ORANGE WATER AND SEWER AUTHORITY

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

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

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

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

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

Announcements

1. Announcements by the Vice Chair
   - A. Any Board Member who knows of a conflict of interest or potential conflict of interest with respect to any item on the agenda tonight is asked to disclose the same at this time.
   - B. Update on October 20, 2015, Carrboro Board of Aldermen Meeting
2. Announcements by Board Members
   - A. Update on October 13, 2015, Community Engagement Committee Meeting (Ruchir Vora)
   - B. Update on the October 20, 2015 Natural Resources and Technical Systems Committee Meeting (Dave Moreau)
3. Announcements by Staff
   - A. OWASA Employee Service Awards (Ed Kerwin)
   - B. 2015 Customer Survey (Greg Feller)

Petitions and Requests

1. Public
2. Board
3. Staff

CONSENT AGENDA

Information and Reports

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

Action

2. Approval of the Minutes of the September 24, 2015 Annual Meeting of the Board of Directors (Andrea Orbich)

3. Approval of the Minutes of the September 24, 2015 Closed Session of the Board of Directors (Robert Morgan)
4. Approval of the Minutes of the October 8, 2015 Work Session of the Board of Directors (Andrea Orbich)

REGULAR AGENDA

Discussion

5. Review Advanced Metering Infrastructure Preliminary Economic and Financial Analysis (Todd Taylor)
6. Proposed Affordability Outreach Program Plan (Year 1) (Patrick Davis)
7. Annual Review and Update of Strategic Trends and Utility Planning Issues (Ruth Rouse)

Discussion and Action

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

Information and Reports

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

Summary of Board Meeting Action Items

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

ORANGE WATER AND SEWER AUTHORITY - QUARTERLY REPORT

ATTENDANCE AT BOARD AND COMMITTEE MEETINGS

BOARD OF DIRECTORS	JULY 2015	AUGUST 2015	SEPTEMBER 2015
JOHN A. YOUNG CHAIR	July 9 WS (Meeting) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Absent)	September 10 WS (Meeting) September 24 Board (Meeting)
MICHAEL HUGHES VICE CHAIR	July 9 WS (Meeting) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Meeting)	September 10 WS (Meeting) September 24 Board (Meeting)
HEATHER PAYNE SECRETARY	July 9 WS (Absent) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Meeting)	September 10 WS (Meeting) September 24 Board (Meeting)
TERRI BUCKNER	July 9 WS (Meeting) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Meeting)	September 10 WS (Meeting) September 24 Board (Meeting)
JEFF DANNER	July 9 WS (Meeting) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Meeting)	September 10 WS (Meeting) September 24 Board (Meeting)
QUINTON HARPER	July 9 WS (Meeting) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Absent)	September 10 WS (Absent) September 24 Board (Absent)
DAVE MOREAU	July 9 WS (Meeting) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Meeting)	September 10 WS (Meeting) September 24 Board (Meeting)
ROBERT MORGAN	July 9 WS (Absent) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Meeting)	September 10 WS (Meeting) September 24 Board (Meeting)

OCTOBER 22, 2015

BOARD OF DIRECTORS	JULY 2015	AUGUST 2015	SEPTEMBER 2015
RUCHIR VORA	July 9 WS (Meeting) July 24 Board (Canceled)	August 13 WS (Canceled) August 27 Board (Meeting)	September 10 WS (Meeting) September 24 Board (Meeting)
TOTAL MEETINGS HELD:	**1**	**1**	**2**

Board – Board of Directors
FC – Finance Committee
HR – Human Resources Committee
CE – Community Engagement Committee
N – Nominating Committee
NRTS – Natural Resources/Technical Systems Committee
WS – Work Session

ORANGE WATER AND SEWER AUTHORITY

ANNUAL MEETING OF THE BOARD OF DIRECTORS

SEPTEMBER 24, 2015

The Board of Directors of the Orange Water and Sewer Authority (OWASA) held its annual meeting on Thursday, September 24, 2015, at 7:00 PM in Council Chambers at the Chapel Hill Town Hall, 405 Martin Luther King Jr. Boulevard.

Board Members present: John A. Young, Chair; Michael M. Hughes, P.E., Vice Chair; Heather Payne, Secretary; Terri Buckner; Jeff Danner; David (Dave) Moreau; Robert Morgan; and Ruchir Vora. Board Member absent: Quinton Harper.

OWASA staff present: Ed Kerwin; Denise Battle; Mary Darr; Patrick Davis; Greg Feller; Stephanie Glasgow; Andrea Orbich; Dan Przybyl; Kevin Ray; Kelly Satterfield; Todd Taylor; Mary Tiger; Stephen Winters; Robin Jacobs and Robert Epting, Epting and Hackney.

Others present: Meg Holton, Water, Wastewater, and Stormwater Manager, University of North Carolina (UNC) at Chapel Hill; Crystal Roberts, Martin Starnes & Associates; Larry Mitchell, Dewberry; and Dr. Don Schlenger, Don Schlenger & Associates, LLC.

There being a quorum present, Chair John A. Young called the meeting to order.

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MOTIONS ACTED UPON

1. BE IT RESOLVED THAT the Orange Water and Sewer Authority Board of Directors adopts the Resolution Honoring the Service of Michael M. Hughes, P.E., to the Chapel Hill-Carrboro-Orange County Community as Member of the Orange Water and Sewer Authority. (Resolution so titled attached hereto and made a part of these Minutes. Motion by Dave Moreau, second by Heather Payne and unanimously approved.)

2. Dave Moreau made a motion to approve the Minutes of the August 27, 2015 Meeting of the Board of Directors; second by Heather Payne and unanimously approved.

3. Dave Moreau made a motion to approve the Minutes of the August 27, 2015 Closed Session of the Board of Directors; second by Heather Payne and unanimously approved.

4. Dave Moreau made a motion to approve the Minutes of the September 10, 2015 Work Session of the Board of Directors as amended; "Terri Buckner reported on the September 2, 2015 meeting of the Ad Hoc Working Group regarding collaboration on energy management and renewables. She said the group has decided ~~not to hold a public forum but to focus on~~ to identify potential collaboration opportunities before pursuing a public forum." The motion was second by Heather Payne and unanimously approved.

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5. Dave Moreau made a motion to approve the Minutes of the August 27, 2015 Closed Session of the Board of Directors; second by Heather Payne and unanimously approved.

6. BE IT RESOLVED THAT the Orange Water and Sewer Authority Board of Directors adopts the Resolution Reappointing the Firm of Epting and Hackney as General Counsel to the Orange Water and Sewer Authority. (Resolution so titled attached hereto and made a part of these Minutes. Motion by Terri Buckner, second by Jeff Danner and unanimously approved.)

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ANNOUNCEMENTS

Conflict of Interest

John Young said 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. There were none.

Barbara M. Foushee

Mr. Young said that Barbara M. Foushee was appointed to the OWASA Board of Directors by the Orange County Board of County Commissioners on September 15, 2015; she will take her Oath of Office on Monday, September 28, 2015 in the OWASA Board Room.

Michael A. (Mac) Clarke

Mr. Young announced that Mac Clarke passed away during the week of September 14, 2015. Mr. Clarke served more than 10 years on the OWASA Board of Directors and was Chair of the Board from October 2005 until October 2007. Mr. Clarke will be remembered for his guidance, leadership and dedication to OWASA and the community. The Board and staff extended condolences to Mac Clarke's family.

Community Engagement Committee Meeting

Ruchir Vora said that the Community Engagement Committee will meet on Tuesday, October 13, 2015 at 6:00 PM in the OWASA Board Room to discuss the draft affordability program plan.

PETITIONS AND REQUESTS

John Young asked for petitions and requests from the public, Board and staff; there were none.

ITEM ONE: PRESENTATION OF ANNUAL REPORT

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In presenting OWASA's Annual Report for Fiscal Year (FY) 2015, Ed Kerwin stated that OWASA has operated in full compliance with Federal and State requirements for the water, wastewater and reclaimed water systems. OWASA is a public, non-profit agency providing water, sewer and reclaimed water service to the Carrboro-Chapel Hill community since 1977. Mr. Kerwin noted that he will discuss investing to sustain our essential infrastructure, the fourth year in a row without a rate increase, and work on affordability outreach.

Mr. Kerwin said that OWASA has the responsibility to effectively manage and maintain all the resources, facilities and infrastructure that our community depends on for high-quality and reliable service. There are about 800 miles of water and wastewater pipe and it is essential that OWASA continues to make smart investments in the infrastructure. In FY 2015, OWASA invested over $7 million in capital improvements, over $6 million for renewing/replacing aging pipes. Over the next 5 years, OWASA will invest about $80 million in capital improvements.

Mr. Kerwin said that with every investment, OWASA evaluates how to improve service at a lower cost and use resources in a more sustainable way. In September 2014, OWASA completed installation of a fine bubble diffused aeration system, energy efficient blowers and mixers at the WWTP. These improvements have reduced energy use intensity at the WTTP by about 30%, which is an annual savings of more than 3 million kilowatt hours, which equates to about a quarter of a million dollars of savings per year. OWASA also received the proceeds from a $6.56 million, 20-year, no-interest loan from the State for the project. That project was essential in reducing our overall energy use, because wastewater treatment accounts for the majority of our energy use. In 2014, OWASA's energy use dropped significantly due to the upgrades at the Mason Farm Wastewater Treatment Plant.

Mr. Kerwin said that the Board and staff are committed to further reducing our energy use, and this past fiscal year, work began to develop an Energy Management Plan (Plan) in accord with three draft goals set by the Board as a guide to craft the Plan. While the draft goals are ambitious, they are achievable. Mr. Kerwin said that as the Plan is developed, staff will seek opportunities for collaboration with other agencies, and actively inform and involve customers, community, and other stakeholders in the Plan.

Mr. Kerwin said another major initiative of the past year was the implementation of an Affordability Outreach Pilot Project which was initiated by the Board of Directors to engage the community and target groups with information about how to reduce OWASA bills. The pilot project was based on four major principles: partnership, analysis, education, and feedback. He said that based on the success of the pilot project, the Board agreed that affordability outreach should be an ongoing part of OWASA's community engagement and sustainable water management efforts.

Finally, OWASA's customer assistance program, Care to Share, has helped low-income customers each year when they have difficulty paying for OWASA services. OWASA partners with the Inter-Faith Council (IFC), which administers Care to Share funds at no cost to OWASA. We are exploring ways to increase the community's understanding and support of Care to Share,

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because the needs are greater than the current funding level. Mr. Kerwin thanked customers who donate to Care to Share and invited other customers to give directly to the IFC, or to contact OWASA about contributing an amount of the customer's choice with monthly bill payments.

Stephen Winters said that the independent audit of OWASA's FY 2015 financial statements was performed by Martin, Starnes & Associates. The success of this audit is a testament to the entire OWASA team and is a positive reflection on the Finance and Customer Service staff. He thanked his staff for all their hard work and a job well done. Mr. Winters said that agenda information was updated to include a draft of OWASA's Comprehensive Annual Financial Report (CAFR). The CAFR will be finalized following minor presentation-type changes.

Mr. Winters said OWASA is sustainable and well positioned for the future; OWASA's water supply is sufficient to meet the community's needs for the next 50 years under most circumstances. OWASA's treatment plants and infrastructure are in good shape and a long-term Capital Improvements Program is in place to make sure it stays that way. He said the community continues to do a great job of conserving, which enhances our sustainability in a number of ways. He said the community is using about the same amount of water it used over 20 years ago, even though the number of accounts served has gone up from about 13,000 accounts to about 22,000. Mr. Winters said OWASA's financial condition is very good, there are sufficient reserves, we are meeting our financial performance goals, and our bond rating is double-A plus from the top three ratings agencies.

Crystal Roberts, Audit Manager from Martin, Starnes & Associates, said OWASA received an unqualified opinion that the financial statements fairly present OWASA's financial position and results from operations. OWASA's CAFR can be relied upon by third parties, citizens, underwriters and bond holders. Ms. Roberts stated that no significant deficiencies in internal control were identified.

The Board requested additional detail on the breakdown of costs for treatment and distribution and collection; and additional information about how OWASA's funding for post-employment benefits compares with peers and best-practices; staff will follow up.

ITEM TWO: EQUAL EMPLOYMENT OPPORTUNITY/AFFIRMATIVE ACTION REPORT FOR FISCAL YEAR 2015

The Board received this report as an information item.

ITEM THREE: ANNUAL REPORT ON DISPOSAL OF SURPLUS PERSONAL PROPERTY

The Board received this report as an information item.

ITEM FOUR: RESOLUTION HONORING THE SERVICE OF MICHAEL M. HUGHES, P.E., TO THE CHAPEL HILL-CARRBORO-ORANGE COUNTY COMMUNITY AS A MEMBER OF THE ORANGE WATER AND SEWER AUTHORITY

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Dave Moreau made a motion to approve the resolution; second by Heather Payne, and unanimously approved. Please see Motion No. 1 above.

Following the approval the Consent Agenda, John Young read aloud and presented to Mr. Hughes the framed Resolution Honoring the Service of Michael M. Hughes, P.E., to the Chapel Hill-Carrboro-Orange County Community as a Member of the Orange Water and Sewer Authority.

ITEM FIVE: MINUTES

Dave Moreau made a motion to approve the Minutes of the August 27, 2015 Meeting of the Board of Directors; second by Heather Payne and unanimously approved. Please see Motion No. 2 above.

ITEM SIX: MINUTES

Dave Moreau made a motion to approve the Minutes of the August 27, 2015 Closed Session of the Board of Directors; second by Heather Payne and unanimously approved. Please see Motion No. 3 above.

ITEM SEVEN: MINUTES

Dave Moreau made a motion to approve the Minutes of the September 10, 2015 Work Session of the Board of Directors as amended; "Terri Buckner reported on the September 2, 2015 meeting of the Ad Hoc Working Group regarding collaboration on energy management and renewables. She said the group has decided ~~not to hold a public forum but to focus on~~ to identify potential collaboration opportunities before pursuing a public forum." The motion was second by Heather Payne and unanimously approved. Please see Motion No. 4 above.

ITEM EIGHT: MINUTES

Dave Moreau made a motion to approve the Minutes of the August 27, 2015 Closed Session of the Board of Directors; second by Heather Payne and unanimously approved. Please see Motion No. 5 above.

ITEM NINE: ADVANCED METERING INFRASTRUCTURE (AMI) – INTERVIEW FINDINGS AND TECHNOLOGY/STRATEGY REVIEW

Dan Przybyl, Director of Information Technology and project manager for the AMI Feasibility Study, provided an update on the AMI Feasibility Study to date and introduced Dr. Don Schlenger of Don Schlenger & Associates (DS&A) who made a presentation on the staff interviews; and explained the three alternatives proposed for evaluation.

Following Dr. Schlenger's presentation and discussion, the Board agreed to evaluate the three alternatives proposed: 1) rapid deployment of mobile automatic meter reading (AMR)

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throughout the OWASA service area; 2) rapid deployment of AMI throughout the OWASA service area; and 3) deployment of a limited AMI network covering the meters of the UNC main campus and medical institutions as well as the Chapel Hill/Carrboro central business district.

The Board agreed to delay a discussion of community engagement until January 2016.

ITEM TEN: RESOLUTION REAPPOINTING THE FIRM OF EPTING AND HACKNEY AS GENERAL COUNSEL TO THE ORANGE WATER AND SEWER AUTHORITY

Terri Buckner made a motion to approve the resolution; second by Jeff Danner, and unanimously approved. Please see Motion No. 6 above.

ITEM ELEVEN: NOMINATION AND ELECTION OF VICE CHAIR

John Young said that with Michael Hughes' resignation from the Board of Directors at the end of tonight's meeting, the office of Vice Chair is vacant. Mr. Young asked for nominations from the floor for Vice Chair of the Board.

Michael Hughes nominated Robert Morgan for election as Vice Chair of the Board of Directors for the duration of corporate year 2015-2016. There were no other nominations from the floor. The Board voted to elect Robert Morgan as Vice Chair of the Board of Directors with a vote of seven to one, with Terri Buckner opposed because she believes a Board Member should be on the Board more than three meetings to be an officer.

ITEM TWELVE: 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 BOARD MEETING

Ed Kerwin summarized the meeting as follows:

- Staff will finalize the Comprehensive Annual Financial Report; provide additional detail on the breakdown of costs for treatment and distribution and collection; and provide additional information about how OWASA's funding for post-employment benefits compares with peers and best-practices.
- The October 8, 2015 Work Session will include the following;
  - Continued discussion of work plan for considering water and sewer rate structure modifications; and
  - Draft Biosolids Management Plan – Part 2;
  - Restrictions applicable to charitable activities by OWASA.

ITEM THIRTEEN: CLOSED SESSION

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Without objection, the Board of Directors convened in a Closed Session in the First Floor Conference Room for the purpose of discussing a personnel matter.

The meeting was adjourned at 9:45 PM.

Respectfully submitted,

Andrea Orbich
Executive Assistant/Clerk to the Board

Attachments

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ORANGE WATER AND SEWER AUTHORITY

CLOSED SESSION OF THE BOARD OF DIRECTORS

SEPTEMBER 24, 2015

The Board of Directors of Orange Water and Sewer Authority met in Closed Session on Thursday, September 24, 2015, following the Annual Meeting of the Board.

Board Members present: John A. Young, Chair; Michael M. Hughes, P.E., Vice Chair; Heather Payne, Secretary; Terri Buckner; Jeff Danner; David (Dave) Moreau; Robert Morgan; and Ruchir Vora. Board Members absent: Quinton Harper.

Staff present: Ed Kerwin, Executive Director.

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ITEM ONE

The Board of Directors and staff met in Closed Session to evaluate the annual performance review of OWASA's Executive Director.

No official action was taken at the meeting.

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Robert Morgan, Chair
Human Resources Committee

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ORANGE WATER AND SEWER AUTHORITY

WORK SESSION OF THE BOARD OF DIRECTORS

OCTOBER 8, 2015

The Board of Directors of the Orange Water and Sewer Authority (OWASA) held a Work Session on Thursday, October 8, 2015 at 6:00 PM in OWASA's Community Room at 400 Jones Ferry Road, Carrboro.

Board Members present: John A. Young, Chair; Robert Morgan, Vice Chair; Heather Payne, Secretary; Terri Buckner; Jeff Danner; Barbara M. Foushee; and David Moreau. Board Members absent: Quinton Harper and Ruchir Vora.

