors Annual delivery of updated Energy Management Plan, including the use and documentation of an Board-approved evaluation and prioritization framework and progress against energy management goals and objectives Energy metric on KPI Dashboard (updated and emailed monthly) Engagement in the design, analysis, and exploration of high-profile, community-oriented clean energy projects
OWASA Staff	Build support for the energy management program Inspire energy management problem-solving Ensure successful clean energy projects by identifying and resolving concerns regarding projects Empower staff to make process and operational changes and bring forward projects to meet energy management objectives	Conduct interactive sessions at staff meetings on energy management program Invite participation in Energy Management Team (annually) Accessible, integrated, and actionable energy data (monthly, daily, hourly) Provide job-relevant energy management workshops (on-going)

OWASA Energy Team	Serve as organizational champions of and liaisons for energy management Actively seek energy management solutions; Evaluate clean energy projects Empower staff to make operational changes and bring forward projects to meet energy management objectives	Quarterly meetings to review energy use and to identify and prioritize energy management strategies (ongoing) Assistance in business case review of clean energy opportunities (ongoing)
Consultants	Obtain feedback and insight on OWASA's energy use and strategies to meet energy management objectives	Identify energy reduction as primary or secondary objectives of relevant capital projects (ongoing) Hire to conduct energy assessments and audits of OWASA facilities and functions (ongoing)
Technical Assistance Providers	Obtain feedback and insight on OWASA's energy use and strategies to meet energy management objectives	Invite feedback from technical assistance providers (ongoing) Participate in Better Plants Challenge (ongoing) Participate in NC Water and Wastewater Energy Efficiency Initiative (ongoing)
Inter-Local Clean Energy Working Group	Partner on the exploration and development of clean energy strategies Gain support and buy-in for our efforts from public officials	Host periodic meetings to foster the identification and pursuit of collaborative initiatives Engage in the exploration and analysis of high-profile, community-oriented clean energy projects

OWASA Energy Team

Energy affects many aspects of our utility from design to finance to operations. The OWASA Energy Team will represent a diversity of perspectives and insight from across organizational functions, including operators, maintenance staff, engineers, administrators, and financial advisors. Energy team members will serve as department champions and liaisons for energy management. Maintaining an active energy team will help ensure that energy management remains on the forefront of organizational strategies. OWASA's Sustainability Manager will serve as the point person for facilitating the team's activities and delegating responsibilities to others.

Energy Team members will contribute to the program in the form of time and expertise. It is anticipated that this group will meet quarterly throughout the year to discuss detailed trends in energy use, to track and monitor the performance of clean energy projects, to brainstorm and identify clean energy project ideas, and to prioritize those project ideas against the Board-approved evaluation framework. Additionally, individual members of the energy team will assist the Sustainability Manager in the business case evaluation of clean energy projects, where appropriate.

Measuring Effectiveness of Stakeholder Engagement

As critical parts of a successful Energy Management Program, the ultimate measurement of the effectiveness of our stakeholder engagement will be continuous progress towards and ultimate achievement of our energy management goals and objectives.

We will report on the number and extent of engagement efforts made throughout the program and report on them annually in the Energy Management Plan. Additionally, throughout the engagement, we will seek feedback on the quality and timeliness of information and engagement opportunities. We will seek such feedback through:

- Meetings and conversations with one person or a small group of people (Staff, Energy Team, Board Members, Consultants, Technical Assistance Providers)
- Informal surveys (Inter-Local Clean Energy Working Group, Consultants, Technical Assistance Providers)
- Focus groups (Customers)
- Formal surveys (Customers)

DRAFT
Using a Social Cost of Carbon to Evaluate Clean Energy Projects: A Potential Policy Approach for OWASA

(September 2, 2016)

Background and Purpose

At its August 24, 2016 meeting, the Natural Resources and Technical Services (NRTS) Committee received information and discussed two key policy questions regarding the use of a "social cost of carbon" (SCC) in OWASA's Energy Management Program:

1. Should we include a SCC when we conduct life-cycle cost analyses of clean energy projects?

2. If so, what economic value should we assign for each ton of carbon reduced?

The Committee considered the importance of the SCC, approaches for calculating the SCC, and what value other entities have placed on carbon emission reductions. Committee members in attendance at the meeting agreed to recommend that the Board of Directors consider:

1. Using and separately identifying an economic benefit for a clean energy project's contribution to carbon emission reductions in its business case evaluation, and

2. Setting the value that OWASA places on carbon emissions equal to the Federal Interagency Social Cost of Carbon Working Group's central value for the SCC (2015 value of $36 per metric ton of carbon dioxide emissions).

This draft paper has been prepared to support the Board of Directors' consideration of the Committee's recommendations. It includes background on the importance of the SCC, the general approach to estimating the SCC, a summary of the values that other entities have placed on carbon for decision-making purposes, and an example of how the use of the SCC would affect the business case evaluation for OWASA's Advanced Metering Infrastructure project.

What is the Social Cost of Carbon, and why is it important to consider?