OWASA staff present: Ed Kerwin; Denise Battle; Alex Braxton; Mary Darr; Patrick Davis; Greg Feller; John Kiviniemi; Andrea Orbich; Ruth Rouse; Kelly Satterfield; Todd Taylor; Mary Tiger; Ronnie Weed; Stephen Winters; and Robert Epting, Esq., Epting and Hackney.

Others present: Orange County farmers: Larry W. Ray, Raeford Thompson, and Lester Ray (Twin Brach Farm) and Keith Trollinger (Trollinger Farm); Margaret Holton, Water, Sewer and Stormwater Coordinator, University of North Carolina at Chapel Hill; Katie Sullivan, Raleigh; and Alex Travaglia, Chapel Hill.

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ANNOUNCEMENTS

John Young said 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. There were none.

Mr. Young welcomed new Board Member, Barbara Foushee, to the Board of Directors.

David Moreau said the Natural Resources and Technical Systems Committee will meet on October 20, 2015 at 5:30 PM for a briefing by OWASA staff before a presentation to the Carrboro Board of Aldermen on at 7:00 PM that night regarding the Historic Rogers Road Area sewer design.

Mary Tiger, OWASA's Sustainability Manager, said the Community Engagement Committee will meet at 6:00 PM on Tuesday, October 13, 2015 to discuss a draft plan for an ongoing Affordability Outreach program.

Terri Buckner said that on September 30, 2015 the Energy Management Collaboration Working Group met to review the group's prioritization of potential collaboration projects. A few specific projects were identified for further investigation and assigned to members for further research. The Group is scheduled to meet again on Wednesday, October 28th at 5:30 PM in the OWASA Board Room.

DISCUSSION

ITEM ONE: DRAFT BIOSOLIDS MANAGEMENT PLAN – PART 2

The Board received a presentation by and asked questions of John Kiviniemi, Wastewater Treatment and Biosolids Recycling Manager; and received comments by farmers who participate in OWASA's program of applying "liquid" biosolids on approved farm sites.

After discussion, the Board agreed that OWASA will move toward recycling about 75% of its biosolids in liquid form on approved farmland (when practical), and recycling about 25% in dewatered form at a private composting facility in Chatham County. The Board approved filling two vacant biosolids staff positions to enable this change. OWASA now applies about 50% of its biosolids in liquid form on farmland and dewaters 50% for transport to the composting facility. The Board also supported issuing a Request for Proposals for seasonal assistance for biosolids recycling support.

The Board asked staff for a status report in January 2017 on experience with the 75%-25% approach. Estimated savings over time from the 75%-25% approach are discussed in a staff report on biosolids management options. Staff will inform farmers and other stakeholders about the Board's discussion.

ITEM TWO: DISCUSSION OF WORK PLAN FOR CONSIDERING WATER AND SEWER RATE STRUCTURE MODIFICATIONS

The Board received a presentation by Stephen Winters, Director of Finance and Customer Service, and authorized staff to proceed with a cost allocation study as the next step in a process to consider changes in water and sewer rate structures. Burton & Associates will conduct the cost allocation study.

ITEM THREE: RESTRICTIONS APPLICABLE TO CHARITABLE ACTIVITIES BY OWASA

The Board discussed with Robert Epting, OWASA's General Counsel, his report on the legal framework for use of OWASA funds and setting rates. State law, agreements with the University and Towns of Chapel Hill and Carrboro and obligations to bondholders limit how OWASA charges for services and expends funds. OWASA may not provide free service, set rates based on customers' ability to pay, or use revenues for charitable purposes. The Board agreed that the next annual update to the Orange County Board of Commissioners will include this information.

ITEM FOUR: REVIEW BOARD WORK SCHEDULE

The Board agreed to use the alternate 12 Month Board Meeting Schedule format that indicates the timing of community engagement related to future agenda items. The Board requested staff schedule a Natural Resources and Technical Systems Committee meeting between the November

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and December Work Sessions as a placeholder for Advanced Metering Infrastructure discussions, if needed.

Staff will poll the Board to seek a date for a Special Closed Session Board to continue discussions regarding the Executive Directors' Annual Review. Once that meeting has been completed, the Executive Director will provide work plan for the coming year for discussion at a future Board meeting.

ITEM FIVE: EXECUTIVE DIRECTOR WILL SUMMARIZE THE KEY STAFF ACTION ITEMS FROM THE WORK SESSION

Ed Kerwin summarized the key action items for staff as follows:

- Staff will inform stakeholders of OWASA's direction for biosolids management over the next couple of years to include land application of liquid biosolids (~75% of production) by OWASA staff, with supplemental contractor assistance as needed; and dewatered biosolids to McGill (~25% of production). Staff will also issue a Request for Proposals for seasonal assistance for biosolids recycling support.
- Staff the biosolids operation by filling authorized, but unfunded positions with additional follow up to the Board if needed.
- Staff will add an evaluation of the biosolids management program for Board discussion in January, 2017.
- Staff will work with Burton & Associates to conduct the cost allocation study.
- Staff will use the alternate 12 Month Board Meeting Schedule format that indicates the timing of community engagement related to future agenda items.
- Staff will schedule a Natural Resources and Technical Systems Committee meeting between the November and December Work Sessions as a placeholder for Advanced Metering Infrastructure discussions, if needed.
- Staff will poll the Board to seek a date for a Special Closed Session Board to continue discussions regarding the Executive Directors' Annual Review.

The work session was adjourned at 8:10 PM.

Respectfully submitted by:

Andrea Orbich
Executive Assistant/Clerk to the Board

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AGENDA ITEM

- **REVIEW ADVANCED METERING INFRASTRUCTURE (AMI) PRELIMINARY ECONOMIC AND FINANCIAL ANALYSIS**

BACKGROUND

- On July 1, 2015, OWASA entered into a contract with Don Schlenger and Associates (DS&A) to conduct the AMI Feasibility Study.

- At the September 24, 2015 meeting, the Board agreed that the following alternatives will be evaluated:

    1. Rapid deployment of mobile automatic meter reading (AMR) throughout the OWASA service area.
    2. Rapid deployment of AMI throughout the OWASA service area.
    3. Deployment of a limited AMI network covering the meters of the UNC main campus and medical institutions as well as the Chapel Hill/Carrboro central business district.

- A summary of the Economic Evaluation of Alternatives includes preliminary results of analysis of alternatives and a list of non-economic factors proposed to be part of the evaluation process.

ACTION NEEDED

- Board of Director's questions and feedback about the preliminary results of the economic evaluation of alternatives and the proposed list of non-economic factors for further analysis.

October 22, 2015

ORANGE WATER AND SEWER AUTHORITY

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

MEMORANDUM

TO: Board of Directors

THROUGH: Ed Kerwin

FROM: Todd Taylor and Daniel Przybyl

DATE: October 16, 2015

SUBJECT: **Review Advanced Metering Infrastructure (AMI) Preliminary Economic and Financial Analysis**

PURPOSE

Don Schlenger and Associates (DS&A) will present the preliminary results of the Economic Evaluation of Alternatives for the AMI Feasibility Study for the Board's review and feedback.

DS&A will also present the preliminary list of non-economic factors proposed for evaluation as part of the AMI Feasibility Study. Board input concerning the non-economic factors is requested.

BACKGROUND

On July 1, 2015, OWASA entered into a contract with DS&A to conduct the AMI Feasibility Study. At the September 24, 2015 meeting, the Board agreed that the following alternatives will be evaluated:

1. Rapid deployment of mobile automatic meter reading (AMR) throughout the OWASA service area.
2. Rapid deployment of AMI throughout the OWASA service area.
3. Deployment of a limited AMI network covering the meters of the UNC main campus and medical institutions as well as the Chapel Hill/Carrboro central business district.

A summary of the preliminary results of the Economic Evaluation of Alternatives is provided in Attachment 1 (Table 1). DS&A will present this information at the Board meeting and we seek the Board's feedback and questions.

Also provided in Attachment 1 (Table 2), is a list of non-economic factors proposed to be part of the evaluation process. We seek the Board's concurrence that this list is complete and welcome additional factors for consideration, if desired.

As requested at the October 8, 2015 Board meeting, a Natural Resources and Technical Systems (NRTS) Committee meeting will be scheduled as a "placeholder" should Board Members seek greater detail about the preliminary results of the economic evaluation of alternatives. This meeting has not yet been scheduled. The project flow chart is provided as Attachment 2.

Action Requested

DS&A and staff seek the Board's feedback about the preliminary results of the economic evaluation of alternatives and the proposed list of non-economic factors for further analysis.

Todd Taylor, P.E.
General Manager of Operations

Daniel Przybyl
Director of Information Technology

Attachments: 1 – AMI Feasibility Study - Economic Evaluation of Alternatives
2 – AMI Feasibility Study Tasks Flowchart

DS&A

OWASA AMI Feasibility Study

Economic Evaluation of Alternatives

The core of the Advanced Metering Infrastructure (AMI) Feasibility Study is developing economic analyses of the costs and benefits of key strategic alternatives for OWASA. The alternatives, as presented to the Board on September 24, are:

1. Rapid deployment of mobile automatic meter reading (AMR) throughout the OWASA service territory. This is being evaluated both with (a) using the existing Mueller drive-by units, and (b) replacing everything with a new system.

2. Rapid deployment of AMI throughout the OWASA service territory. Instead of mobile meter reading devices, AMI uses fixed data collection units to capture meter reading data much more frequently.

3. Deployment of a limited AMI network covering the meters of the UNC main campus and medical institutions as well as the Chapel Hill/Carrboro central business district and surrounds (encompassing about 5,400 meters, including most of the high cost-to-read meters). The remaining meters not covered by this network would be converted to AMR.

DS&A has developed discounted cash flow models to evaluate the key alternatives. The models incorporate the cost of AMI/AMR capable meters or registers, radio transmitters and data collectors, installation, hardware and software to store the data and make it available to OWASA's employees and customers, project management, and operation and maintenance, as well as the scrap value of old meters, avoided costs of replacing old meters and radios under OWASA's existing program, staffing cost reductions, reduction in adjustments, increased registration from replacing very old meters, and vehicle cost savings. The models assume 1-year deployment and calculate the net present value (NPV) of the costs and savings for each alternative over 15 years using a discount rate tied to OWASA's borrowing costs. The internal rate of return (IRR), an indication of the attractiveness of a project or an investment, is also calculated from the streams of costs and savings. Preliminary summary results of the analyses are shown in Table 1.

Table 1. Preliminary results of economic analysis of alternatives

	AMR (new) (Alt. 1a)	AMR (HotRod) (Alt. 1b)	AMI (Alt. 2)	Hybrid (new AMR) (Alt. 3)
Capital Cost, $M*	4.51	3.94	5.44	5.41
Annual O&M, $M	0.03	0.03	0.16	0.11
Annual Savings, $M	0.14	0.14	0.47	0.22
NPV 15Yr@3.5%, $M	(0.12)	0.23	1.18	(1.16)
IRR 15 year	2.9%	4.8%	7.7%	-1.6%

*with 5% contingency

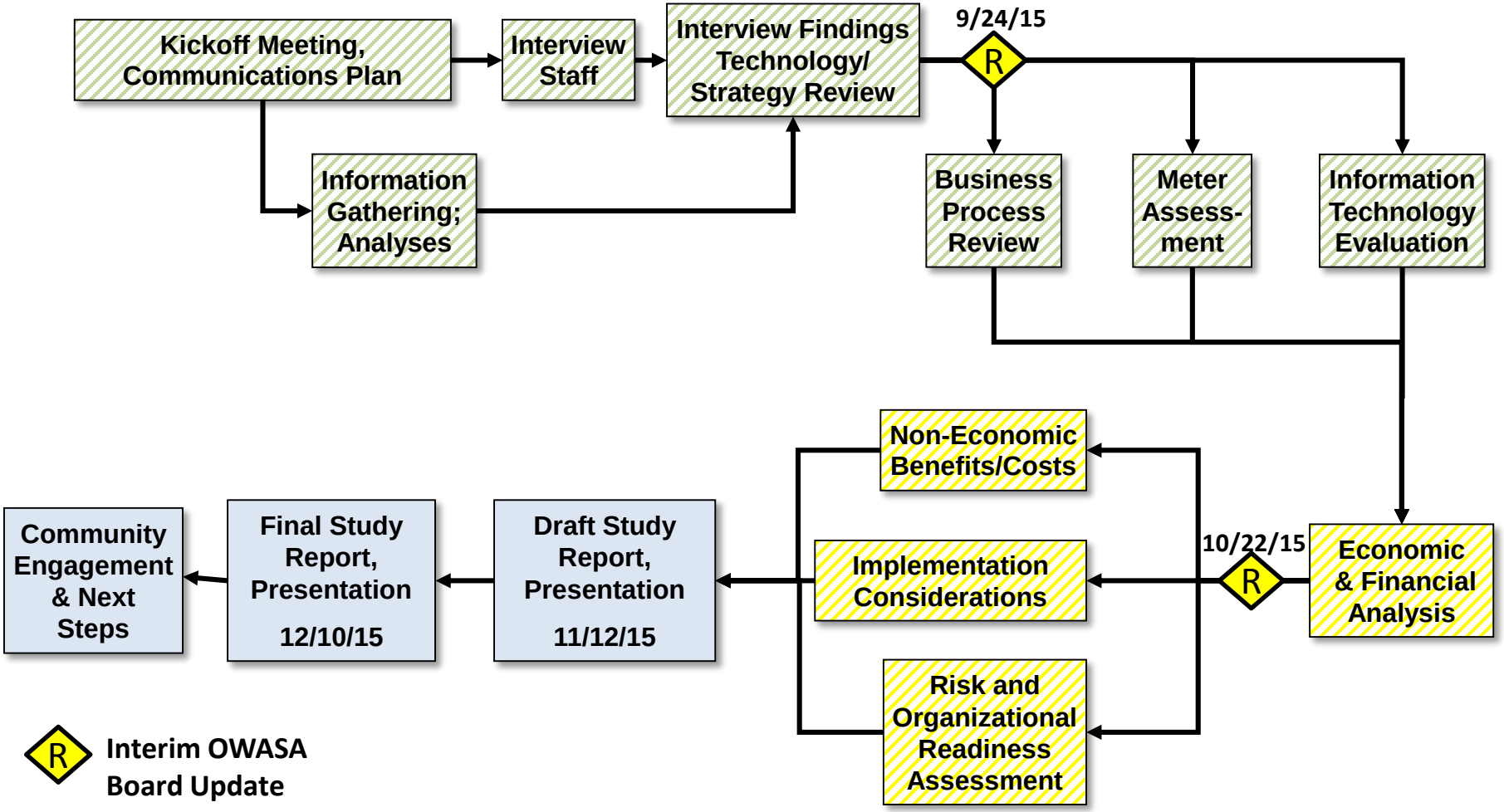
The financial analysis indicates that full deployment of AMI throughout OWASA's service territory shows the greatest NPV and the most favorable IRR. However, other factors (economic benefits and costs that accrue to others and/or are difficult to quantify, as well as social and environmental impacts) must be factored into the analysis of alternatives. Table 2 shows the list

of these factors under consideration by DS&A and OWASA staff. Business and technological risks, organizational readiness and other implementation considerations are part of the evaluation process, and also under review by DS&A and OWASA staff.

Table 2. Additional evaluation considerations

Detailed, timely water use info for customers and customer service employees
First call resolution. Proactive service. Reduce high bills. Support affordability.
More satisfying work for employees. More data available to resolve issues.
More work, stress of managing new system, interfaces
Stress of learning new system. Longer phone calls.
Fear of job loss; stress of transition for repositioned employees
Reduced greenhouse gas emissions
Reduced traffic congestion
Loss of "eyes and ears" on system, customers
Reduced OWASA employee visibility
Better non-revenue water calculations; improved audit capability
Better information for system planning, capital improvement plan
Better info for demand mgt, drought mgt.
Improved safety: reduced accidents, dog bites, snakes, bees, threats, etc.
Full field audit of accounts, connections, meters
Concerns about privacy, EMF health effects
Supporting alt. rate structures (tailored rates, individualized budget rates, time of use)
Billing in finer resolution
Facilitation of potential OWASA role in submetering
Potential to support smart system management
Potential to enhance community services (e.g., street light control)
Potential to provide additional services to largest customers
Innovation, best in class
Perception of reliability, customer confidence
Customer perception of unnecessary expense
Equitable service to customers
Potential to identify and help reduce distribution system leaks

OWASA AMI Feasibility Study Tasks



AGENDA ITEM

- **PROPOSED AFFORDABILITY OUTREACH PROGRAM PLAN (YEAR 1)**

PURPOSE

- To receive feedback and guidance on the proposed *Affordability Outreach Program Plan (Year 1)* which includes strategies, implementation timetable, and recommendations regarding staff and financial resource needs for implementing an ongoing affordability outreach program.

BACKGROUND

- "Affordability and Cost Management" is one of the five key strategic themes in OWASA's Strategic Plan. During rate-setting discussions and strategic planning meetings, the OWASA Board of Directors concluded that water conservation should be promoted as a key strategy for customers – especially to those in financial need – to lower monthly water and sewer bills.

- As requested by the Board of Directors on June 25, 2015 staff has developed a draft plan for making affordability outreach an ongoing program at OWASA. Our affordability outreach partner agencies were provided an opportunity to review and comment on the draft, and all of those responding expressed support for the proposed plan.

- At the October 13, 2015 meeting of the Community Engagement Committee (CEC), two committee members and one additional Board member discussed the proposed *Affordability Outreach Program Plan (Year 1)* and agreed to advance the proposal for consideration by the Board of Directors. In advance of the meeting, a third Committee member that was unable to attend the meeting emailed support of the proposed plan

ACTION NEEDED

- Receive the staff report and recommendation from the Committee, invite comments from the public, and provide feedback and guidance to staff and the Committee.

- Consistent with past practice, we do not believe a formal resolution is needed for this matter. However, we do recommend that if and when the Board supports moving forward with the proposed program, it consider acting on this matter via approval of a motion, perhaps along the lines of the following:

> *"Motion that the Board of Directors approves the proposed Affordability Outreach Program Plan (Year 1) and authorizes staff to proceed to implement the program in accordance with the approach described in the proposed plan."*

October 22, 2015

ORANGE WATER AND SEWER AUTHORITY

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

MEMORANDUM

TO: Board of Directors

THROUGH: Ed Kerwin

FROM: Patrick Davis

DATE: October 15, 2015

SUBJECT: **Proposed Affordability Outreach Program Plan (Year 1)**

Purpose

To receive feedback and guidance on the proposed *Affordability Outreach Program Plan (Year 1)* which includes strategies, implementation timetable, and recommendations regarding staff and financial resource needs for implementing an ongoing affordability outreach program.

Background

The attached draft *Affordability Outreach Program Plan (Year 1)* presents a proposed approach for making affordability outreach an ongoing program at OWASA, as requested by the OWASA Board of Directors on June 25, 2015. The proposed strategies incorporate many of the comments and suggestions provided by over a dozen local partner agencies that participated in our Affordability Outreach Pilot Project in Fiscal Year 2015.

The Board's Community Engagement Committee and one additional Board member discussed the draft proposal at the Committee's October 13, 2015 meeting and agreed to advance the proposal for consideration by the Board of Directors. In advance of the meeting, a third Committee member that was unable to attend the meeting emailed support of the proposed plan.

At the October 22, 2015 Board meeting, staff will make a brief presentation to the Board and community. We have invited our affordability outreach partner agencies to attend the meeting and to offer any comments regarding the proposed plan.

Staff Recommendation

OWASA staff recommends that the Board receive the staff report and recommendation from the Committee, invite comments from the public, and then provide feedback and guidance to staff and the Committee.

Consistent with past practice, we do not believe a formal resolution is needed for this matter. However, we do recommend that if and when the Board supports moving forward with

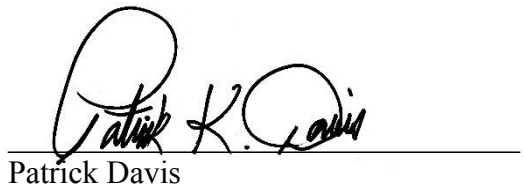
the proposed program, it consider acting on this matter via approval of a motion, perhaps along the lines of the following:

> *"Motion that the Board of Directors approves the proposed Affordability Outreach Program Plan (Year 1) and authorizes staff to proceed to implement the program in accordance with the approach described in the proposed plan."*

We look forward to your questions, comments, and guidance.

Closing Acknowledgement

I would like to personally acknowledge the work of Mary Tiger, our new Sustainability Manager, in preparing the draft program plan, reaching out to our partner agencies to ensure they support the proposed strategies, and presenting the proposal for consideration by the Community Engagement Committee. Mary will not be able to present the proposal at the October 22nd meeting, but it is rewarding to know that Mary will lead our future efforts and partnership on affordability outreach.



Patrick Davis
Sustainability Manager

Attachment: Draft Affordability Outreach Program Plan Year 1: October 2015 – September 2016

Orange Water and Sewer Authority
DRAFT Affordability Outreach Program Plan

Year 1: October 2015 – September 2016

Purpose

On June 25, 2015 the OWASA Board of Directors received a one-year progress report on OWASA's affordability outreach pilot project and agreed that affordability outreach should be an ongoing program for the utility. The Board concurred that staff should develop a draft Affordability Outreach Program Plan which includes proposed strategies, implementation timetable, and recommendations regarding staff and financial resource needs. This draft report presents a proposed plan for one year of such a program. It references and incorporates the lessons learned and feedback received from the 2014-15 Affordability Outreach Pilot Project.

Key Points and Recommendations

This draft report presents a proposed approach for making affordability outreach an ongoing program at OWASA, as requested by the OWASA Board of Directors. The proposed strategies incorporate many of the comments and suggestions provided by the many partner agencies that participated in our Affordability Outreach Pilot Project in Fiscal Year 2015.

The following program plan is proposed to increase community awareness of options to manage and reduce OWASA bills and to empower low-income customers and the local agencies that serve them with information and tools to manage and reduce OWASA bills. In planning just the first year of the program, it is proposed that feedback and strategy evaluation be key principles of its execution, as well as partnership, analysis, and education.

The strategies proposed to meet these objectives are:

1. Continue to provide and improve customer service to assist customers in managing OWASA bill payments
2. Provide proactive desktop and field service for identification and follow-up regarding potential leaks
3. Seek ways to better promote "Care to Share"
4. Actively target desktop analysis and in-home water use assessments to customers receiving bill assistance
5. Host semi-annual meetings of social service agencies
6. Conduct targeted outreach
7. Identify and pursue affordability outreach strategies in partnership with rental property owners and managers, including conducting an assessment of potential incentives

(financial and non-financial) that would motivate landlords and property managers to undertake water efficiency retrofits of rental units
8. Assist in the identification and pursuit of outside funding and purchase arrangements for water–efficient fixtures to be used in targeted home retrofits by partner agencies
9. Develop case study on pilot retrofit program, including customer perspective of the project
10. Incorporate and communicate consideration of how rate structure, AMI technology, community engagement, and alternative water conservation strategies could complement the Affordability Outreach Program

Implementation of the above strategies will require the commitment of staff and financial resources, and the draft plan includes an initial planning-level estimate of those requirements. As proposed, we anticipate the first year of the Affordability Outreach Program can be supported with existing staff. The program will fall under the leadership of the Sustainability Manager.

Additionally, funding support of about $25,000 is projected to be needed for the first full year of the program. The Fiscal Year 2016 budget includes some funding identified for conservation outreach that could meet a portion of the estimated financial support.

Our Affordability Outreach Program has been and will continue to be an important part of our community engagement efforts. As the Board of Directors and staff work to develop a more comprehensive community engagement program, staffing needs identified in this proposed Program Plan will be incorporated into future staffing requirements, roles and responsibilities associated with our overall community engagement program.

Background

"Affordability and Cost Management" is one of the five key strategic themes in OWASA's Strategic Plan. During rate-setting discussions and strategic planning meetings, the OWASA Board of Directors concluded that water conservation should be promoted as a key strategy for customers – especially to those in financial need – to lower monthly water and sewer bills.

And while we cannot provide free service or charge different rates based on our customers' ability to pay because of legal and bond order restrictions, we are a member of the community we serve and recognize the need to ensure that water and wastewater service meets a basic human need. It's important to OWASA that our services be accessible to the public in order to protect public health and the environment.

Furthermore, water conservation practices and investments make our community better prepared for droughts; defer the need for multi-million dollar expansion of OWASA system capacities; and reduce greenhouse gas emissions from use of conventional energy sources to pump lake water, drinking water, wastewater, and treated wastewater. Water conservation has been identified as a key strategy in addressing customer affordability because it reduces costs for customer service, service delivery, and long-term water resource provision. Water conservation has the potential for sustained positive impact for customers, including reduction in OWASA

bills as well as energy costs associated with hot water heating. Additionally, as proposed, it has the potential to enhance OWASA's engagement with the community.

Minimizing high bill inquiries and customer cut-offs reduces costs for the utility, including minimizing the negative impacts of cut-offs, collections, and uncollectable accounts.

A 2010 Water Research Foundation Report identified the four major causes of billing non-payment to be crisis conditions, affordability and/or money management problems, elderly or disabled limitations, and older housing with bad plumbing (Cromwell et al 2010). OWASA Customer Service staff have also found that some OWASA customers just forget to pay their bill. (While this last factor does not directly address customer affordability, it does impact some of the metrics identified in this plan.)

The strategies proposed in this draft Affordability Outreach Program Plan attempt to help overcome each of these causes by assisting our customers in managing and reducing their OWASA bills.

Affordability Outreach Pilot Project: On March 27, 2014, the OWASA Board of Directors concurred with the Community Engagement Committee's recommendation that OWASA implement a pilot project "to engage the community/target groups with information about how to reduce OWASA bills."

Staff initiated the Affordability Outreach Pilot Project with a kick-off meeting on June 16, 2014 and subsequently pursued several affordability outreach strategies in partnership with more than a dozen local social service and affordable housing agencies. Nearly a year later, staff provided the Board with a 12-month Progress Report which included feedback on suggested strategies from local partner agencies. Those suggested strategies are referenced below (in the section "Proposed Program Strategies" in italics) alongside each proposed strategies.

Program Principles

The Affordability Outreach Pilot Project was implemented under four major tenets: partnership, analysis, education, and feedback. These principles served the implementation of the pilot well and would serve as a strong foundation for a more sustained program.

Partnership: In the pilot project, OWASA partnered with staff from 14 social service and affordable housing agencies to solicit insight into the challenges of their constituency, input on project design, and the potential to leverage funding in order to help more people. Staff in our partner agencies were very supportive of our efforts and eager to learn and convey information about how their clients can reduce their water and sewer bills by reducing their water use. Partners in the pilot project included:

- Carrboro Town Manager's Office and Planning Department
- Community Alternatives for Supportive Abodes (CASA)
- Chapel Hill Office of Housing and Community
- Chapel Hill Office of Planning and Sustainability

- Community Home Trust
- Compass Center for Women and Families
- EmPOWERment
- Habitat for Humanity of Orange County
- Interchurch Housing Corporation
- Inter-Faith Council for Social Service (IFC)
- Marian Cheek Jackson Center
- Orange County Department on Aging
- Orange County Department of Social Services
- Orange County Housing, Human Rights, and Community Development

In a more sustained program, the partners listed above (and others) will continue to serve as a critical resource and sounding board for the program and its strategies. These partner agencies have been invited to review and comment on this proposed plan.

Analysis: In the pilot project, OWASA used historical billing records, data about bill payment issues for customers, and our geographic information system (GIS) to analyze and graphically convey information about affordability issues and challenges, as well as to prioritize properties for consideration in planning water conservation retrofits and/or targeted education and outreach efforts. OWASA staff completed in-home water use assessments at about 30 homes in low and moderate income neighborhoods, and assisted the IFC and the Jackson Center in selecting six homes for inclusion in an IFC-funded pilot-scale water use efficiency retrofit project completed with assistance from a local plumbing firm. The following plan proposes to maintain and seek opportunities to enhance this tactic.

Education: OWASA worked with several partners to distribute information about cost-effective ways to reduce bills through conservation practices and water use efficiency investments. Outreach included everything from publishing an article about how to save money on your OWASA bill in the Northside News (the March newsletter was printed by OWASA and distributed by Jackson Center volunteers), to presentations at community meetings and one-on-one discussions with customers. Additionally, OWASA provided education and training materials to the partners regarding water billing procedures and conservation, so that they could inform their clients about how to reduce their OWASA bills through conservation. In the following plan, we propose to expand our focus on proactive and targeted education and outreach.

Feedback/Engagement: Throughout the development, delivery, and assessment of the pilot project, OWASA sought feedback from the community partners. OWASA improved customer billing and service processes in direct response to suggestions made by our partners. In the implementation of a more sustained program, OWASA will continue to encourage feedback and customer engagement.

Proposed Program Objectives

The following objectives for the program and its strategies are proposed to be:

- Increase community awareness of options to manage and reduce OWASA bills
- Empower low-income customers and the local agencies that serve them with information and tools to manage and reduce OWASA bills

We propose to use the following goals and metrics to track and report on achievement of these objectives:

- Reduce average water use of those customers with whom we engage with through our affordability outreach program
- Increase contributions to our Care to Share program so that more people in need can be helped
- Reduce cut-offs due to non-payment

Target Audiences

Our proposed program plan strives to engage customers with difficulty paying for OWASA services. There are three initial ways of identifying these customers:

- Customers requesting and receiving bill payment assistance from local social service agencies, including the IFC and the "Care to Share" program;
- Customers requesting extensions of credit to manage bill payments; and
- Customers for whom service is cut-off due to non-payment of bills.

The three categories above represent customers we think have the greatest need for our help in conservation/bill reduction. We also anticipate that the affordability outreach program could in future years expand to reach more residents of public housing and other assisted housing, and residents in neighborhoods where incomes are modest, including but not limited to, multi-family neighborhoods.

In order to proactively engage with these customers, we will partner with local social service agencies that provide bill assistance, home repair, and maintenance assistance, as well as the rental community. The rental community overlaps with much of our target population for affordability outreach and represents a significant portion of our service area population.

It is important to note that while many of the strategies proposed below (including in-home water use assessments) are identified to be targeted through certain agencies and to specific households, these services would also generally be available to our entire customer base upon request, as we cannot differentiate services to our customers based on their financial position or need.

Proposed Program Strategies

The following program strategies are proposed to help address customer affordability at various stages for our customers (from high bill prevention to bill payment strategies) and with various communities (directly with customers and via social service agencies). This comprehensive and multi-pronged approach gives us the best chance to achieve the proposed objectives identified for the program. Most of these strategies align with those proposed and prioritized by partner agencies and presented in the 12-Month Progress Report on the Affordability Outreach Pilot Project.

1. **Continue to provide and improve customer service to assist customers in managing OWASA bill payments**
   Listed below are some of the customer service procedures in-place to assist customers in managing their OWASA bill payments. Some of these have been modified to better enable social service agencies to proactively help their clients and our customers in resolving bill payment issues. This has helped reduce the risk that a customer will have their service disconnected for non-payment, thereby helping them avoid having to pay the associated $45 delinquent fee. Some of the business process modifications were in direct response to suggestions provided by our partner agencies in the Pilot Project.

   a. Proactive Customer Communication: OWASA proactively communicates with customers regarding impending cut-offs. One day after a customer misses a second month of bill payments, OWASA contacts the customer via a phone service to let them know that if payment for at least one month is not made within the next ten days their service will be cut-off and they will incur the $45 fee for non-payment. If payment has not been received within ten days, the customer is re-notified that if prompt action is not taken, their service will be cut-off.
   b. Social Agency Referral and Collaboration: OWASA's Customer Service Department maintains a list of social service agencies that provide bill payment assistance to customers in need. If a customer contacts OWASA to express difficulty in paying their bill, Customer Service refers the customer to those agencies. Additionally, we inform our customers that if they are working with an agency to obtain financial assistance, they may authorize us to release their billing information to that agency, so that agency can better assist the customer.
   c. Emergency Water Loss Policy: When a customer reports a leak, OWASA may reduce their bill if the customer provides documentation of repair. A customer is eligible for an Emergency Water Loss bill reduction every three years.
   d. Customer Payment Deferral Agreements (Extensions of Credit): Customer Service staff have the authority to arrange an individual payment plan that will allow a customer to spread payments in arrears over a timeframe that is more manageable for them. Customers must sign a payment deferral agreement and meet the terms of repayment specified in the agreement. We enable agencies providing financial assistance to initiate, on behalf of their clients, requests for extension of credit for customers to pay their bills. The agency can have a client sign the agreement while the client is in the agency's office. This facilitates the process and eliminates the need for the customer to make a separate trip to

OWASA to enter in to such an agreement. Furthermore, the assisting agency likely has a better understanding of a plan that will work best for a customer's circumstances.

Potential next steps: We will continue to seek feedback from our program partners and improve our customer service business processes to assist customers in managing OWASA bill payments, including how changes in technology (i.e. Advanced Metering Infrastructure) can be utilized to assist in this improvement.

Timeline: Ongoing

Resources requested: No additional resources are required for this strategy.

2. **Provide proactive desktop and field service for identification and follow-up regarding potential leaks**
   Aligns with partner agencies' suggested strategy #3: Provide targeted in-home water use assessments
   Throughout the meter reading and billing process, we have a series of check-points for meter reads that are 60% higher than the previous months to help validate the accuracy of our meter reads. When a high bill is validated, Customer Service staff proactively communicate with customers to alert them to the high read and offer assistance with identifying leaks. If a customer is interested, field service staff will visit the home and help the customer determine if there is a leak.

   Potential next steps: We propose to continue to improve our customer and field service to assist customers in identifying leaks and to evaluate how technology (i.e. Advanced Metering Infrastructure or GIS) can be used to make this strategy more effective and efficient. Additionally, through targeted outreach (see Strategy #6), we will make additional efforts to inform customers about the impacts of leaks.

   Timeline: Ongoing

   Resources requested: Assuming the number of leak investigations and associated billing adjustments are in the same general range as past years, no additional resources are required for this strategy.

3. **Seek ways to better promote "Care to Share"**
   The "Care to Share" program, previously "Taste of Hope", was initiated as, more or less, a crowdfunding option for OWASA customers to voluntarily contribute to a bill payment assistance fund administered by the IFC. Recent efforts have been made to increase participation and monthly contributions to the Care to Share program (which has been relatively steady over the past 10 years), as well as to increase one-time contributions. Most enrollments as Care to Share contributors occur when a customer initiates service. However, Customer Service staff try to invite customers to participate in the program every time they speak to a customer. Additionally, in July 2015, we sent a letter to vendors with which OWASA does business and asked them to consider donating to the

Care to Share to program. This one-time appeal by OWASA resulted in contributions totaling $1,370. (In order to avoid the appearance of partiality, the IFC, who administers the program, will not divulge the name of private donors.)

Potential next steps: OWASA staff will seek opportunities to better understand what drives participation in and contributions to Care to Share. One such potential research opportunity recommended by the new IFC Executive Director could be with Dan Ariely, a behavioral economics professor at Duke University. We are in early discussions regarding the scope of this potential study, which if undertaken could help target efforts to increase contributors and contributions to Care to Share. The scope of the project could include messaging, marketing, and platforms. If and when we receive a proposed scope of work for this potential study, staff will work with the Community Engagement Committee and the Board of Directors to determine if and how to proceed.

Timeline: During fall 2015, staff will work with the IFC and Duke University to develop a proposed scope for the project. If the Board of Directors concurs that we should participate in such a project, it would likely take place over the winter and spring of 2016.

Resources requested: If the study is implemented, staff time would be required to oversee the study, but at this point, no financial resources are anticipated. If pursued, estimated staff time for the strategy could be approximately 200 hours

4. **Actively target desktop analysis and in-home water use assessments to customers receiving bill assistance**
   Aligns with partner agencies' suggested strategy #3: Provide targeted in-home water use assessments; and suggested strategy #2: Assist agencies in planning and implementing water efficiency retrofits

   Currently, we provide general information to partner agencies that assist customers with OWASA bill payments, but we do not actively promote OWASA-conducted in-home water use assessments directly to those customers. As part of the pilot project, we completed a "desk-top" analysis of billed water use of about 700 households at properties owned, managed, and/or developed by local affordable housing agencies. We also reviewed water use for homes in low and moderate-income neighborhoods, such as the Northside, Knolls, and Rogers Road areas. We met with partner agency staff to review the results and determine next steps. From these meetings, we identified 30 units (based on the age, occupancy, and water use of the household) for on-site water use assessments and conducted water use assessments for those units.

   Potential next steps: In an effort to help customers that we know to be having difficulty paying their OWASA bills, we propose a phased approach to directly offer in-home water use assessments to those customers. This approach was ranked as the third most favored strategy by our affordability outreach program partners.

   If targeted to the entire proposed target audience for the Affordability Outreach Program, this strategy has the potential to impact a significant portion of our customers and require

a significant amount of resources. At this early stage of the program, we propose to just target desktop analysis and in-home water use assessments to a sub-set of the proposed target audience: those receiving bill payment assistance from Care to Share and through partner agencies' assistance programs.