Carbon dioxide (CO_2) is produced from the burning of fossil fuels, solid waste, trees and wood products, as well as from certain chemical reactions, such as the manufacture of cement. CO_2 is the most common greenhouse gas emitted by human activities, a gas that traps heat in the atmosphere and has been linked to global warming and increasing climate variability. CO2 is not the only greenhouse gas (GHG). Methane, nitrous oxide, and fluorinated gases are also GHGs that are translated into carbon equivalents. Scientists predict that while climate change will have a variety of impacts on society, global climate change is expected to cause significant and increasing economic losses from extreme storms, floods, droughts, sea level rise, environmental refugees, the spread of disease, and numerous other disruptions.

In North Carolina and most of the United States, there are no mandatory or direct costs to emit CO_2. Therefore, the cost of carbon emissions is generally not incorporated into the cost of goods and services. The cost is borne by society. It is what economists call a "negative externality."

The U.S. Environmental Protection Agency's *Fact Sheet: Social Cost of Carbon* (2015) states that the SCC:

> *"…is meant to be a comprehensive estimate of climate change damages and includes, among other things, changes in net agricultural productivity, human health, property damages from increased flood risk and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning. However, it does not currently include all important damages."*

How much is the Social Cost of Carbon?

Several studies have estimated the SCC. However, there is considerable variability in the results and uncertainty in the assessment models used to develop those estimates. Key sources of uncertainty include: the complexity of the climate system and limitations in modeling climate change and its associated impacts; limitations of economic models, and limitations in determining the monetary value of environmental services; the extended timeframe over which climate change will occur; and the assumed rate of past and future carbon emissions, level of carbon concentration, etc.

A recent and widely-cited study of the SCC was completed by the Federal Interagency Working Group on Social Cost of Carbon (IWG), which was charged with developing SCC estimates for incorporation into benefit-cost analyses for federal regulatory programs. The IWG developed three sets of SCC values which are based on the average SCC estimates derived from three integrated climate assessment models. The sets of average values correspond to discount rates of 2.5, 3.0 and 5.0 percent. A fourth set of values was developed to represent the 95th percentile of the SCC, based on all three models and assuming a discount rate of 5 percent.

The central value based on a 3% discount rate scenario is consistent with estimates provided in economics literature and the Office of Management and Budget's guidance for the rate of interest. It is also based on the average, rather than worse-than-expected, climate change outcome (Greenstone et al, 2013). The IWG's central estimate was $36 per metric ton in 2015, and increases steadily over time to nearly $70 by 2050. The IWG's approach and guidance was recently upheld by the United States Court of Appeals for the Seventh Circuit. The table below summarizes the four SCC estimates in certain years.

Social Cost of CO_2, 2015-2050 [a] (in 2007 Dollars per metric ton CO_2)
Source: Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013, Revised July 2015)

	Discount Rate and Statistic			
Year	**5% Average**	**3% Average**	**2.5% Average**	**3% 95th percentile**
2015	$11	$36	$56	$105
2020	$12	$42	$62	$123
2025	$14	$46	$68	$138
2030	$16	$50	$73	$152
2035	$18	$55	$78	$168
2040	$21	$60	$84	$183
2045	$23	$64	$89	$197
2050	$26	$69	$95	$212

[a] The SC-CO_2 values are dollar-year and emissions-year specific.

A study conducted by researchers in Stanford University's School of Engineering concludes that the IWG significantly under-estimated the SCC. The researchers modified an integrated climate assessment model to incorporate recent empirical findings suggesting that climate change could substantially slow economic growth rates, especially in under-developed countries. The model indicates that the SCC may be as high as $220 per metric ton.

An alternative approach to determining the value of carbon emission reductions would be to base it on the market pricing of carbon under the limited cap-and-trade programs, such as the California Air Resources Board or the Regional Greenhouse Gas Initiative for the Northeast and Mid-Atlantic states. The current market price for those markets are about $13.00 and $4.50 per metric ton, respectively.

Who is incorporating a Cost of Carbon in their project evaluations?

As noted above, Federal agencies are incorporating the IWG's SCC estimates in benefit-cost analyses for regulatory programs. Many electric utilities are also incorporating an "effective" price for CO_2 in resource planning processes as a way of including the potential costs of future regulations. In fact, some states require them to do so in their Integrated Resource Plans (IRPs). A review of the non-zero CO_2 forecasts made in 2012 and 2013 found a wide range of values being used in electric utilities' IRPs (from about $1 to $24 per short ton of CO_2 in 2015) (Luckow et al, 2014).

Consideration of the cost to carbon is also a growing trend in the private sector and is an important part of several corporations' sustainability strategy. In its 2015 report titled *Putting a Price on Risk: Carbon Pricing in the Corporate World*, CDP reported that 97 companies indicated they have established an internal price on carbon for decision-making purposes. Among those corporations are Colgate-Palmolive, Campbell's Soup, Exxon Mobil, General Motors, and Microsoft. Exxon reported setting an internal value of $80 per metric ton for 2040,

which is 33 percent higher than the IWG's estimated 2040 value. *(CDP – formerly named the Carbon Disclosure Project – is an international, non-profit organization that provides the only global system for companies and cities to measure, disclose, manage and share environmental information.)*

It should be noted that the electric industry and, to some extent, the private sectors recognized in CDP's report are using an internal price for carbon to reduce the risk of over-reliance on fossil fuels and the cost of potential future regulation on carbon. Nonetheless, carbon emissions are increasingly a part of business decision-making and represents a line item in budget assumptions.

At more regional and somewhat more analogous level to OWASA's Energy Management Program, Duke University has informed us that they use a carbon offset value of $10 to $20 per ton to compare and prioritize projects needed to achieve their goal to be climate neutral by 2024 (Adair, 2015).