Under this proposed scenario, OWASA staff would conduct a desk-top water use evaluation for each unique client that is provided OWASA bill payment assistance by Care to Share or through another partner agency's assistance program. OWASA staff would summarize this evaluation in a personalized letter to each customer (with a copy to the applicable assistance agency, subject to the customer's permission). The letter would include trends in water use for that customer, suggestions for reducing their water bill, and an offer for an in-home water use assessment. In some cases, the in-home water use assessments would be directly provided by OWASA staff. For other cases, OWASA staff will work with partner agencies to train staff and volunteers to provide the in-home water use assessments. (The Jackson Center has specifically expressed interest in having their student volunteers trained to provide in-home water use assessments.)

This somewhat limited scope is proposed for the first year of the Affordability Outreach Program so that we can to better understand the impact of such a strategy on our customers and the resource needs for OWASA. Depending on the outcomes, this program could be expanded in future years to reach the entire target audience with additional staff.

Timeline: In the winter 2016, OWASA staff will develop a proposed template (in English and Spanish) for letters that will be sent to customers that receive bill payment assistance, including information about reducing water use and requesting an in-home water use assessment. We also propose to use this time to set up internal processes that will streamline the process of sending these letters. We will seek feedback on the content of this letter from partner agencies. We propose to begin sending letters and targeting in-home water use assessments beginning in the spring of 2016. Additionally, in the fall and winter of 2016, we will conduct training with partner agencies and their volunteers on in-home water use assessments. We propose at the end of the first year of the program that staff analyze the demand for the assessments, impact of the desktop and in-home water use assessments, and resources required to provide such an ongoing service to make recommendations about continuing or even expanding this strategy to target more customers.

Resources requested: In the first phase of this proposed strategy, it is anticipated that about 160 hours of staff time would be required to draft the letter template, to set up internal processes to streamline the letter-sending process, and train the staff and volunteers of partner agencies to conduct in-home water use assessments.

The level of effort required for the in-home water use assessments will depend on the demand for them: both from the targeted population and non-targeted population (since we cannot deny the service for any other customer requesting an assessment). It is estimated that approximately 60-180 hours of staff time will be required to conduct an estimated twelve to thirty-six in-home assessments in the last six months of this first year.

Additionally, a modest budget of $500-$800 would be needed for Spanish translation of the letter, paper and postage for the mailings, and training materials.

5. **Host semi-annual meetings of social service agencies**
   Aligns with suggested strategy #2: Assist agencies in planning and implementing water efficiency retrofits; suggested strategy #4: Collaborate with other affordable housing boards and agencies; suggested strategy #12: Technical workshops and training for partner agencies; and suggested strategy #13: Introduce educational materials into partner agencies' communications

   As previously mentioned, the pilot project built and strengthened partnerships with community organizations. Through these partnerships, we sought to more effectively inform our target audiences about ways to reduce their OWASA bills, as well as to solicit insight into the challenges of their clients, input on pilot project activities, and the potential to leverage funding in order to help more people. The partners were engaged and reported that these meetings and discussions were very beneficial.

   Potential next steps: Staff proposes to host semi-annual partnership meetings and to work to expand the list of invitees to include other affordable housing boards, agencies, and churches in the service area. As shown above, these meetings would enable OWASA to address four of the fifteen proposed strategies of interest to our partner agencies. The purposes of these meetings would be to continue the dialogue and relationship with existing and new partners, train staff at partner agencies on methods to reduce and manage OWASA bills, and seek opportunities to partner with and empower agencies in working with clients to reduce water use and OWASA bills via information, in-home water use assessments, and water efficiency retrofits.

   Timeline: Based on partner agency availability, the first meeting will be scheduled for January or February of 2016; the second meeting will be scheduled for August 2016.

   Resources requested: Approximately 80 hours of staff time would be required for the organization, preparation, and summary of these meetings. Because of the challenges of finding a suitable time that works for staff from the various project partners, we propose to organize these as "working lunch" meetings sponsored by OWASA. A budget of $500 would be needed for this purpose.

6. **Conduct targeted outreach**
   Aligns with suggested strategy #8: Consider the feasibility of modifying monthly bills to display how the conserved water translates into actual dollars saved; suggested strategy #10: Create educational and outreach materials that are more visual; and suggested strategy #13: Introduce educational materials into partner agencies' communications

   Despite having a multi-prong approach to assist customers in reducing and managing their OWASA bill, if customers are not informed, our efforts can fall short of providing assistance when and where it is needed. Furthermore, in some instances, proactive

outreach can reduce and even prevent the need for financial assistance at all. In the pilot project, we targeted conservation messaging to the Northside and Knolls neighborhoods in Chapel Hill. In partnership with the Jackson Center, we collaborated on the March 2015 issue of the Northside News newsletter and provided an educational article with tips about how customers can save money on their OWASA bill by reducing their water use, finding and repairing leaks, and more. Jackson Center volunteers hand-delivered the newsletter to more than 800 households, businesses, and agencies. We received positive feedback from the Jackson Center on the content of our outreach. George Barrett of the Jackson Center commented:

> "It's safe to say that this issue is a HIT!!!...Thank you again for all of your work. This was an amazing collaborative effort and the work has not gone unnoticed."

Additionally, we have brochures (in English and Spanish) describing how customers can lower their OWASA bill, request temporary help for paying an OWASA bill, and request an account adjustment when leaks are repaired. These brochures are intended for all customers, and we will continue to urge our partner agencies to distribute those messages and informational materials to their clients having difficulty paying their OWASA bill.

Potential next steps: In order to increase community awareness of methods to reduce and manage OWASA bills and to empower low-income customers to use these methods, we propose developing and launching a targeted outreach effort that shows how much money customers can save through conservation in a clear, concise, and visual manner. During the first year, we will expand our modes and media for outreach, including the development and use infographics in partner agency newsletters and the development of a brief video.

Additionally, we will explore the potential of sending tailored messages to all of our customers regarding how conserved water can translate into actual dollars saved for their specific water use history and profile. In this first year of the program, we propose to identify a strategy for moving forward with tailored communication to all customers about the impact of conservation on their bills.

Timeline: We propose that in the spring of 2016, we publish at least one article, including a visual infographic, in at least one partner agency's publication about reducing and managing OWASA bills (e.g. Northside News or IFC semi-annual newsletter). We propose that by summer of 2016 we produce a brief video that explains how to reduce and manage water and sewer bills. We would also explore and potentially propose a plan for effectively and efficiently targeting conservation messaging to customers, including tailored messages directly on bills by the end of the first year of the program.

Resources requested: Approximately 150 hours of staff time will be needed to adapt current outreach materials and develop new outreach materials. Additionally, we request funding to develop the educational materials. We have about $20,000 in the FY16 budget for videos and outreach related to conservation. We anticipate that this would enable us to retain professional services needed to develop a brief video and visual infographic. We

estimate that it will cost approximately $100 to publish and print a newsletter that will be distributed by a partner agency.

7. **Identify and pursue affordability outreach strategies in partnership with rental property owners and managers, including conducting an assessment of potential incentives (financial and non-financial) that would motivate landlords and property managers to undertake water efficiency retrofits of rental units**
Aligns with suggested strategy #6: Engage rental property owners and managers; and suggested strategy #9: Invite the Triangle Apartment Association to be an active partner

   Given that approximately half[1] of the dwelling units in our service area are estimated to be rental properties, the split incentive for water efficiency and conservation between landlords and tenants affects many of our customers. If a landlord includes payment of the OWASA bill in the rent, a tenant has little incentive to conserve water. Conversely, if a tenant pays the cost of the OWASA bill (either through direct billing or sub-billing), the landlord has very little incentive to install water-efficient fixtures in the rental property. In order to design outreach that overcomes this split incentive, we need to better understand the motivators and drivers of rental property owners and managers regarding investment in water use efficiency.

   Potential next steps: We would invite property owners and managers to engage in two separate focus groups with us so that we can better understand issues relating to water conservation and affordability in rental properties. This understanding will serve as a basis for developing targeted informational materials, and for exploring potential incentives for water conservation and efficiency in rental properties. These incentives could be non-financial (such as a recognition program for water-efficient properties) and/or financial (such as an on-bill financing program). The rental property manager focus group would be valuable in informing our understanding of how water and wastewater services are managed and billed in rental properties, as well as what type of information is exchanged between the property managers and tenants regarding water use. The rental property owner focus group would be valuable in informing our understanding of what motivates (or demotivates) their investment in water use efficiency technology.

   Timeline: We propose to invite property owners and managers to the focus groups in the winter of 2016 and seek to hold the two separate focus groups in the late spring/early summer of 2016. In late summer of 2016, we would develop next steps based on what is learned in the focus groups.

   Resources requested: Approximately 260 hours of staff time would be required to manage and conduct the focus groups. We anticipate that we may have to offer incentives to obtain participation in the focus groups. As such, we would request $3,500 of funding to incentivize property owners and managers to attend the focus group. We would aim to have 10 participants for each of the two focus group meetings, and assume an individual

[1] Estimated homeownership rates for our service area between 2009-2013 are: Carrboro - 37.5%; Chapel Hill – 50.1%; Orange County – 60.5% (U.S. Census, American Community Survey)

financial incentive of $150 per participant. Additionally, we may make these meetings a working lunch or light dinner to entice participation at a cost to OWASA of approximately $500.

8. Assist in the identification and pursuit of outside funding and purchase arrangements for water–efficient fixtures to be used in targeted home retrofits by partner agencies

Aligns with suggested strategy #1: Pursue grant funding support

Outside funding for in-home retrofits was identified by our partner agencies as the most important strategy for assisting low-income customers in reducing and managing OWASA bills. Former IFC Executive Director John Dorward stated,

> "We think you are on the right track, but there is a lot more work to be done to really make an impact on the people that need it most. The only way to do that is with funding."

As 501(c)(3) organizations, many of our partner agencies are eligible for these funds and already quite successful recipients of them. And while the measurable impact of the retrofit program implemented in the pilot project has yet to be fully studied (see Proposed Strategy #9), pursuit of grant and foundation funding is a key strategy for a sustained Affordability Outreach Program, based on the expectations by our staff and partner agencies. In pursuing supplemental funding for this effort, we should not seek support that would jeopardize funding support now provided to our partner agencies. Potential new funding sources include the Lowe's Community Foundation and Home Depot Foundation.

Potential next steps: In the next partnership meeting, we would present the parameters of each of the funding sources and discuss opportunities and challenges in pursuing funding from those agencies. We would also discuss project scope, including a presentation of the case study on the pilot retrofit program completed by the IFC in 2015 with assistance from OWASA and the Jackson Center. Moving forward, we would plan to provide technical assistance to partner agencies as they prepare funding applications and implement programs if and when funds are awarded. (We consider this role similar to the technical support we have provided for projects such as Rogers Road water and sewer service planning, extension of sewer services to annexation areas, etc.).

Timeline: While we can encourage pursuit of outside funding for water use efficiency retrofits, we cannot expend a great deal of resources to actually pursue this funding. This will depend on the interest and commitment of partner agencies.

Resources requested: No additional resources are required for this strategy.

9. **Develop case study on pilot retrofit program, including customer perspective of the project**
   Aligns with suggested strategy #6: Prepare a case study for the IFC's pilot retrofit project

   In the pilot phase, the IFC undertook a pilot project to complete in-home water efficiency retrofits of six homes in the Northside Neighborhood recommended by the Jackson Center. While we can track on changes in water use of these homes, without conducting a more thorough investigation with changes in behavior, occupants, and other circumstances, it is difficult to quantify with certainty the water and sewer bill savings of these retrofits. A thorough case study of the impact of this retrofit program will help in designing future programs modeled on this approach, as well as serve as a valuable outreach story.

   Potential next steps: We will work with the IFC and the Jackson Center to reach back out to participants in the retrofit program to conduct a post-retrofit assessment. Where possible, this will involve seeking direct feedback from the home occupants. This strategy would analyze and seek feedback on the efficacy of the retrofit program and use these findings to inform other strategies. The methodology used to evaluate the pilot retrofit program would be replicated to evaluate the impact of future strategies and make the case to potential funders.

   Timeline: The case study would be developed in the fall of 2015.

   Resources requested: Approximately 50 hours of staff time would be required to prepare the case study.

10. **Incorporate and communicate consideration of how rate structure, AMI technology, community engagement, and alternative water conservation strategies could complement the Affordability Outreach Program**
    Suggested strategy #4: Consider opportunities to complement service affordability efforts

    Affordability and Cost Management is one of the five themes of OWASA's Strategic Plan. Each program and project implemented by OWASA is evaluated based on its impact on affordability and cost management. Some projects and programs will have the potential to complement OWASA's affordability outreach efforts, while others have the potential to contradict. We will continue to evaluate these projects based on their impact on affordability, but additionally, we will incorporate a consideration for how these strategies can be engaged to further the objectives of the Affordability Outreach Program. For example, in the non-economic evaluation of AMI, we will evaluate how customers, as well as Customer Service staff, can use the technology to proactively identify leaks and high water use. Additionally, in our engagement with customers, we will seek feedback on service affordability.

Potential next steps: In the next year, we anticipate the opportunity to ensure that affordability efforts are evaluated in the review of our rates and fees, consideration of AMI, community engagement, and other efforts.

Timeline: Ongoing

Resources requested: No additional resources are required for this strategy.

Preliminary Summary of Estimated Resources Associated with Strategies

Proposed Strategy		Estimated Staff Time (Annual Hours)	Estimated Financial Resources
1	Customer service	NA	NA
2	Proactive leak detection	NA	NA
3	Care to Share study	200	NA
4	Targeted assessments	180-340	$500-$800
5	Partner meetings	80	$500
6	Targeted outreach	120	$20,000
7	Property owner and manager focus groups	260	$3,500
8	Assist with retrofit funding applications	NA	NA
9	Case study on retrofit pilot	50	NA

Preliminary Summary of Timeline

	Strategy	Strategy Element(s) (if applicable)	Fall 2015: Oct – Dec	Winter 2016: Jan – Mar	Spring 2016: Apr - June	Summer 2017: July - Sept
1	Customer Service	Customer communication				
		Social agency referral				
		EWLs				
		Payment deferral				
2	Proactive leak detection					
3	Care to Share study	Scoping				
		Study, if pursued				
4	Targeted assessments	Draft letter template				
		Establish internal processes				
		Distribute letters				
		Desktop analysis				
		Conduct assessments				
		Train partners				
5	Partner meetings					
6	Targeted outreach	Develop infographic				
		Publish article/infographic				
		Develop video				
		Develop strategy for tailored messages				
7	Property owner and manager focus groups	Invitations				
		Conduct focus groups				
		Analyze results and propose next steps				
8	Assist with retrofit funding applications					
9	Case study on retrofit pilot					
10	Affordability evaluation integration					

References

Cromwell, John; Roger Colton; Scott Rubin; Charles Herrick; Jane Mobley; Kelly Reinhardt; and Rea Wilson. 2010. Best Practices in Customer Payment Assistance Programs. Denver, CO. Water Research Foundation Report.

AGENDA ITEM

- **ANNUAL REVIEW AND UPDATE OF STRATEGIC TRENDS AND UTILITY PLANNING ISSUES**

PURPOSE

- To provide information about long-term trends and utility planning issues.

BACKGROUND

- Staff will review recent OWASA's utility trends and issues.

- This annual report summarizes observed trends in customer growth and demands, water supply and drinking water treatment, wastewater treatment, the reclaimed water system, environmental regulations, and technology to ensure that OWASA continues to provide high quality water, wastewater, and reclaimed water services.

ACTION NEEDED

- No action is needed; discussion as desired by the Board.

October 22, 2015

ORANGE WATER AND SEWER AUTHORITY

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

MEMORANDUM

TO: Board of Directors

THROUGH: Ed Kerwin

FROM: Ruth Rouse

DATE: October 16, 2015

SUBJECT: Annual Review and Update of Strategic Trends and Utility Planning Issues

Attached for your review and discussion is the 2015 edition of the "Annual Review and Update of Strategic Trends and Utility Planning Issues." This annual report to the Board of Directors summarizes observed trends in water treatment, wastewater treatment, the reclaimed water system, environmental regulations, and technology to ensure that OWASA continues to provide high quality water, wastewater, and reclaimed water services.

Based on feedback from the Board of Directors on the report in October 2014, the following changes have been made to the report this year:

- A chart showing average monthly water use for single-family residential accounts was included to show how peak seasonal water use has declined for the customer class.
- A chart showing the causes of our sanitary sewer overflows was included.
- A new section describing trends in technology for utility management was included.

A couple main points from the report are:

- OWASA has enough raw water supply in Cane Creek Reservoir, University Lake, and the Quarry Reservoir to meet the projected raw water demands through 2055 under most conditions, but the community will become increasingly vulnerable to drought before the expanded Quarry Reservoir is available around 2035. Our allocation of Jordan Lake water supply serves as an insurance policy to meet water demands during extended droughts or operational emergencies.
- We anticipate no need to expand the hydraulic capacity of the water or wastewater plant for at least the next 20 years.
- The available raw water supply and treatment capacity is largely due to reductions in drinking water demands resulting from:
    - Increased water use efficiency and conservation by our customers

  - Implementation of the reclaimed water system in partnership with the University of North Carolina at Chapel Hill (UNC) in 2009, which now meets nearly ten percent of the community's water needs.

- These reductions in drinking water demand – and the associated reductions in wastewater flows – help defer the need for costly expansion of the capacities of our raw water supplies, water treatment plant, and wastewater treatment plant. More efficient use of water also helps reduce costs for energy and chemicals for water and wastewater treatment.
- Our continued commitment to maintain and renew our community's drinking water distribution and wastewater collection systems is evidenced by our low levels of water main breaks and sewer overflows.

At the October 22, 2015 Board meeting, we will make a brief presentation highlighting some of the trends included in this report. We look forward to your questions and comments, as well as your feedback regarding the content of the report. We will incorporate any feedback into future annual trends reports for the Board.

Ruth C. Rouse

Ruth C. Rouse, AICP
Planning and Development Manager

Attachment: Annual Review and Update of Strategic Trends and Utility Planning Issues

Annual Review and Update of Strategic Trends and Utility Planning Issues

OCTOBER 2015

Orange Water and Sewer Authority

Carrboro, North Carolina

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

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Purpose and Summary

This report summarizes observed trends for several indicators – such as customer growth and demands, water supply and drinking water treatment, wastewater treatment, use of reclaimed water, and environmental regulations – which are important factors that influence the need for, timing, and scope of our facilities planning and investment decisions. Through the process of regularly reviewing and updating this report, we strive to anticipate and proactively prepare for change so that we are better positioned to provide reliable and high quality water, wastewater, and reclaimed water services for the long-term. Some of the key messages are:

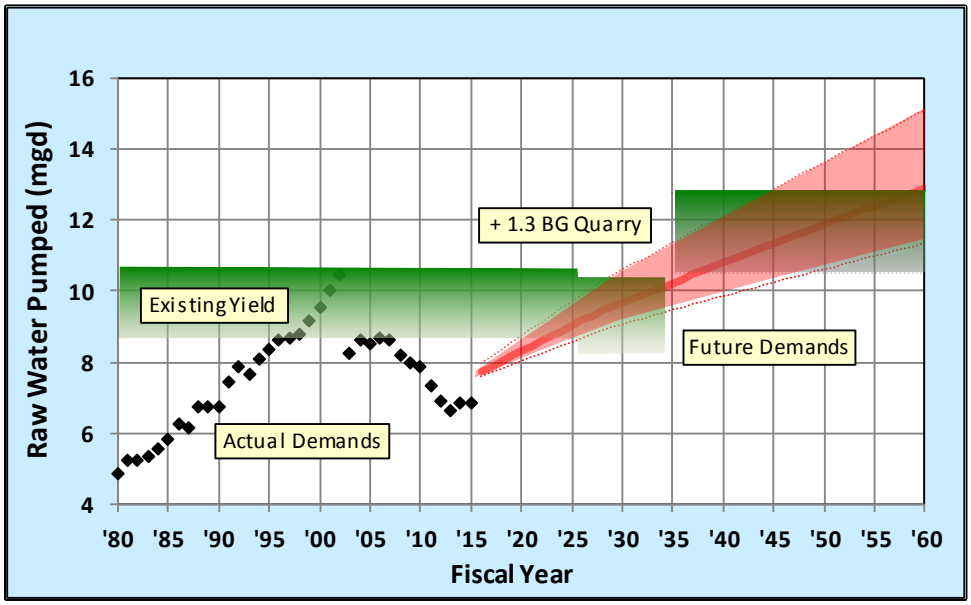
- OWASA has enough raw water supply in Cane Creek Reservoir, University Lake, and the Quarry Reservoir to meet the projected raw water demands through 2055 under most conditions, but the community will become increasingly vulnerable to drought before the expanded Quarry Reservoir is available around 2035. Our allocation of Jordan Lake water supply serves as an insurance policy to meet water demands during extended droughts or operational emergencies.
- We anticipate no need to expand the hydraulic capacity of the water or wastewater plant for at least the next 20 years.
- The available raw water supply and treatment capacity is largely due to reductions in drinking water demands resulting from:
    - Increased water use efficiency and conservation by our customers
    - Implementation of the reclaimed water system in partnership with the University of North Carolina at Chapel Hill (UNC) in 2009, which now meets nearly ten percent of the community's water needs.
- These reductions in drinking water demand – and the associated reductions in wastewater flows – help defer the need for costly expansion of the capacities of our raw water supplies, water treatment plant, and wastewater treatment plant. More efficient use of water also helps reduce costs for energy and chemicals for water and wastewater treatment.
- Our continued commitment to maintain and renew our community's drinking water distribution and wastewater collection systems is evidenced by our low levels of water main breaks and sewer overflows.

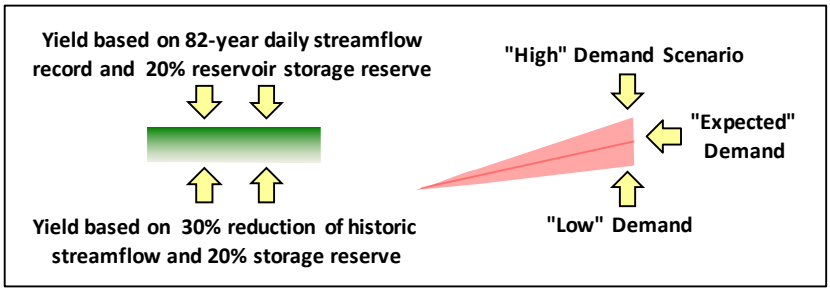
Acronyms

BG	billion gallons
CDC	Centers for Disease Control
CY	calendar year
DWR	NC Division of Water Resources
EMC	NC Environmental Management Commission
EPA	US Environmental Protection Agency
FY	fiscal year (July – June)
kWh	kilowatt-hour
KWh/MG	kilowatt-hour per million gallons
lb/yr	pounds per year
LRWSP	Long-Range Water Supply Plan
LT2	Long-Term 2 Enhanced Surface Water Treatment Rule
MCL	maximum contaminant level
ME	meter equivalent
MG	million gallons
mgd	million gallons per day
Mi	miles
NPDES	National Pollutant Discharge Elimination System
OWASA	Orange Water and Sewer Authority
RCW	reclaimed water
TN	total nitrogen
TP	total phosphorus
ug/l	micrograms per liter
UCMR3	Unregulated Contaminant Monitoring Rule 3
UNC	University of North Carolina at Chapel Hill
WHO	World Health Organization
WTP	water treatment plant
WWTP	wastewater treatment plant

Raw Water Supply and Projected Demands

(Note: OWASA is updating its Long-Range Water Supply Plan, and the future demands and yield calculations may change as part of that process. Updates expected in CY 2016).





Projected demands updated per LRWSP Appendix II, Attachment 4, rev 8/30/11.
Demands are on an average annual day basis

Description: This trend evaluates the ability of our locally-owned upland water sources – Cane Creek Reservoir, University Lake, and the Quarry Reservoir – to meet future projected raw water demands. (Since we do not have permanent access to Jordan Lake, the above graph does not include our Level I Jordan Lake water storage allocation of about 5 mgd. We can access this allocation through Town of Cary and City of Durham on a limited, emergency basis).

Key Observations:

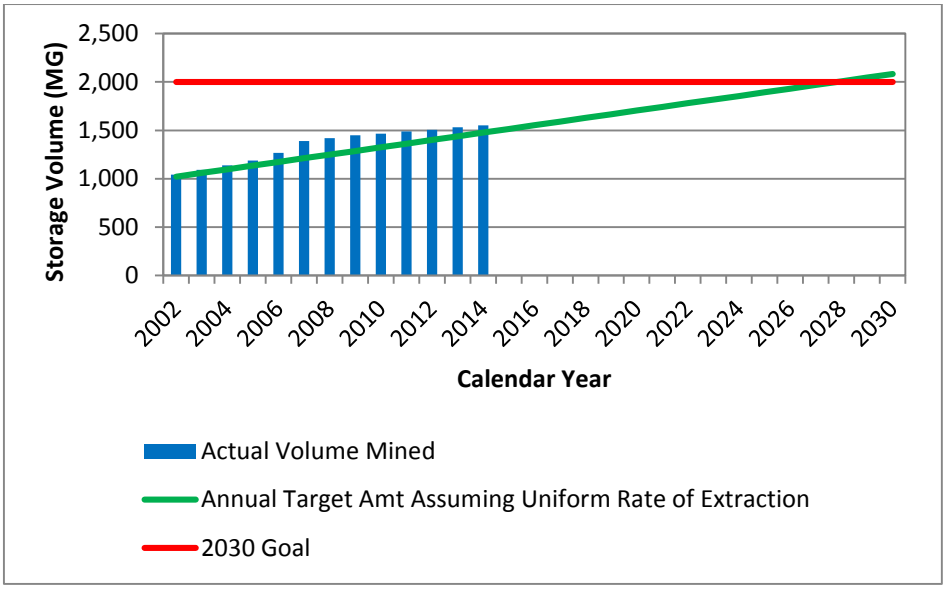
- The annual average-day amount of water we pumped from reservoirs has declined substantially since peaking in FY 2002.

- Annual average-day raw water demands are now at the same level they were in the early-1990s, shortly after Cane Creek Reservoir was placed into service. This has occurred despite an approximate 60 percent increase in the number of customer accounts during that period.
- Key factors in the reduction in water withdrawal rates include:
    - Increased water use efficiency and conservation by our customers;
    - Conservation pricing and conservation ordinances, including year-round restrictions;
    - Implementation of a process water recycling system at the drinking water treatment plant (2002), which reduced annual average-day raw water withdrawals by about seven percent;
    - Implementation of the reclaimed water system in partnership with UNC (2009), which now meets nearly ten percent of the community's annual average-day water needs.
- Raw water withdrawals in FY 2015 were 10 percent lower than the "Expected Scenario" projection in the 2010 Long-Range Water Supply Plan (LRWSP). One contributing factor is that the rate of growth and development has been considerably slower than assumed in the LRWSP.
- OWASA's current and planned locally-controlled water supply sources are expected to meet most customer demands through approximately 2055 based on current estimates of yield and expected demand projections. However, we will face an increasing risk of shortfall, particularly during extended droughts, between now and the time the expanded Quarry Reservoir is online around 2035.
- Jordan Lake, an alternative source, and/or additional demand management measures are expected to be needed to reduce risk to acceptable levels, particularly between now and the time the expanded Quarry Reservoir is placed into service.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Evaluate assumptions used to estimate reservoir yield and projected demands during the planned update of the Long-Range Water Supply Plan (LRWSP), which is scheduled to be completed in 2016. In future years, update calculations when warranted (e.g., when new drought of record occurs [impacts yield], service area boundaries change, local governments or UNC revise growth projections).	2nd Qtr CY 2016 and review annually thereafter		X
2. Continue to proactively plan and account for uncertainty, including increasing climate variability, through a diversified water supply and demand management portfolio.	Ongoing (Climate change assessment for OWASA now underway by U. of South Carolina PHD student and advisor)	X (as part of LRWSP update)	
3. Follow NC Division of Water Resources (DWR) and Environmental Management Commission (EMC) process to review application to retain our Level I Jordan Lake water storage allocation of about 5 mgd for use during extended droughts and water supply emergencies.	Ongoing; (Application submitted Nov 2015; expect decision July 2016)		X
4. Continue to pursue cost-effective ways to access OWASA's Jordan Lake allocation in partnership with neighboring utilities.	Ongoing (Participated in Jordan Lake West Facilities Feasibility Study in 2015)		X
5. Once we have a better understanding of the potential cost to ensure access to our Jordan Lake water allocation, review and reconsider the advantages and disadvantages of other feasible supply and demand management alternatives as part of update of the LRWSP.	Late CY 2016 to 2017 (Subject to receipt of updated local population and employment forecasts)	X (as part of LRWSP update)	

Quarry Reservoir Storage Volume



Description: In accordance with an agreement with OWASA, Martin Marietta (formerly American Stone Company) is mining rock from OWASA-owned land adjacent to our Quarry Reservoir. Per that agreement and the requirements of Orange County's Special Use Permit that authorized expansion of the quarry, mining operations must cease by 2030, after which OWASA will begin to fill the expanded quarry with water. Martin Marietta is required to remove enough stone to ensure that the expanded quarry (including OWASA's existing Quarry Reservoir (0.2 BG)) will store at least 2.2 billion gallons of water. This trend evaluates whether the quarry is being mined at rates which will meet that minimum water storage capacity requirement.

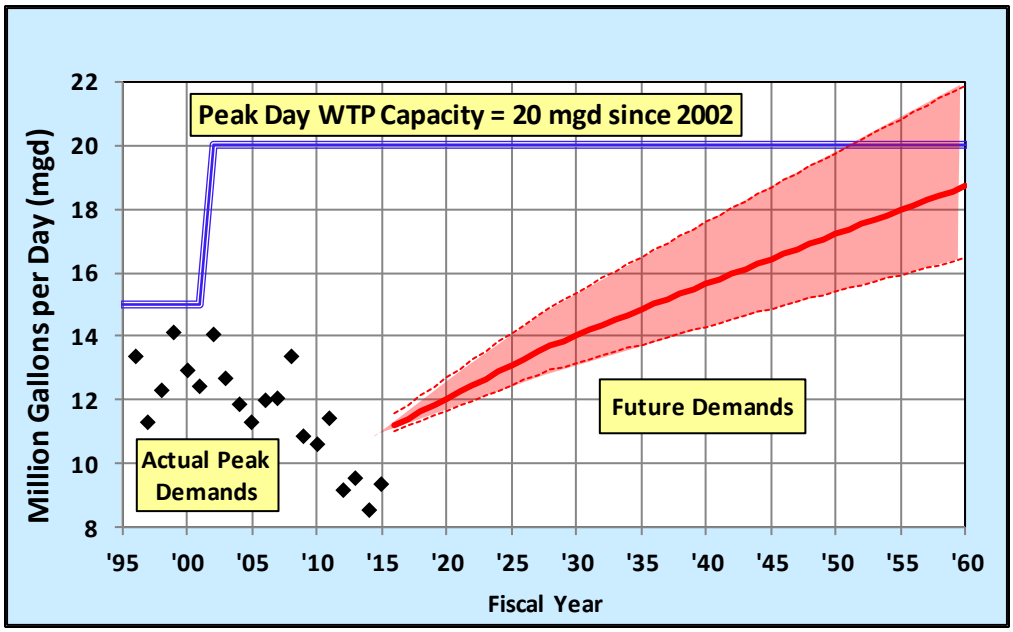
Key Observations:

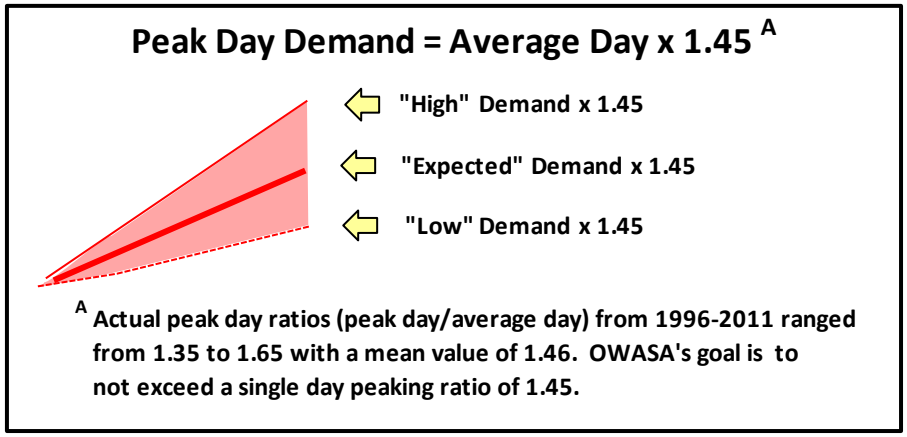
- Quarry is being mined at rates which meet or exceed the contractual requirements.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor the annual rate of rock excavation at the quarry to ensure contractual requirements are met.	Annual		X
2. Maintain and follow the Quarry Reservoir implementation checklist in order to ensure timely implementation of the Quarry Reservoir water storage project once mining ceases in 2030.	Ongoing		X
3. As part of Long Range Water Supply Plan update, evaluate the benefits and costs of various quarry alternatives (e.g., developing permanent pump station to withdraw deeper water).	Late CY 2016 to 2017	X (as part of LRWSP update)	

Peak-Day Drinking Water Demands





Projected demands updated per LRWSP Appendix II, Attachment 4, rev 8/30/11

Description: This trend evaluates peak-day drinking water demand trends and compares those demands to the 20 mgd rated capacity of the Jones Ferry Road Water Treatment Plant (WTP). (NOTE: The observations presented below assume that the reclaimed water system is in service throughout the peak-day demand season. Peak-day drinking water demands would be considerably greater than shown above if the reclaimed water system is out-of-service.)

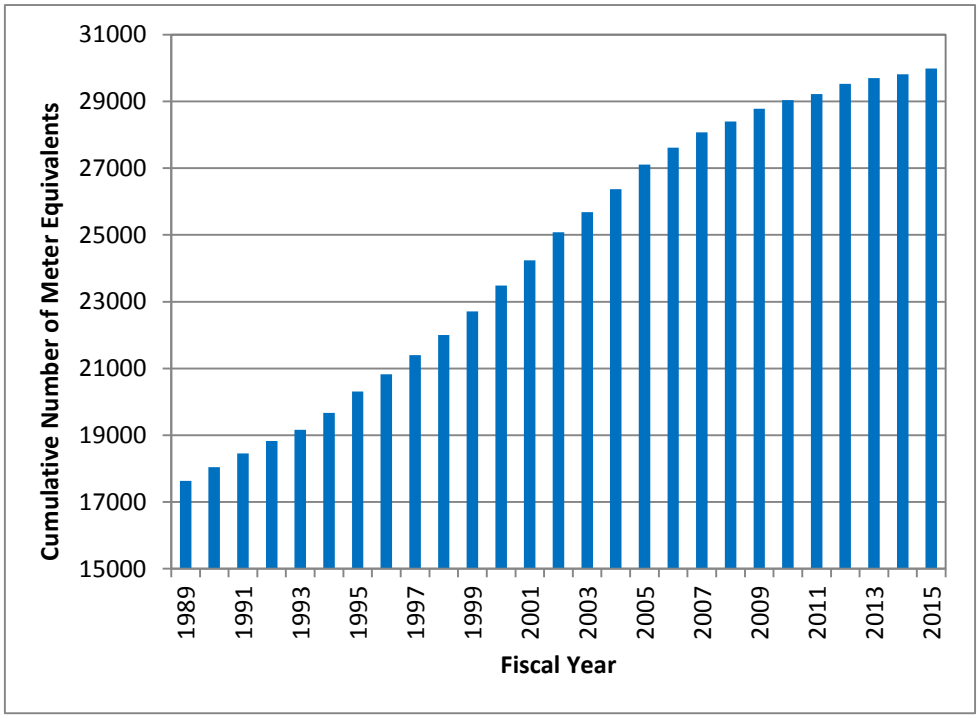
Key Observations:

- The Jones Ferry Road WTP has adequate capacity to meet projected peak-day drinking water demands for at least the next 20 years, even under high projected demand scenarios.
- OWASA's WTP capacity is adequate to meet peak-day demands until beyond 2060 based on expected demands. (Non-capacity improvements may, however, be required to meet more stringent drinking water treatment standards, renewal and replacement in accordance with asset management plan, and efficiency and optimization improvements).
- Since FY 1999, the year with the highest peak-day demand, peak-day drinking water demands have declined by almost 35 percent despite a 28 percent increase in customer accounts over that same period.
- This decline has resulted from two primary factors: (1) our customers are using water more efficiently and (2) since March 2009, reclaimed water has been used instead of drinking water to meet certain non-drinking water needs at several UNC facilities that have high summer season demands (cooling towers and irrigation).