What might be the rate impact (to our customers) of just purchasing offsets for our energy use to meet our energy management objectives for 2020?

A number of corporations and public agencies have decided to purchase carbon emission "credits" to offset some or all of their use of fossil fuel derived energy. Under this approach, payments are made to parties that have reduced their carbon emissions, and/or have carbon emission credits available to sell as a result of their renewable energy projects.

Although this is one policy option that OWASA could consider, it would come at an additional annual cost to OWASA's customers that would confer no benefits to the customers or OWASA infrastructure directly and lacks the visibility that more direct investment would present. Therefore, it is suggested that this analysis only be used for the purpose of translating a social cost of carbon to our customer base. To provide a starting point for discussion, staff performed a simplified analysis of the potential cost to OWASA customers for purchasing carbon offsets for our electricity and natural gas use that exceeds our draft energy management framing objectives for 2020.

In Calendar Year 2015, our use of purchased electricity and natural gas exceeded energy management goals for 2020 by more than 1.6 million kilowatt-hours of electricity and nearly 54,000 therms of natural gas. Together, this energy use represents slightly more than 800 metric tons of carbon emissions.

We calculated the total annual cost of purchasing carbon credits to offset that difference, assuming the carbon offset prices recently reported for the Regional Greenhouse Gas Initiative for the Northeast and Mid-Atlantic States, the California Air Resources Board market, and the IWG (which is not a market but a recommended SCC price). We then spread these costs across all customers on a monthly basis.

The resulting additional monthly cost per 5/8" meter equivalent was between 1 and 8 cents per month. Or as shown here:

Assumed Carbon Offset Price and Source		Monthly Cost/ ME
$4.50 per short ton	Regional Greenhouse Gas Initiative	$0.0112
$13.50 per metric ton	California Air Resources Board	$0.0293
$36.00 per metric ton	Federal Interagency Working Group	$0.0812

(The above analysis does not include any costs for legal and technical services relating to agreement drafting and execution, monitoring, verification, certifications, etc.)

How could the SCC be incorporated into OWASA's decision-making regarding clean energy projects, and how might it affect project economics?

Rather than buying our way into our energy management goals, the SCC could be incorporated into OWASA's business case evaluations for potential clean energy projects for which the primary purpose is to improve energy efficiency or use renewable energy in place of energy sourced from fossil fuels.

Under this approach, the value of the carbon emissions avoided (reduced) by the project would be included as a cost "savings," thereby improving the projected Net Present Value (NPV) and financial payback. For projects that have a marginal or negative NPV (payback that approaches or does not occur within the useful life of the initial project), inclusion of the SCC could improve NPV to a level that would indicate a "cost-effective" project, acceptable to the Board of Directors and community.

It is important to emphasize that the estimated SCC benefits would accrue to society and would not present direct financial benefits (cost savings) for OWASA customers. Potential clean energy projects with very high SCC benefits may have marginal or no direct net financial benefits for OWASA and its customers. Such projects would contribute to our achievement of our energy management goals and objectives, but in the absence of grants or other supplemental funding, would place upward pressure on our service affordability objectives. For this reason, the SCC benefits would be a *consideration – not the determining factor* – in the project evaluation and decision-making process.

Applying the concept to project evaluations: An OWASA example

As requested by the NRTS Committee to help illustrate the potential application of the SCC to OWASA's business case evaluation, staff completed a "back-of-the-envelope" analysis of how the use of a SCC would affect the economics of OWASA's Advanced Metering Infrastructure (AMI) project.

For this calculation, we first estimated the carbon emission reductions associated with: (a) the estimated reduction in vehicle fuel use for meter reading and certain related field service activities; (b) an estimated reduction in electricity use for the treatment, processing, and distribution of drinking water that would be saved as a result of proactive leak identification and

notification for our customers; and (c) the corresponding reduction in electricity use for reduced volume of wastewater discharges associated with the water leaks.

From this, we estimate that following full implementation of the AMI system, annual vehicle fuel use for our meter reading and related field service activities would decrease by about 4,300 gallons of E-10 gasoline. That reduces direct annual carbon emissions by almost 35 metric tons[1]. The reduction in water leaks was then conservatively estimated to save more than 76,000 kWh of electricity each year in water and wastewater treatment energy uses, which (at 2015 levels of energy intensity) would reduce annual carbon emissions by approximately 34 metric tons[2].

We then applied the social cost of carbon estimates from the IWG's report (assuming the central 3% discount scenario, which ranges from $36 per metric ton in 2015 to $51 per metric ton by 2031) to the total estimated annual carbon reductions to obtain an annual SCC benefit value for a 15-year financial evaluation period. The annual SCC benefits stream was then discounted to NPV in a manner consistent with the methodology used in the AMI Feasibility Study.

As reported in the AMI Feasibility Study (DS&A, 2016), rapid deployment of AMI throughout OWASA's service area was calculated to have a positive Net Present Value without incorporating a social cost of carbon. Based on the above approach, inclusion of the SCC benefits resulted in more than a 6% increase in the NPV of the planned AMI project (NPV of the AMI project increased from $435,000 to more than $462,000 once the SCC was included in the analysis).