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor peak-day demands at the Jones Ferry Road WTP and identify cost-effective practices that could be implemented to further reduce peak-day demands.	Ongoing		X
2. Continue to identify and pursue cost-effective opportunities for additional conservation or reclaimed water use, which help reduce peak demands.	Ongoing		X
3. Continue to monitor potential growth in our service area by working closely with Carrboro, Chapel Hill, and UNC to ensure we have sufficient drinking water treatment, pumping and storage capacity.	Ongoing		X
4. With the reclaimed water system now fully on-line, revisit the 1.45 peaking factor goal and adjust that if determined appropriate	CY 2016	X (as part of LRWSP update)	

Cumulative Number of Water Meter Equivalents (MEs)



Description: This trend evaluates the number of meter equivalents (MEs) served by OWASA. The smallest meters (5/8 inch) serve single family homes and small non-residential customers, while larger meters are used to serve larger customers. The capacities of larger meters are expressed in hydraulic capacity proportional equivalents of a 5/8-inch meter, or "meter equivalent". (For example, a 2-inch meter has a meter hydraulic capacity ratio of 8 MEs, and a 6-inch meter has an equivalency of 50 MEs.) The number of meter equivalents is an indicator of the rate of growth in the service area.

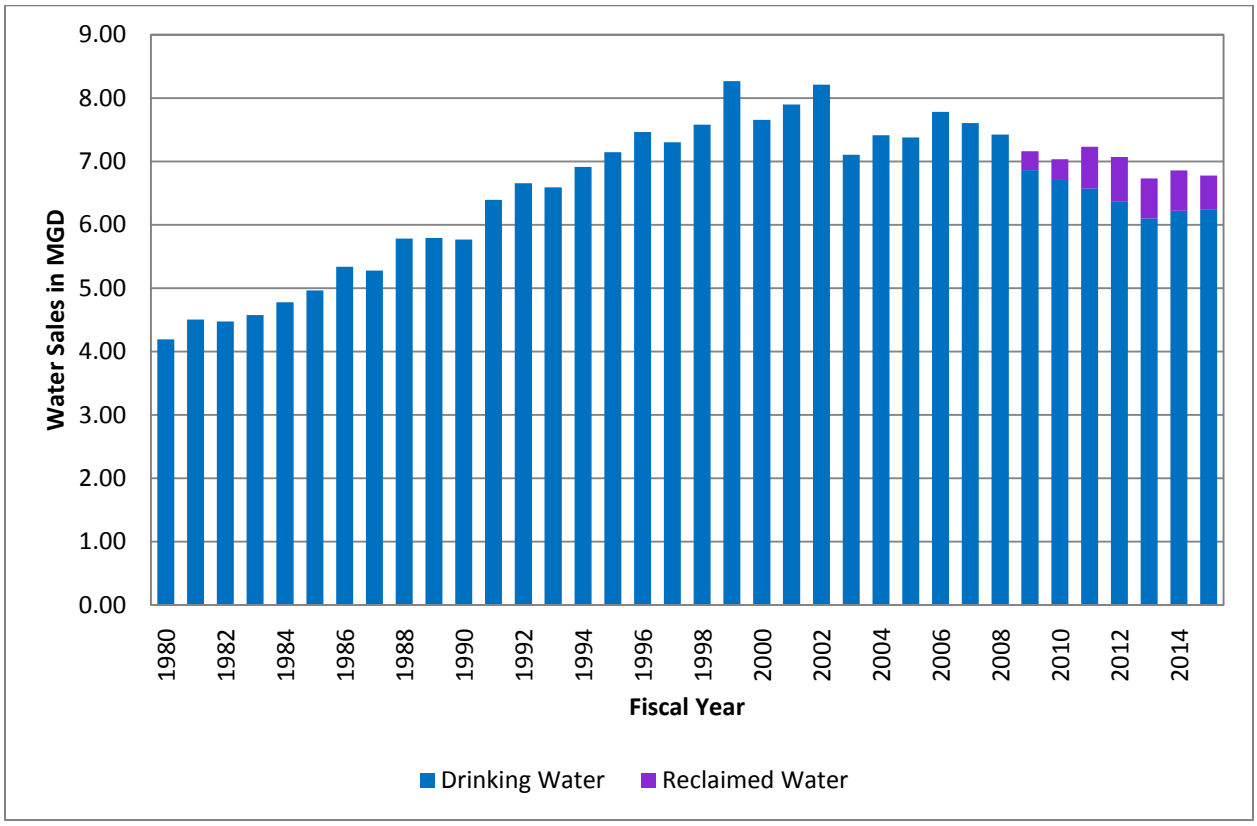
Key Observations

- Growth in the service area is slower in recent years than in past.
- The number of meter equivalents has grown 32 percent since FY 1999, the year with our highest peak-day drinking water demands (see Peak-Day Drinking Water Demands Trend).

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor growth in service area by tracking new meter equivalents.	Monthly (for Dashboard report)		X

Drinking Water and Reclaimed Water Sales



Description: This trend evaluates average-day sales of drinking water and reclaimed water (in MGD) since 1980. (The reclaimed water system began operating in March 2009).

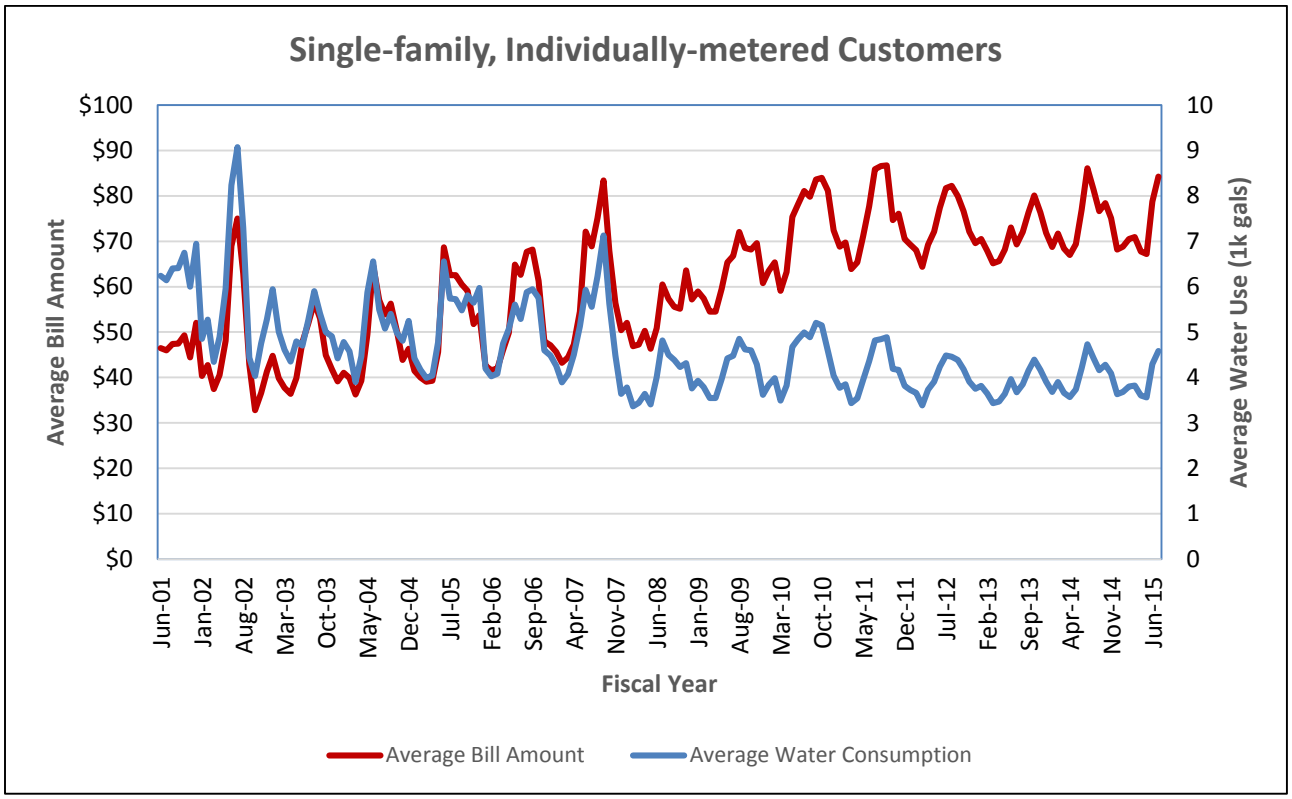
Key Observations:

- OWASA's annual average drinking water sales have declined despite growth in the service area as shown in the Meter Equivalents trend. Drinking water sales are currently at about the same level they were 20 years ago.
- Total annual water sales (including reclaimed water) are 18 percent less from when they peaked in FY 1999, despite a 28 percent increase in customer accounts during that same time period. Drinking water sales declined 25 percent over that same period.
- Reclaimed water sales meet almost 10 percent of the community's water needs.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to identify cost-effective opportunities to expand the reclaimed water system which will help reduce our community's risk to drought, extend the capacity of the WTP, and optimize the use of our locally-controlled water supplies.	As opportunities arise	X (as part of LRWSP update)	
2. Continue to identify cost-effective and customer-accepted opportunities for additional conservation.	Ongoing	X (as part of LRWSP update)	
3. Continue to monitor potential growth in our service area by working closely with Carrboro, Chapel Hill, and UNC to ensure we have adequate water treatment capacity for the future.	Annual with ongoing communication		X

Average Monthly Water Use and Billed Amount



Description: This trend evaluates average monthly water use and the average monthly charges for single-family residential, individually metered customers.

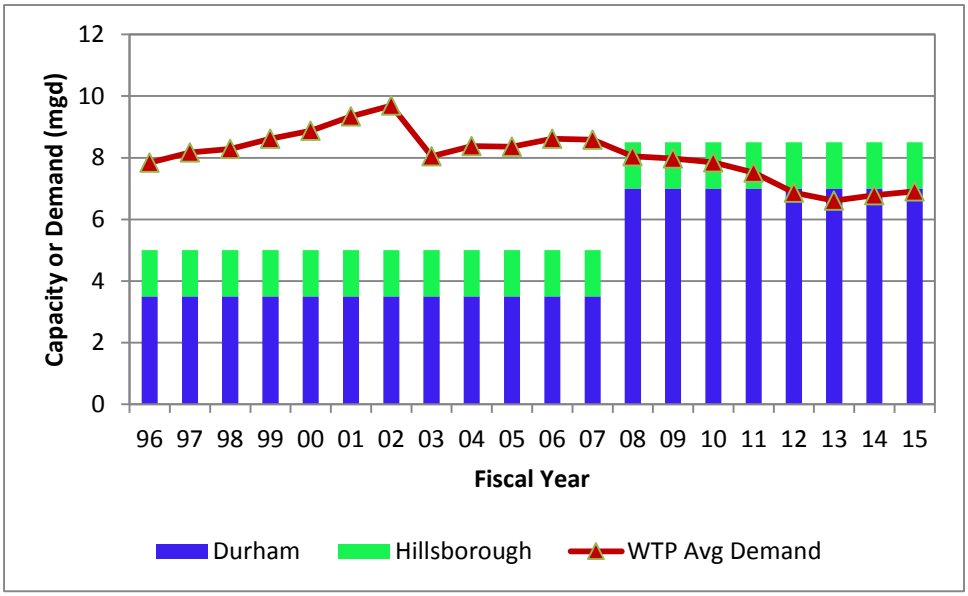
Key Observations:

- Peak seasonal water use has declined, particularly after OWASA's increasing block rates went into effect in October 2007. This indicates that outdoor water use for single-family, individually-metered customers has diminished and implies a relationship with the change in our water rate structure.
- Customer water use and average bill amount track as expected.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to track this trend to ensure that outdoor water use is not increasing.	Annual		X

Physical Interconnection Capacity and Average Annual WTP Demands



Description: This trend evaluates the ability of OWASA's drinking water system interconnections with neighboring communities to meet average-day drinking water demands during planned or unplanned events that could affect our ability to treat and deliver water to our customers.

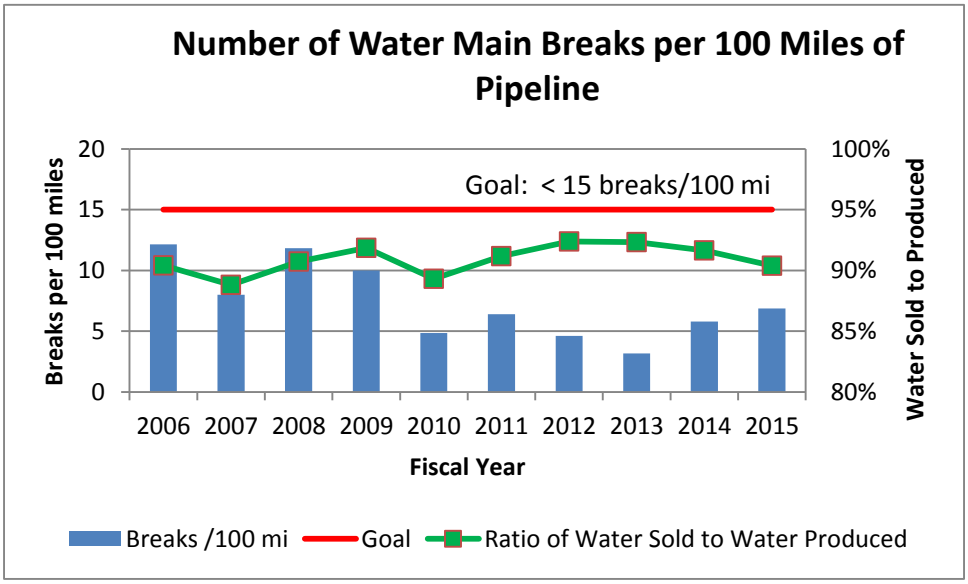
Key Observations:

- OWASA's existing physical interconnections are of sufficient capacity to meet average-day drinking water demands in an emergency.
- Our drinking water system interconnections with City of Durham have a combined capacity of about 7 mgd.
- We can receive about 1.5 mgd through our interconnection with Town of Hillsborough.
- The combined capacity of our interconnections is about 8.5 mgd, which is almost 125 percent of our FY 2015 average day drinking water demands and over 110 percent of our FY 2015 water demands.
- OWASA also has an interconnection with Chatham County that is not shown on graph. OWASA could potentially receive 1 mgd through this connection based on modeling analyses, but it has neither been tested nor used.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. OWASA should continue to monitor this trend to ensure that average-day drinking water demands could be met through water system interconnections with our neighboring utilities.	Annual		X
2. Re-evaluate the capacity of system interconnections to ensure changes in system facilities and demands have not adversely affected our ability to import an adequate supply of drinking water to meet average-day demands during an emergency.	Periodically as needed		X
3. Participate in the Jordan Lake Partnership interconnection study – Phase 2 and evaluate findings to determine if any interconnection capacity upgrades are needed.	FY 2016		X
4. Perform field test with Town of Hillsborough to evaluate transfer capacity after their improvements are completed.	CY 2016		X

Drinking Water Distribution System Integrity



Description: This trend evaluates the number of water main breaks per 100 miles of water mains, and also includes information on the ratio of water sold to water produced over time. These are important indicators of the integrity of our drinking water distribution system.

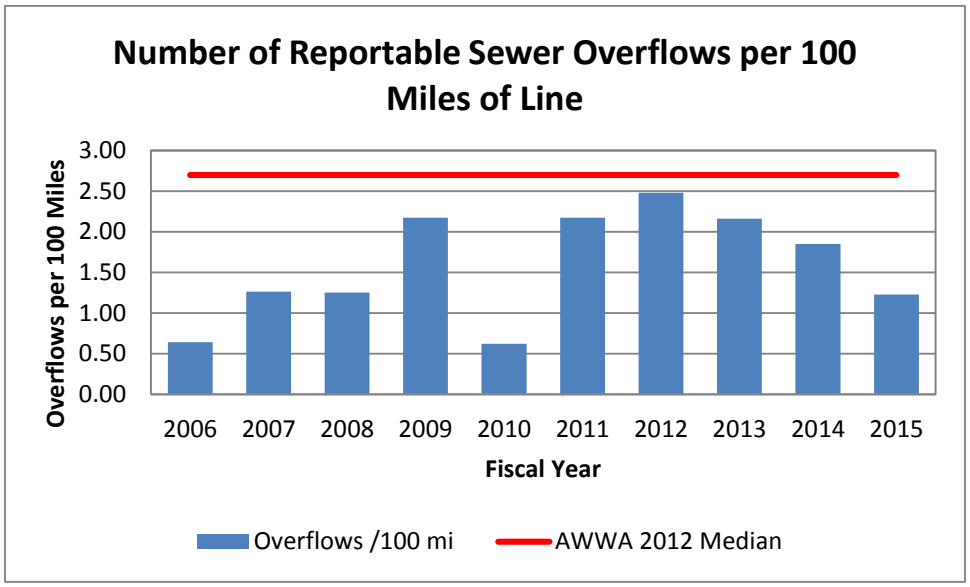
Key Observations:

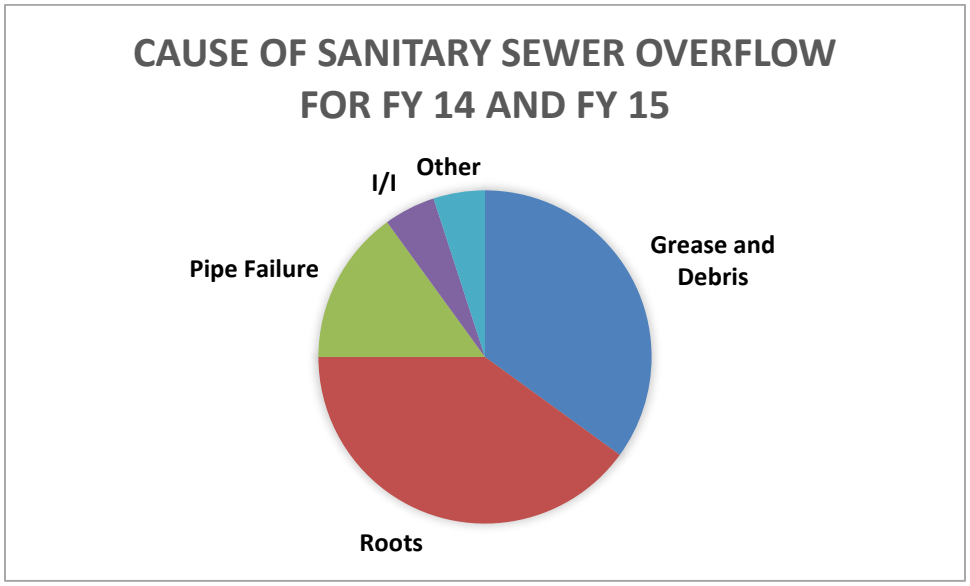
- The system is very reliable and consistently meets our goal of 15 main breaks or less per 100 miles of pipeline, which is based on industry standards and guidance from The Partnership for Safe Water.
- The number of water main breaks is less than the median of 25 breaks per 100 miles of line and the 25th percentile of 9 breaks per 100 miles per the American Water Works Association 2012 Benchmarking report.
- The number of water main breaks per 100 miles of pipeline is lower in FY 2010 and beyond when compared to earlier fiscal years.
- We sell more than 90 percent of the water we produce, which is excellent by industry standards.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to use OWASA's water main prioritization model to inform decisions and investments for the rehabilitation and replacement of the drinking water distribution system.	Annual		X
2. Continue the programmatic replacement of aging galvanized water mains throughout the distribution system.	Through FY 2019		X
3. Update the prioritization model to reflect field condition assessment and break history.	Every 3-5 years		X
4. Integrate the results of the water main prioritization model into the comprehensive asset management program framework so that the trade-offs of different capital improvements investment decisions can be consistently evaluated and prioritized to ensure cost-effectiveness.	Annual		X
5. Continue to fund our water main renewal/replacement program to ensure system sustainability.	Annual	X	
6. Update the Water System Audit using the American Water Works Association/International Water Association's water audit software (we did our last audit in 2012).	FY 2016		X

Wastewater Collection System Integrity





Description: This trend evaluates the number of reportable sewer overflows, which is an important indicator of the integrity of our wastewater collection system.

Key Observations:

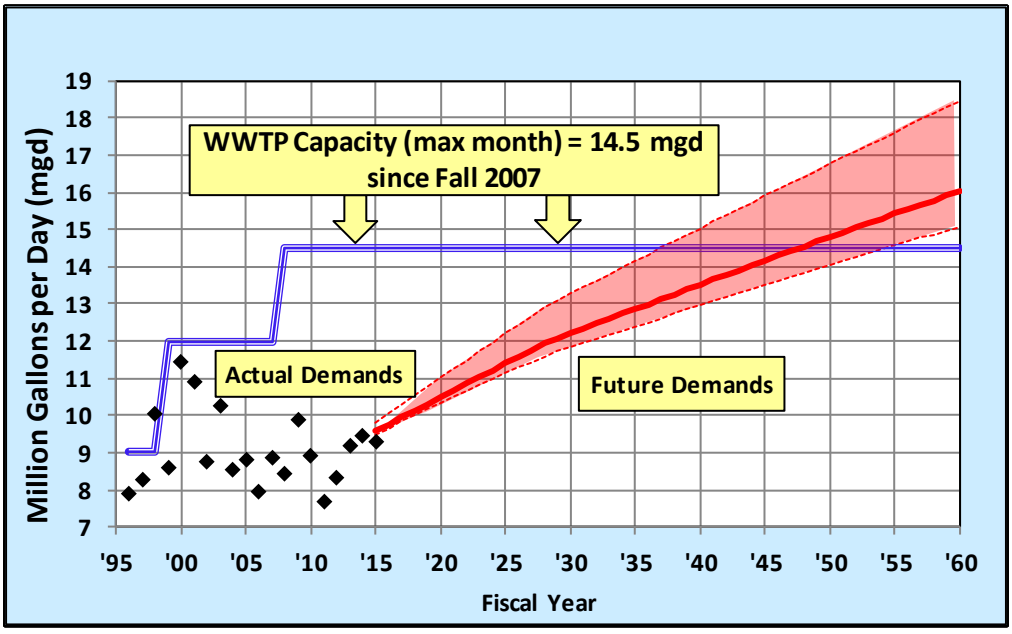
- The number of overflows is consistently less than 2.7 per 100 miles of pipeline, which is the national median per the American Water Works Association 2012 Benchmarking report. The 25th percentile in that report was 0.9 overflows per 100 miles of pipeline. Per DWR guidance, OWASA strives to have no overflows.
- The cause of overflows has been tracked electronically for only two full fiscal years.

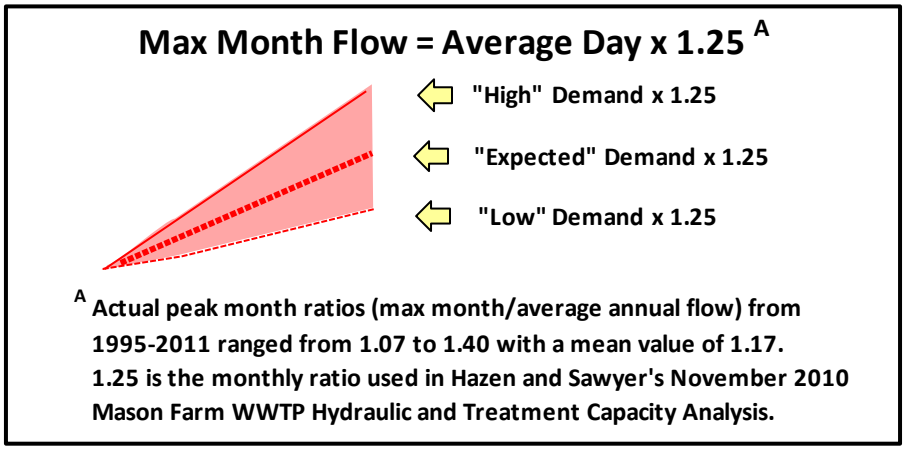
- Grease and debris and roots are the primary causes of overflows. Reducing grease will require proactive, recurring education of our customers –especially those in the food service sector. Customers can also help prevent root intrusion by not planting trees near our sewer lines.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to use the findings and recommendations from the 2011 Sewer System Master Plan and subsequent Sewer Evaluation Reports as a guide for prioritizing funding for sewer system evaluation, rehabilitation and replacement.	Annual		X
2. Integrate the results of the sewer system modeling and field condition assessment work into the comprehensive asset management program so that the trade-offs of different capital improvements investment decisions can be consistently evaluated and prioritized.	Annual		X
3. Continue to inspect, clean, and rehabilitate our sewer lines as needed to prevent overflows, reduce infiltration and inflow, and ensure adequate capacity.	Ongoing		X
4. Continue to monitor and maintain sewer easements to ensure our equipment and personnel can access the sewer system for maintenance and repair work, and to ensure tree root intrusion into sewers is minimized and corrected.	Ongoing		X
5. Continue to educate the public on the importance of not pouring fats, oils and grease, medications, etc. down the drain and not flushing items other than toilet paper.	Ongoing		X
6. Continue to fund the sewer system renewal/replacement program to ensure system sustainability.	Annual	X	

Mason Farm Wastewater Treatment Plant Maximum Month Flow Projections





Projected demands updated per LRWSP Appendix II, Attachment 4, rev 8/30/11

Description: The Mason Farm Wastewater Treatment Plant (WWTP) has a permitted capacity of 14.5 mgd, which is the maximum average day flow which can be treated in any given month. This trend tracks historical annual maximum month of flow, shows projected maximum month flows, and compares those against the permitted capacity of the WWTP.

Key Observations:

- The permitted capacity of the Mason Farm WWTP is expected to meet OWASA's needs until approximately 2035 based on high demand projections, and until approximately 2045 based on expected demands. Although plant hydraulic capacity may be adequate throughout those periods, imposition of more stringent nutrient limits or other treatment requirements could require process

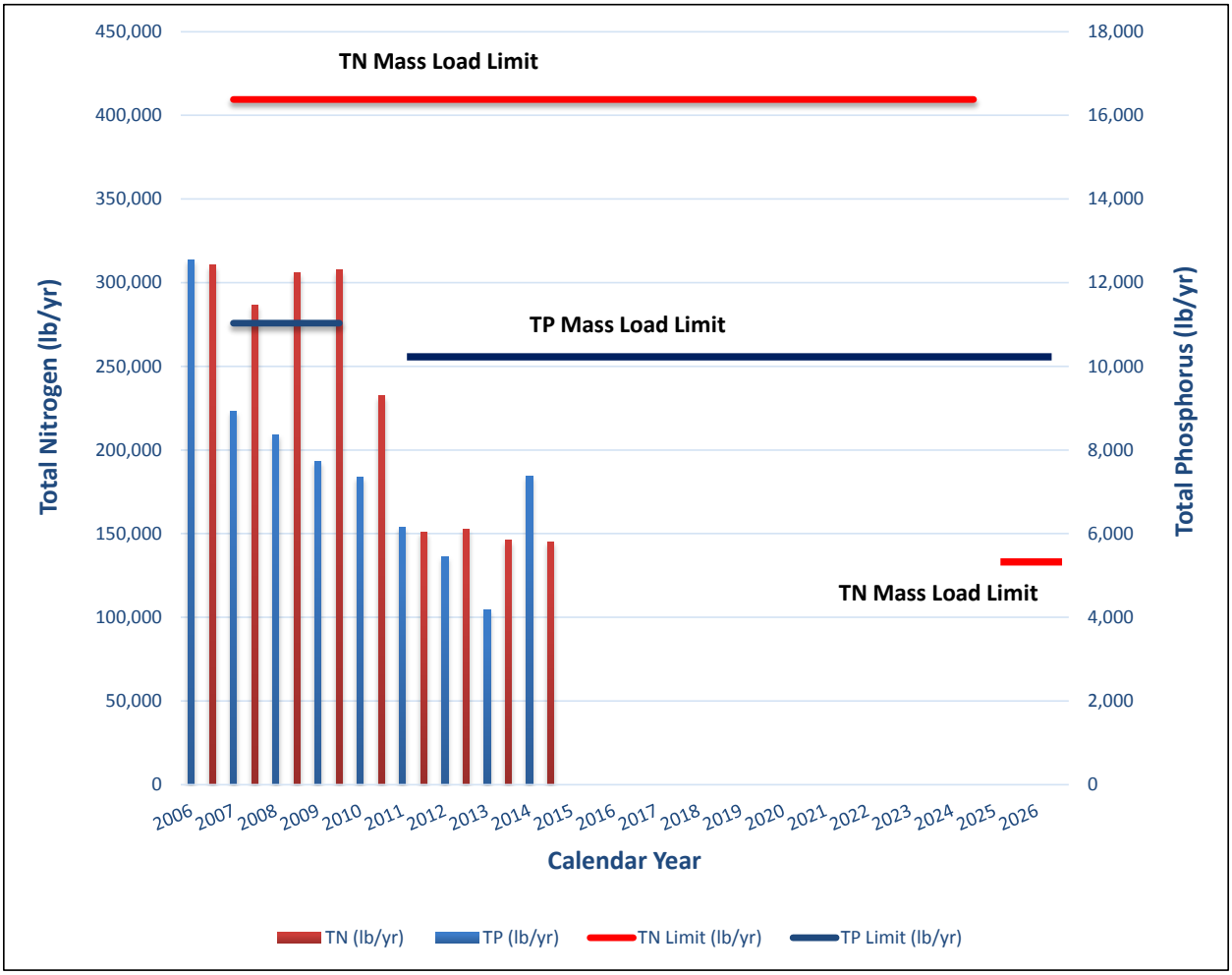
modifications and related capital improvements. Other non-capacity improvements may include renewal and replacement in accordance with our comprehensive asset management plan and efficiency and optimization improvements.

- OWASA's maximum month wastewater flows have declined from a peak of 11.5 mgd in FY 2000. This corresponds to reduced drinking water demands by our customers, as well as our continuing investments in the rehabilitation and replacement of deteriorating sewer lines and manholes and efforts to eliminate unauthorized connections to the sewer system.
- In FY 2015, the maximum month flow was 9.29 mgd, which is 64 percent of the WWTP's permitted flow capacity.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor growth and development activity and projections in our service area by working closely with the Towns of Carrboro, Chapel Hill, and UNC to ensure we have adequate wastewater treatment capacity for the future.	Annually with ongoing communication		X
2. Revisit the peaking factors used to estimate maximum month flow as part of the LRWSP update.	CY 2016	X (as part of LRWSP update)	
3. Continue to inspect, rehabilitate, and replace our sewer lines when necessary to reduce infiltration and inflow	Ongoing		X

Mason Farm WWTP Nutrient Capacity



Description: The State's Jordan Lake nutrient management rules require point sources to reduce their discharge of Total Phosphorus (TP) and Total Nitrogen (TN). OWASA's current discharge permit requires that we meet further TN load reductions by 2021; however, during the 2015 Session, the NC General Assembly enacted legislation that extends that date to at least 2024. We report nutrient loading on a calendar year basis rather than a fiscal year basis since our permit limits for TN and TP are on a calendar year.

Key Observations:

- OWASA has met its TP limit since the annual mass load limit was first incorporated into our permit in 2007. We expect to continue to meet the limit within the 20-year planning horizon without the need for additional major capital improvements for TP removal.
- OWASA has consistently met its current TN limit, but we will have to operate our filters in denitrification mode and incur considerably greater energy and chemical costs to meet the more stringent limits when those go into effect around 2024. It is possible that installation of sidestream

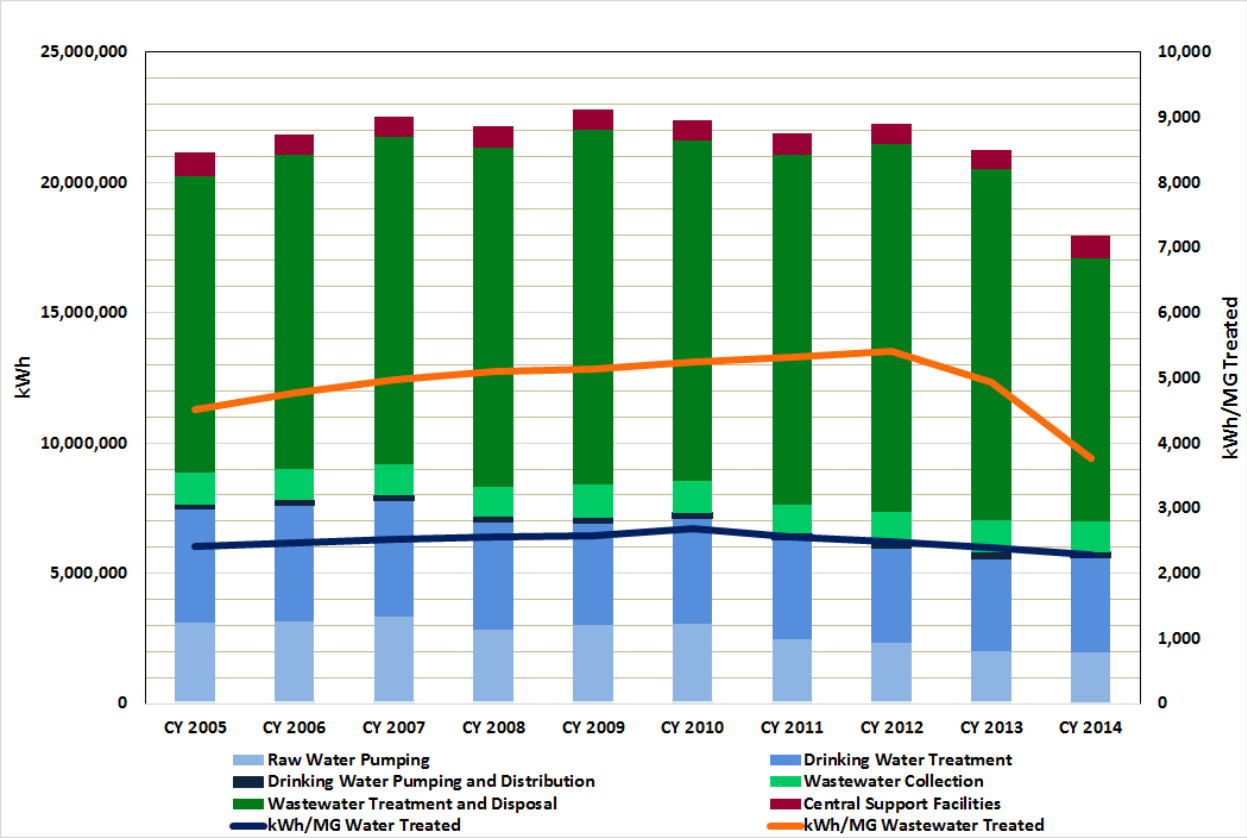
treatment facilities would reduce operating costs for TN compliance and have a positive payback compared to relying primarily on the denitrification in the filters at the WWTP.

- TP loading in 2014 was higher than in the previous three years. This was the result of the combined impacts of the seasonal variability of UNC student populations and cold winter month temperatures; while the WWTP was still in the midst of the most recent CIP construction upgrade project which had one treatment train out of service.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor nutrient loadings at the plant.	Monthly		X
2. Evaluate ability of existing filters to meet TN permit limits.	2022		X
3. Evaluate benefits and costs of sidestream treatment for advanced nutrient removal.	Within 5 years of new TN limit	X	

Use of Purchased Electricity



Note: kWh/MG does not include electrical energy use associated with support facilities such as the Administration Building and Operations Center. kWh/MG Wastewater Treated includes electrical energy use associated with the reclaimed water system.

Description: This trend tracks (a) our total use of purchased electricity; (b) our electricity use by major functional area of our facilities and operations; and (c) the amount of electricity we use for the direct treatment and delivery of a million gallons of water and wastewater service to our customers. We report electricity use on a calendar year basis rather than a fiscal year basis since our energy management objectives are established around calendar years, and greenhouse gas emissions reporting programs track data by calendar year.

Key Observations:

- Wastewater collection, treatment and disposal accounts for about 60 percent of our total annual use of electricity.
- On a use per million gallons (MG) treated basis, electrical energy use for wastewater collection treatment and disposal is more than 60 percent higher than it is for drinking water supply, treatment and distribution.
- Our total use of electricity (in kWh) in Calendar Year 2014 was about 20 percent lower than in CY 2010, which is the Baseline year we are using for development of our energy management plan.
- Our combined annual electrical energy use per MG of water and wastewater service provided was about 24 percent lower in CY 2014 than in CY 2010. The primary reason for that marked reduction

was the installation of new blowers, mixers, and aeration equipment at the Mason Farm WWTP in CY 2014. We have also reduced energy use through optimizing treatment processes; installing more efficient pumps, motors, and controls; and installing more efficient lighting.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor trends in the use of energy throughout our operations.	Ongoing		X
2. Implement cost-effective opportunities to reduce our use of energy through energy efficiency measures.	Ongoing	X (as part of budget process)	
3. Reduce our use of fossil-fuel based energy sources by implementing cost-effective and practical renewable energy strategies.	Ongoing	X (as part of budget process)	
4. Track and report on the success of our energy efficiency and renewable energy investments, and our greenhouse gas emissions.	Bi-annually		X
5. Prepare Energy Management Plan which documents our goals and objectives (complete), reviews historical energy use and trends (complete), and presents proposed strategies and investments for achieving our objectives. (Strategic Plan Initiative #5)	Draft Plan to be completed in FY 2016; Final Plan approval in early FY 2017	X	

Regulations

Description: This section evaluates new or potential regulations including potential new standards that could impact OWASA's water supply and treatment; wastewater collection, treatment and disposal; and reclaimed water treatment and distribution facilities and services.