Conclusions and Recommendations

OWASA is committed to reducing our use of fossil fuel derived sources of energy through cost-effective energy efficiency and renewable energy generation. We recognize that the value of carbon emission reductions is not reflected in the price we pay for energy and other goods and services, and that in using an estimation for a social cost of carbon in our business case evaluation clean energy projects, we can better evaluate, prioritize, and communicate about the real value clean energy projects.

The draft Stakeholder Engagement Plan for the Energy Management Program proposes individual Community Engagement Plans for high-profile, community-oriented projects during which the community would be explicitly asked to provide feedback on clean energy projects, including the use of a social cost of carbon. Staff believes this to be a distinct and transparent way to engage the community.

[1] Based on the U.S. Energy Information Administration's estimate that burning a gallon of E10 gasoline produces 17.68 pounds of CO_2 from the fossil fuel content. This does not include the emissions associated with producing the gallon of E10 gasoline. http://www.eia.gov/tools/faqs/faq.cfm?id=307&t=11

[2] In 2015, OWASA used 2.29 kWh to treat and deliver a thousand gallons of drinking water and 3.13 kwh/thousand gallons to treat a thousand gallons wastewater. Duke Energy reported its 2015 carbon intensity to be 0.74 pounds of carbon per kWh delivered.

After considering the information presented at its August 24, 2016 meeting, the NRTS Committee believes it is appropriate for OWASA to include the social cost of carbon as it evaluates potential projects. The Committee recommends that the Board of Directors consider:

1. Using and separately identifying an economic benefit for a clean energy project's contribution to carbon emission reductions in its business case evaluation, and

2. Setting the economic value that OWASA places on carbon emissions equal to the Federally approved central value for the SCC (2015 value of $36 per metric ton of carbon dioxide emissions).

As proposed, the impact of a social cost of carbon in business case evaluations may influence our recommendations, but would not on its own be the deciding factor in pursuing a clean energy or other capital intensive project. Rather, it would be a method to quantify and engage the community in a discussion about their willingness-to-pay for carbon emission reductions. If the Board concurs with the above recommendations, it may wish to further consider how to engage the community in this discussion.

Resources

Adair, Charles. 2015. Email exchange with the Program Manager for Duke University's Carbon Offset Initiative in the Office of the Executive Vice President. July 20, 2015.

Don Schlenger and Associates (DS&A). 2016. Advanced Metering Infrastrucutre (AMI) Feasibility Study conducted for the Orange Water and Sewer Authority. Available online at: http://www.owasa.org/Data/Sites/1/media/customerService/ami-study-combined-documents.pdf

Environmental Protection Agency. 2015. EPA Fact Sheet: Social Cost of Carbon. Available online at: https://www3.epa.gov/climatechange/Downloads/EPAactivities/social-cost-carbon.pdf

Greenstone, M., E. Kopits, and A. Wolverton. 2013. Developing a Social Cost of Carbon for US Regulatory Analysis: A Methodology and Interpretation. Review of Environmental Economics and Policy, no. 1. January 2013. P. 23-46.

Luckow, P., J. Daniel, S. Fields, E.A. Stanton, and B. Biewald. 2014. CO2 Price Forecast: Planning for Future Environmental Regulations. Air and Waste Management Association EM Magazine, June 2014, p. 57-59.

Interagency Working Group on the Social Cost of Carbon, United States Government. 2015. Technical Support Document: - Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866. July 2015 Revision.

Agenda Item 5:

Review Fiscal Year 2017 Budget Process

Purpose:

Review the process for developing and approving the Fiscal Year 2017 budget for the purpose of identifying areas for improvement.

Action Requested:

Provide guidance to staff regarding the Board's ideas for improving the budget development process.

Information:

- Background Information for the Review of the Fiscal Year 2017 Annual Budget Process

Purpose

At its meeting on February 25, 2016, the Board requested that we review the process for developing and approving the Fiscal Year (FY) 2017 budget. The purpose of this review is to identify areas for improvement.

Background

The following summarizes the Board's actions and discussions relating to the FY 2017 budget.

Board Meeting Date (Calendar Year 2016)	**Activity Description**
January 14	• Board review of: ○ Calendar of events related to developing the FY 2017 budget ○ Assumptions to be used as a guide to developing the budget
March 10	• Board's review of first draft of FY 2017 expenditures budget: ○ Operating expenses ○ CIP projects ○ Capital equipment purchases ○ Debt service • Information included: ○ Review of assumptions ○ Comparisons to prior years' actual results and FY 2016 budget and forecast ○ Explanations for significant variances from FY 2016 ○ Detail of Professional Services expense (which includes Consulting expense) • Board also set the date for a public hearing on the FY 2017 budget; setting the date for a public hearing on rates was deferred
March 24	• Staff provided responses to the Board's questions and information requests • Staff recommended no increase in rates • Board set the date for a public hearing on rates
April 14	• Staff provided responses to the Board's questions and information requests • Board authorized staff to publish budget and rates information, including drafts of: ○ Schedule of Rates, Fees and Charges ○ CIP projects ○ Budget Ordinance • Board's first review of employee health, etc. insurance renewal information
May 12	• Board approved employee health, etc. insurance renewal • Board began discussions regarding employee compensation increases for FY 2017
May 26	• Public Hearings on the FY 2017 budget and Schedule of Rates, Fees and Charges

Board Meeting Date (Calendar Year 2016)	**Activity Description**
June 9	• Board approved: ○ FY 2017 budget and rates ○ Cost of labor and merit increases for employees ○ Adjusting the Schedule of Employee Classification and Authorized Compensation

Ideas for Improving the Process for FY 2018

The purpose of this discussion is to collect the Board's suggestions for improving the budget process. The following list is a starting point and includes requests made by the Board during its budget deliberations:

- Review financial reserves policy and projections for financial reserve levels.
- Staff will provide information about planned Consulting expenses so the Board will have a better understanding of the purpose and justification for the proposed expenditures.
- In order to improve the efficiency of the Board's work:
  - Agree on the information and level of detail the Board wants to review in the first draft of the budget.
  - To the extent practical, focus any in-depth reviews on atypical expenditures.

Action Requested

Provide guidance to staff regarding the Board's ideas for improving the budget development process.

Agenda Item 6:

Discussion of OWASA's Capital Improvements Program (CIP) Investment Practices

Purpose:

Receive the Board's guidance on the *OWASA Capital Improvements Program Investment Practices*.

Background:

- The review of our CIP investment practices as part of the budget development process is included in Strategic Initiative 3 of the *OWASA Strategic Plan* adopted on June 9, 2016.
- At the January 28, 2016 Board meeting, the Board of Directors discussed the *Draft OWASA Asset Management Program Report,* CIP investment practices, and service level targets. Staff incorporated the Board's feedback into the *Final OWASA Asset Management Program Report* dated March 2016.
- At the February 25, 2016 Board meeting, the Board requested a summary document of OWASA's CIP investment practices.
- Staff has prepared the attached *OWASA Capital Improvements Program Investment Practices* as requested by the Board.

Action Requested:

Discuss the *OWASA Capital Improvements Program Investment Practices* and provide guidance to staff as desired.

Information:

- *OWASA Capital Improvements Program Investment Practices*

ORANGE WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENTS PROGRAM INVESTMENT PRACTICES
SEPTEMBER 8, 2016

PURPOSE

This document provides a high level summary of: 1) the asset management tools and practices staff uses to develop and execute the Capital Improvements Program (CIP), and 2) the approval and oversight functions the Board of Directors (Board) has with respect to the CIP. The review of our CIP investment practices as part of the budget development process is included in Strategic Initiative 3 of the *OWASA Strategic Plan* adopted on June 9, 2016.

BACKGROUND

OWASA owns, operates, and maintains a complex system of assets distributed across our service area. Comprehensive asset management is essential to the sustainable operation of the water, sewer, and reclaimed water systems serving the Carrboro-Chapel Hill community. Capital investments are an integral part of the larger framework of OWASA's comprehensive Asset Management Program, which is documented in the *Asset Management Program Report*.

OWASA's CIP investment practices were developed over several years utilizing industry best practices. These practices and the associated tools are periodically updated, refined and improved as part of OWASA's commitment to continuous improvement.

The Board's oversight and governance of the CIP, represented schematically (in red) in the attached Figure 1 - Capital Investment Cycle, are an integral part of the CIP's development and execution. The Board reviews and approves the Five-Year Capital Improvements Program and budget; adopts policies and guidelines applicable to the execution of CIP projects; and reviews trends, levels of service and performance. These practices help ensure that OWASA is making the right investment at the right time to sustain the community's infrastructure.

CAPITAL IMPROVEMENTS PROGRAM INVESTMENT PRACTICES

CIP Development and Approval

Capital project needs are identified by hydraulic models, risk/prioritization models, OWASA's Energy Management Program, master planning studies, condition assessment, staff observations, regulatory or contractual requirements, repair and maintenance work order evaluation, community feedback, and strategic planning. After CIP projects are identified, a staff team prioritizes projects using a weighted criteria model. In addition to the results of this project prioritization, staff accounts for project interrelationships, coordination with other entities (Towns, DOT, etc.), project implementation considerations, and other external schedule constraints when programming projects into the CIP.

OWASA's *Capital Improvements Program* is updated annually and summarizes planned capital investments for a 5-year period. For long-term financial planning purposes, the CIP extends out

15-years to include projects outside of the five year window. As part of the annual budget approval process, the Board reviews the draft CIP document in March and afterwards holds a public hearing to receive customer feedback. The Board reviews and approves the Final CIP document in June and concurrently establishes funds for projects identified for the first fiscal year of the Program.

CIP Execution and Reporting

Executed CIP projects comply with several Board-adopted policies and documents pertaining to community engagement, procurement, minority business participation, and financial management and reporting. This guidance ensures that staff is acting in accordance with the Board's goals and objectives, as well as applicable regulations (e.g., Board review and award of formal construction contracts exceeding $500,000).

Throughout the year, staff reports to the Board on various aspects of CIP program execution, including the Semiannual CIP Status Report (which includes both program and project-specific metrics and information), quarterly reports on CIP expenditures and projections, and reports on significant changes to projects. Decisions and feedback are received from the Board and incorporated into the CIP. Evaluations of projects are also solicited from impacted customers as part of the community engagement plans. Staff reviews customer feedback and improves processes accordingly.

Level of Service Evaluation and Process Improvement

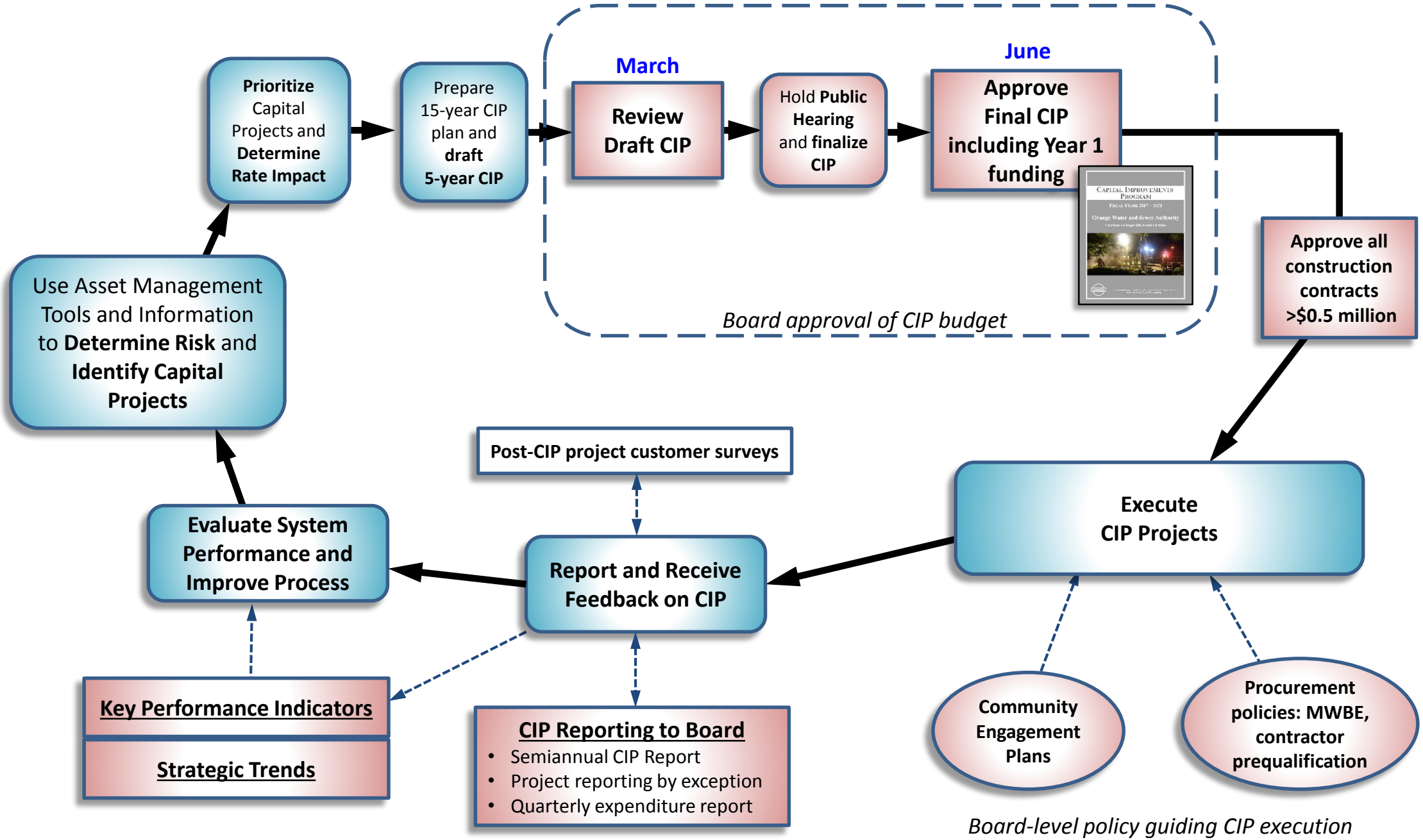
The Board receives a monthly summary of *Key Indicators and Performance Measurements* and an *Annual Review and Update of Strategic Trends and Utility Planning Issues* report every October, both of which include OWASA's levels of service identified in our *Asset Management Program* report. Levels of service are OWASA's stated commitment to provide water, wastewater, and reclaimed water service at specific levels of quality and reliability. The long-term effectiveness of OWASA's CIP and operation and maintenance programs can be assessed by comparing OWASA's historical performance to the service level goals.

As part of our commitment to continuous improvement, staff reviews and evaluates the CIP process, tools, water, wastewater and reclaimed water system performance, expenditures, etc. and makes improvements to the practices in advance of the next capital investment cycle.

SUMMARY

OWASA uses comprehensive asset management together with Board oversight and community engagement to determine the level of capital investment in the community's infrastructure needed to provide reliable and high quality water, wastewater and reclaimed water services to our customers.

Figure 1 – The Capital Investment Cycle



Agenda Item 7:

Review Board Work Schedule

Purpose:

a) Request(s) by Board Committees, Board Members and Staff
b) Review the draft agenda and discuss expectations for the September 22, 2016 and October 13, 2016 meetings
c) Review and update the 12 Month Board Meeting Schedule
d) Review Pending Key Staff Action Items

Information:

- Draft agenda for the September 22, 2016 meeting
- Draft agenda for the October 13, 2016 work session
- Draft 12 Month Board Meeting Schedule
- Pending Key Staff Action Items from Board Meetings

September 8, 2016

AGENDA
ANNUAL MEETING OF THE OWASA BOARD OF DIRECTORS
THURSDAY, SEPTEMBER 22, 2016, 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 the 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 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 September 13, 2016 Executive Committee Meeting
2. Announcements by Board Members
   A. Update on September 15, 2016 Meeting Between Chapel Hill Town Council OWASA Committee and Chapel Hill Appointees to the OWASA Board of Directors (Jeff Danner)
   B. Update on September 20, 2016 Carrboro Board of Alderman Meeting (Robert Morgan/Yinka Ayankoya)
3. Announcements by Staff

Petitions and Requests

1. Public
2. Board
3. Staff

PRESENTATION OF ANNUAL REPORT

1. A. Executive Director's Comments (Ed Kerwin)
   B. Finance and Customer Service Director's Comments (Stephen Winters)
   C. Martin Starnes & Associates, CPAs, P.A.'s Comments

CONSENT AGENDA
Action

DRAFT

2. Approval of the Minutes of the August 25, 2016 Meeting of the Board of Directors (Andrea Orbich)
3. Approval of the Minutes of the September 8, 2016 Closed Session of the Board of Directors (Robert Morgan)

REGULAR AGENDA

Information and Reports

4. Chloramine Use and Customer Considerations (Ken Loflin/Katie Harrold)
5. Capital Improvements Program Semiannual Status Report (Vishnu Gangadharan)

Discussion

6. Overview of Long Range Water Supply Plan and Briefing for Local Governments (Ruth Rouse)

Discussion and Action

7. ***Tentative*** - Resolution authorizing Orange Water and Sewer Authority's Executive Director to apply for a loan from the state of North Carolina (Stephen Winters)
8. Resolution Reappointing the Firm of Epting and Hackney as General Counsel to the Orange Water and Sewer Authority (Robert Morgan)

Summary of Board Meeting Action Items

9. 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

Closed Session

10. The Board of Directors will Convene in a Closed Session immediately following the Board Meeting for the Purpose of Discussing a Personnel Matter (Robert Morgan)

DRAFT

AGENDA
WORK SESSION OF THE OWASA BOARD OF DIRECTORS
THURSDAY, OCTOBER 13, 2016, 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.

b. Announcements by Board Members

c. Announcements by Staff

REGULAR AGENDA

Discussion

1. Preliminary Decision about Multi-Family, Master-Meter Rate Structure (Stephen Winters)
2. Discuss Alternative Employee Compensation Strategies (Robert Morgan/Stephanie Glasgow)
3. Review Board Work Schedule (John Young/Ed Kerwin)
   a. Request(s) by Board Committees, Board Members and Staff
   b. October 27, 2016 Board Meeting
   c. November 10, 2016 Work Session
   d. 12 Month Board Meeting Schedule
   e. Pending Key Staff Action Items

Summary of Work Session Items

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

CLOSED SESSION

5. The Board of Directors will convene in a Closed Session for the Purpose of Discussing a Personnel Matter (Robert Morgan)

DRAFT

OWASA Board of Directors – 12 Month Board Meeting Schedule (September 8, 2016)

Month	Board Meetings		Committee & Other Meetings
	Work Session	**Business Meeting**	
September 2016	Preliminary 12 Month Financial Report (C) Discuss MFMM Rate Structure ***Discuss and approve Energy Management Program Evaluation Criteria and Stakeholder Engagement Plan*** Review FY 2017 Budget Process CIP Investment Practices CS – General Counsel Review (C) *9/8/2016*	Annual Report and Financial Audit (C) ***Overview of LRWSP and briefing for Local Governments*** Chloramine Use & Potential Impacts to Customer Plumbing Resolution authorizing OWASA's ED to Apply for a Loan from the State of NC CIP Semiannual Report (C) Approve General Counsel Engagement (C) CS – General Counsel Review (C) *9/22/2016*	*HR Meeting to discuss draft Diversity and Inclusion Plan (TBD)*
October 2016	Preliminary Decision about MFMM Rate Structure (followed by public notice, if applicable) Discuss Alternative Compensation Strategies CS – ED Review (C) *10/13/2016*	Discuss Update to Cross Connection Control Ordinance Q1 Financial Report (C) Strategic Trends Report (C) CS – ED Review (C) *10/27/2016*	*Special Board Work Session on Diversity and Inclusion (TBD)*
November 2016	***Review Draft AMI System Community Engagement Plan*** ***Discuss LRWSP – Goals and Metrics*** If applicable, Public Hearing on MFMM Rate Structure *11/10/2016*	*Holiday - no meeting*	
December 2016	***Approve AMI System Community Engagement Plan*** ***Update on the Affordability Plan & Year 2*** If applicable, Decision on MFMM Rate Structure *12/8/2016*	*Holiday - no meeting*	
January 2017	FY 18 Budget Calendar and Assumptions (C) Employee Health and Dental Insurance Update (C) Discussion of Board Officers Nomination/ Election Process CY 16 Biosolids Report Award a Construction Contract for the Eastowne, Eubanks and Meadowmont 1 Pump Stations Improvement Project *1/12/2017*	***Approve LRWSP – Goals and Metrics*** Annual Lakes Recreation Report (regular agenda) (C) Q2 Financial Report (C) CIP Semiannual Report (C) *1/26/2017*	
February 2017	***Discuss Draft Energy Management Plan*** Award the Administration Building HVAC Contract ***Overview of Land Management*** CS - General Counsel Interim Review (C) *2/9/2017*	***Approve Energy Management Plan*** OWASA turns 40 CS - General Counsel Interim Review (C) *2/23/2017*	
March 2017	***Review AMI System Procurement Contract*** **Discuss LRWSP – Demands & Yield** FY 18 Draft Budget & Rates (C) Set date for Public Hearings – FY 18 Budget & Rates (C) CS – ED Interim Review (C) *3/9/2017*	***Approve AMI System Procurement Contract*** Award the Gravity Sewer Rehabilitation Contract FY 18 Draft Budget & Rates and Discussion of Reserves (C) CS – ED Interim Review (C) *3/23/2017*	
April 2017	FY 18 Draft Budget and Rates (C) Authorize staff to publish proposed rates (C) Appointment of the Nominating Committee (C)	***Approve LRWSP – Demands & Yield*** Q3 Financial Report (C) Appoint Audit Firm (C)	

Current and Pending Key Projects and Stages – in ***bold italics***

OWASA Board of Directors – 12 Month Board Meeting Schedule (September 8, 2016)

Month	Board Meetings		Committee & Other Meetings
	Work Session	**Business Meeting**	
	Employee Health and Dental Insurance Update *4/13/2017*	*4/27/2017*	
May 2017	Discuss Employee Health and Dental Insurance Renewal ( ) Discuss Employee Merit Pay for FY 18 ( ) *5/11/2017*	Public Hearings – FY 18 Budget and Rates ( ) Approve Employee Health and Dental Insurance Renewal (if needed) ( ) *5/25/2017*	
June 2017	Approve FY 17 Budget and Rates ( ) Approve Employee Merit/Cost of Labor Pay Increases for FY 17 ( ) Election of Officers ( ) *6/8/2017*	TBD *6/22/2017*	
July 2017	TBD *7/13/2017*	TBD *7/27/2017*	
August 2017	CS – General Counsel Review ( ) 8/10/2017	Preliminary 12 Month Financial Report ( ) CIP Semiannual Report ( ) EEO/Affirmative Action Report ( ) CS – General Counsel Review ( ) 8/24/2017	

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. It also does not reflect meetings at which the Board will discuss and act on the update of the Strategic Plan.

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.

OWASA Board of Directors – 12 Month Board Meeting Schedule (September 8, 2016)

Abbreviations Used in Draft Schedule:

⍰	Recurring agenda item (generally these are "required" items)
AMI	Advanced Metering Infrastructure
CE	Community Engagement
CEP	Community Engagement Plan
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
MST	Mountains-to-Sea Trail
MFMM	Multi-Family, Master Meter
NRTS	Natural Resources/Technical Systems
Q	Quarter
SOW	Scope of Work
TBD	To Be Determined
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Current and Pending Key Projects and Stages

Project	Strategic Initiative	Project Lead	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-16	Jun-17	Jul-17	Aug-17
AMI	6	Taylor			CEP	CEP				Contract				
Total Compensation Study		Glasgow	HR			*Schedule To Be Determined*								
MFMM Rate Structure Study	4	Winters			If applicable	If applicable								
LRWSP	1	Rouse		Over view	Goals & Metrics		Goals & Metrics		Demand & Yield	Demand & Yield				
Energy Plan	5	Tiger	Criteria											

Stages	Committee Discussion	Feasibility Study	Board Review	Community Engagement	Action	Procurement	Implementation

Pending Key Staff Action Items from Board Meetings

Date	Action Item	Target Board Meeting Date	Person(s) Responsible	Status
7-14-2016	Schedule special Board meeting to continue discussion of draft Diversity and Inclusion Plan to include, if possible, public service employees with expertise and experience with successful diversity and inclusion programs.	October	Kerwin	In progress
6-9-2016	Provide update on the monitoring and evaluation of Jordan Lake water quality.	TBD	Rouse	Staff brought this issue up at the July 21, 2016 Jordan Lake Partnership (JLP) meeting. Other JLP members were interested, but suggested that this would be better addressed through the Triangle Area Water Supply Monitoring Project (TAWSMP), which is led by USGS and OWASA participates in. Staff will help coordinate this next TAWSMP meeting which is tentatively scheduled to occur Fall 2016.
6-9-2016	Provide suggested schedule for the development of a long-term plan for sustainable management of OWASA's forest lands (Strategic Initiative 6). It was agreed that this matter would be scheduled after consideration of the Mountains to Sea Trail in Orange County.	TBD	Rouse	Schedule this after Board of Directors has made decision on conditions under which OWASA would allow MST on its land is final. Staff will also provide the Board an overview of forest management and next steps at a work session in First Quarter of CY 2017.
4-28-2016	Consider educational and public access opportunities a the Cane Creek mitigation tract	TBD	Rouse Feller	Low priority. In calendar year 2016, staff will work with our Partners to develop a plan regarding public access and educational opportunities on the Cane Creek Mitigation Tract. Staff will provide an update to the Board of Directors at a work session in early CY 2017 (to coincide with overview of forest management work session item).

Pending Key Staff Action Items from Board Meetings

Date	Action Item	Target Board Meeting Date	Person(s) Responsible	Status
4-14-2016	Consider a couple new financial Key Performance Indicators (such as cost per account)	10-27-16	Winters	Planning to make changes to the quarterly financial report beginning with the first quarter of FY 2017.