Key Observations:

- OWASA monitors the regulatory arena closely so that we proactively ensure we can meet all legal requirements applicable to the provision of water, wastewater, and reclaimed water services to our customers.
- In accordance with direction from the U.S. Environmental Protection Agency (EPA), DWR is developing draft nutrient criteria for surface waters in the state. If nutrient levels in one or more of our water supply reservoirs, Morgan Creek, and/or other surface waters in our area exceed future nutrient-related water quality limits, we and/or other parties could be required to take action to reduce the discharge of nutrients into those water bodies. The technical, economic, and environmental feasibility of complying with such requirements can only be determined once proposed criteria are issued.
- The North Carolina General Assembly ratified House Bill 894 to improve Source Water Protection in August 2014 in response to the accidental release of 4-methylcyclohexanemethanol in West Virginia and the coal ash spills in North Carolina. Under this bill, the Environmental Management Commission must adopt rules that will require all public water supplies which use surface water to develop a source water protection plan. OWASA is following this rule-making process, and we are well positioned to develop the plan.
- Cyanotoxins are toxins produced by blue-green algae under certain conditions. These toxins can be harmful to the environment, animals, and human health; one was responsible for the City of Toledo's "Do Not Use" warning last summer. In June 2015, EPA issued a health advisory for two cyanotoxins: microcystin (1.6 ug/L for children 6 and up and adults and 0.3 ug/L for children less than 6 years old) and cylindrospermopsin (3.0 ug/L for children 6 and up and adults and 0.7 ug/L for children less than 6 years old). A health advisory is a non-regulatory concentration which describes the concentration which can be consumed with little or no risk to health. Establishing a monitoring program and benchmarks for when source and/or finished water should be analyzed for toxins provides a solid foundation for a cyanotoxin management approach. OWASA has proactively been monitoring algal toxins since 2007 when our blue-green algal counts rise above 100,000 units/mL. To date, OWASA has not exceeded the health advisory levels. OWASA has never detected cylindrospermopsin; microcystin was detected at a level of 0.2 ug/L on one occasion. In addition, OWASA also monitors for anatoxin-a (detected on two occasions) and saxitoxin (never detected). Staff will continue to evaluate algal toxins (additional information provided in Treatment Technology section).
- OWASA attended an annual meeting with State officials in which the EPA indicated that it would be evaluating Legionella, the genus of bacteria which causes Legionnaires' disease, for potential regulation. An outbreak in the summer of 2015 in New York City was caused by the bacteria in cooling towers. The bacteria was also found in a cooling tower in Zebulon in the summer, but no

recorded cases of the disease were found. The Centers for Disease Control (CDC) has indicated that Legionella is the leading cause of waterborne diseases in the United States. However, the agency has also reported that municipal treated water is not the source; improper management of plumbing in buildings causes the contamination. OWASA staff will follow updates from EPA, CDC, and water agencies and groups.

- The 2014 North Carolina General Assembly ratified Senate Bill 163 (Session Law 2014-113) to allow for indirect potable reuse, provided that a pretreatment mixing basin is created and used to mix raw source water and reclaimed water, and that reclaimed water does not comprise more than 20% of the total combined supply. OWASA will evaluate the costs and benefits of this potential water supply source as one part of the update of our Long-Range Water Supply Plan. More information on reuse is provided in the Technology trends section of this report.
- The 1996 amendment to the federal Safe Drinking Water Act required that monitoring be completed for a list of unregulated contaminants every five years. In May 2012, EPA published the rule to complete the third round of this monitoring (UCMR3); monitoring is staggered among facilities and all monitoring should be completed by December 2015 with all results reported to EPA by summer 2016. OWASA participated in the Assessment Monitoring of 21 contaminants under the UCMR3 and completed its monitoring in August 2014. Some larger utilities will also monitor other emerging contaminants such as human and veterinary hormones. EPA will use the data collected to determine if any of these contaminants should be regulated. OWASA UCMR3 monitoring consistently detected the following three contaminants: Chromium-6, Strontium, and Chlorate (see next bullets).
- EPA has not yet published a drinking water standard for Chromium-6, but the State of California adopted a standard of 10 ug/L, which became effective on July 1, 2014. During the UCMR3, OWASA's monitoring for Chromium-6 detected levels between 0.03 - 0.06 ug/L, which is well below the California standard.
- EPA has not yet published a drinking water standard for Strontium, but has established a health advisory of 1,500 ug/L. OWASA's monitoring for Strontium detected levels between 53 - 75 ug/L, well under the advisory level.
- EPA has not yet published a drinking water standard for Chlorate. The health advisory for Chlorate is 210 ug/L. OWASA's monitoring for Chlorate detected levels between 160 – 650 ug/L. The State of California has no maximum contaminant level (MCL) for Chlorate but has set a notification level of 800 ug/L. The World Health Organization (WHO) guideline for Chlorate is 700 ug/L. OWASA will continue to follow this issue to ensure its drinking water continues to be safe for its customers.
- EPA has not yet published a drinking water standard for Perchlorate. The EPA health advisory for Perchlorate is 15 ug/L, effective October 2008, and California adopted a standard of 6 ug/L, effective October 2007. OWASA's monitoring detected Perchlorate at a concentration of 0.33 ug/L in the finished water, well below the advisory level and California standard.
- The Long Term 2 Enhanced Surface Water Treatment Rule (LT2) builds upon the 1996 amendment to the federal Safe Drinking Water Act to strengthen protection against microbial contaminants, especially *Cryptosporidium*. OWASA completed the first round of monitoring for *Cryptosporidium* and *E. coli* in our source waters in 2009. As a result of this monitoring, OWASA was placed in the lowest treatment category, which requires no additional treatment. Staff are preparing to begin the second round of two years of monthly monitoring beginning in September 2015. Depending on the

round two results, OWASA may be required to provide additional filtration treatment, but staff thinks the need for additional filtration is unlikely.

- OWASA has historically met all disinfection by-product criteria applicable to finished drinking water provided to our customers. Monitoring data indicates that we should continue to meet any criteria developed for disinfection by-products.
- 1,4-dioxane has been detected in some North Carolina utilities' drinking water sources through the unregulated contaminants monitoring. Many of these facilities are located in the Haw or Cape Fear River watersheds. 1,4-dioxane is one of the 21 contaminants OWASA monitored under the UCMR3 and it was not detected in the drinking water. The Town of Cary has detected the compound at concentrations ranging from 0.16 to 0.41 ug/L in its drinking water, which comes from Jordan Lake. EPA has not established an MCL for 1,4-dioxane, but EPA Regions 3 and 6 have established screening levels of 6.1 ug/L.
- As noted previously, the NC General Assembly has enacted legislation (House Bill 97) that defers the effective date for implementation of more stringent TN mass load limits for the Jordan Lake watershed to at least 2024. Staff will continue to closely follow this issue, and we will inform the Board if any changes are need in the timing or scope of major anticipated capital or operational improvements needed to ensure compliance with the new limit.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor rule-making proposals at both the Federal and State levels to determine the potential implications on our facilities, operations, and cost-of-service to our customers.	Ongoing		X
2. Identify the need for studies to determine the potential implications of proposed standards on our operations and the best strategy moving forward. Implement such studies as needed.	Ongoing		X
3. Evaluate the benefits and costs of alternative actions to meet proposed regulations and develop plans to implement selected action.	As needed	X	

Technology

Description: This section evaluates emerging or potential technologies which could help OWASA meet its mission of providing our customers high quality and reliable water, wastewater, and reclaimed water services through responsible and creative stewardship of the resources we manage.

Key Observations:

- OWASA strives to stay informed about advancements in, capital and operating cost implications of, and actual application of technologies that can better position us to provide water, wastewater, and reclaimed water services to our customers in a more sustainable manner.
- OWASA evaluates the treatment technologies we have at our water and wastewater plants to ensure we can meet any potential upcoming standards with current treatment technologies. From a water treatment perspective, OWASA can meet most of the potential standards discussed in the Regulations section of this report. Activated carbon, ozone, and membrane technologies have been found effective at removing cyanotoxins, and we currently utilize activated carbon in our treatment process. Staff is planning the steps needed to monitor cyanotoxins in-house; contracting out this analysis results in a 1 week lag in learning the results. Once we have the capability to monitor for cyanotoxins we will monitor for them pre- and post-treatment to ensure we have the treatment technologies necessary to remove cyanotoxins to protect public health.
- From a wastewater treatment plant perspective, OWASA can meet all applicable permit limits, but we will need to operate our filters in denitrification mode to remove nitrogen when revised limits become effective. (Based on 2015 action by the NC General Assembly, the new expected date for a much more stringent TN limit is 2024).
- Sidestream treatment for greater nutrient removal is a process that may be considered for the Mason Farm WWTP if we decide to dewater a greater portion of our biosolids. Sidestream treatment would help to reduce nitrogen loading in the liquid treatment process. Modeling studies indicate that under 100 percent dewatering conditions sidestream treatment could provide chemical and energy savings of approximately $200,000 annually and have a payback of less than ten years. Sidestream treatment could also provide additional process flexibility in meeting total nitrogen limits; it may also allow a rerating of the plant to a higher treatment capacity.
- Staff at both treatment plants periodically evaluate the chemicals we use at the plants to ensure we are using the best available in terms of meeting our treatment goals in the most sustainable manner as well as to ensure that we do not foresee shortages in chemicals we use which could impact treatment or their price. At this time, staff believe we are using the correct blend of chemicals and no shortages are foreseen in their supply.
- Staff follows the potential for resource recovery at the wastewater treatment plant. This includes biogas recovery, nutrient and metal mining[1], and direct and indirect potable reuse. Biogas recovery strategies are being evaluated as part of the Energy Management Plan and reuse will be evaluated as part of the Long-Range Water Supply Plan.

[1] Process to recover nitrogen, phosphorus, or metals from wastewater treatment process for beneficial reuse.

- One aspect of reuse is recycling water within a building that has been done in other parts of the country. One example (Solaire) is a high rise building in New York City which uses various filtration (membranes) and disinfection (ultraviolet light) technologies to produce reclaimed water that is beneficially recycled within the building and used for flushing toilets, cooling tower make-up water, and irrigating the green roof.
- Advanced, automated pressure and flow monitoring technologies are available for real-time monitoring and control of water distribution and wastewater collection systems. OWASA evaluates these technologies periodically and we have done some pilot tests with manufacturers. To date, these technologies have not yet proven to be economically feasible at our scale, but staff will continue to evaluate them.
- DWR is testing mixing technology on Jordan Lake to determine the effectiveness of in-lake circulators to improve water quality, and the 2015 General Assembly passed legislation requiring DWR to consider artificial mixing on Falls Lake to manage nutrients. In addition, other water supply systems in the state employ artificial mixing to improve treatability of their drinking water. Researchers at North Carolina State University are evaluating the effectiveness of artificial mixing in piedmont reservoirs accounting for factors such as depth, temperature, wind, and nutrient concentrations. OWASA supports this research and is providing data from University Lake for the study. This study will help staff evaluate whether inlake mixing may reduce algal blooms and resulting cyanotoxin concentrations.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor treatment technologies, chemical use, and collection and distribution system monitoring technologies for potential to improve our level of service	Ongoing		X
2. Evaluate the benefits and costs of alternative technologies to improve our level of service and develop plans to implement selected actions.	As needed	X	

AGENDA ITEM

- **RESOLUTION AWARDING A CONSTRUCTION CONTRACT FOR THE PUREFOY ROAD WATER MAIN REPLACEMENT PROJECT**

PURPOSE

- To recommend that the Board award a construction contract for the Purefoy Road Water Main Replacement Project.

BACKGROUND

- The Project consists of 2,850 feet of 8-inch diameter water main and associated work.

- Plans and specifications for the construction of this project were prepared by McKim and Creed ("Engineer").

- Prospective bidders for the construction contract were screened through a prequalification process. Minority outreach was performed for the prequalification process in accordance with standard practice. Four bidders were prequalified.

- Bids from two prequalified contractors were received and returned unopened on September 23, 2015, being less than the minimum of three bids required for an initial bid on a formal contract.

- In accordance with North Carolina General Statute 143-132, the project was subsequently re-advertised, and bids from two prequalified contractors were received and opened on October 5, 2015. The apparent low bidder was Moffat Pipe, Inc. (Moffat) with a bid of $936,975. The Engineer's estimate was $936,562.

- The Engineer evaluated bids and recommended award of the construction contract to Moffat.

STAFF RECOMMENDATION

- Staff recommends that the Board of Directors adopt the attached resolution awarding the construction contract for the Purefoy Road Water Main Replacement Project to Moffat.

ORANGE WATER AND SEWER AUTHORITY

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

M E M O R A N D U M

TO: Board of Directors

THROUGH: Ed Kerwin

FROM: Vishnu Gangadharan, P. E.

DATE: October 14, 2015

SUBJECT: **AWARD OF CONSTRUCTION CONTRACT FOR PUREFOY ROAD WATER MAIN REPLACEMENT PROJECT**

Purpose

This memorandum recommends that OWASA award a construction contract to Moffat Pipe, Inc. ("Moffat") for the construction of the Purefoy Road Water Main Replacement Project.

Background

The map included as Attachment 1 shows the extents (in red) of water line replacement for this project. The existing 8-inch water main within Purefoy Road was installed around 1973. In 2011, approximately 870 feet of the Purefoy Road water main (connecting both ends of Howell Street) were identified by OWASA's Water Main Prioritization Model for replacement and programmed for completion in FY 2016. In 2013, the westernmost section of main between South Columbia Street and Holland Drive was replaced by the North Carolina Department of Transportation as part of their work on South Columbia Street. In late 2013, a series of water main breaks on a northern section of the Purefoy Road water main near Mason Farm Road led staff to consider a range of options for the scope of replacement along Purefoy Road, including replacement of:

- just the northern section (approximately 490 feet near the Mason Farm Road intersection) and the section between the ends of Howell Street (870 feet)
- the entire section from Holland Drive to Mason Farm Road (2,850 feet)
- the 2,850 feet above plus an additional 1300 feet of 6-inch water main replacement within Howell Street

Because of the relatively higher impact of construction work specifically within Purefoy Road (a narrow residential roadway with considerable on-street parking, pedestrian, and vehicular traffic), staff elected to proceed with replacement of the entire 2,850 feet along Purefoy Road between Holland Drive and Mason Farm Road in order to minimize the overall (current and future) disruption to the community.

In addition, the design engineer for the project, McKim and Creed, completed a preliminary evaluation of several "trenchless technology" alternatives that had potential to further reduce the construction impacts to the community in comparison to traditional open-cut excavation, including Cured-in-Place-Pipe (CIPP) lining, pipe bursting, and horizontal directional drilling. The preliminary evaluation recommended against these options, identifying several concerns with each.

However, some of the concerns listed for CIPP lining were partially addressed during OWASA's successful completion of the Ridge Road Water Main project in 2014, and so in early 2015 a more detailed evaluation of CIPP for the Purefoy Road project was completed at the 60% design phase. This detailed comparison indicated that CIPP would cost slightly more and would take about the same amount of time to complete as open-cut excavation, and raised concerns about applicability of CIPP due to water main pressures in the southern portion of the project. McKim and Creed proceeded to complete design for the project based on open-cut excavation in August 2015.

A community meeting was held on September 2, 2015 in order to convey the schedule and expected impacts during construction, and answer questions from the community.

Advertising and Bidding

Because of the size and complexity of this construction contract, prospective bidders were screened through the prequalification process approved by the Board in October 2014. This process involved having interested contractors submit a package outlining their qualifications, including past performance on similar projects, credentials of their management team, safety record, etc. Only those firms that clearly demonstrated the capability to adequately perform the project work were invited to submit bids.

After extensive review of contractor qualifications, staff prequalified four contractors to bid on the project. The invitation for bids was issued to the four prequalified contractors and the project was publicly advertised on September 1, 2015. Two bids were received by the initial September 23, 2015 deadline, and, being fewer than the minimum of three required for bid opening on a formal contract, were returned unopened to the bidders. Per North Carolina General Statute 143-132, the contract was re-advertised, and on October 5, 2015, two bids were received and opened publicly.

Moffat was the low, responsive and responsible bidder for the project with a bid of $936,975. A copy of the certified bid tabulation is attached with the Engineer's recommendation to award (Attachment 2), and the results are summarized below:

Moffat Pipe	$936,975.00
Pipeline Utilities, Inc.	$984,000.00
Engineer's Estimate	*$936,562.00*

Minority and Women Business Enterprise (MWBE) Participation

OWASA's Minority Business Participation Outreach Plan and Guidelines include all of the statutory requirements from the State of North Carolina, and specify a 10% goal for participation by minority businesses. In keeping with standard practice, OWASA staff took several actions to solicit minority participation in this contract, including advertising the Request for Qualifications in the Greater Diversity News, the North Carolina Institute of Minority Economic Development, OWASA's website, and plan rooms, and requiring bidders to follow "good faith" efforts to solicit participation by minority subcontractors. The apparent low bidder (Moffat) met requirements good faith efforts, identified MWBE participation of $100,000 (10.7% of the total bid amount), and is also registered themselves as a MWBE business.

Bid Analysis and Recommendation

Although only two bids were received for the project, staff is satisfied that the proposed contract amount represents a competitive price for this work. Based on feedback received from contractors and consultants, the low number of bids (and prequalification applications) on this project appears to reflect the general bidding climate at this time, with an increasing number of private and public projects competing for a limited set of qualified utility contractors.

Moffat's ability to complete this project successfully was evaluated thoroughly during the prequalification process, and they have demonstrated sufficient qualifications in past project performance (including the Ridge Road Water Main Rehabilitation project and the South Estes Drive and Willow Drive Water Main project), personnel qualifications/experience, reference checks, safety performance, and bonding capacity.

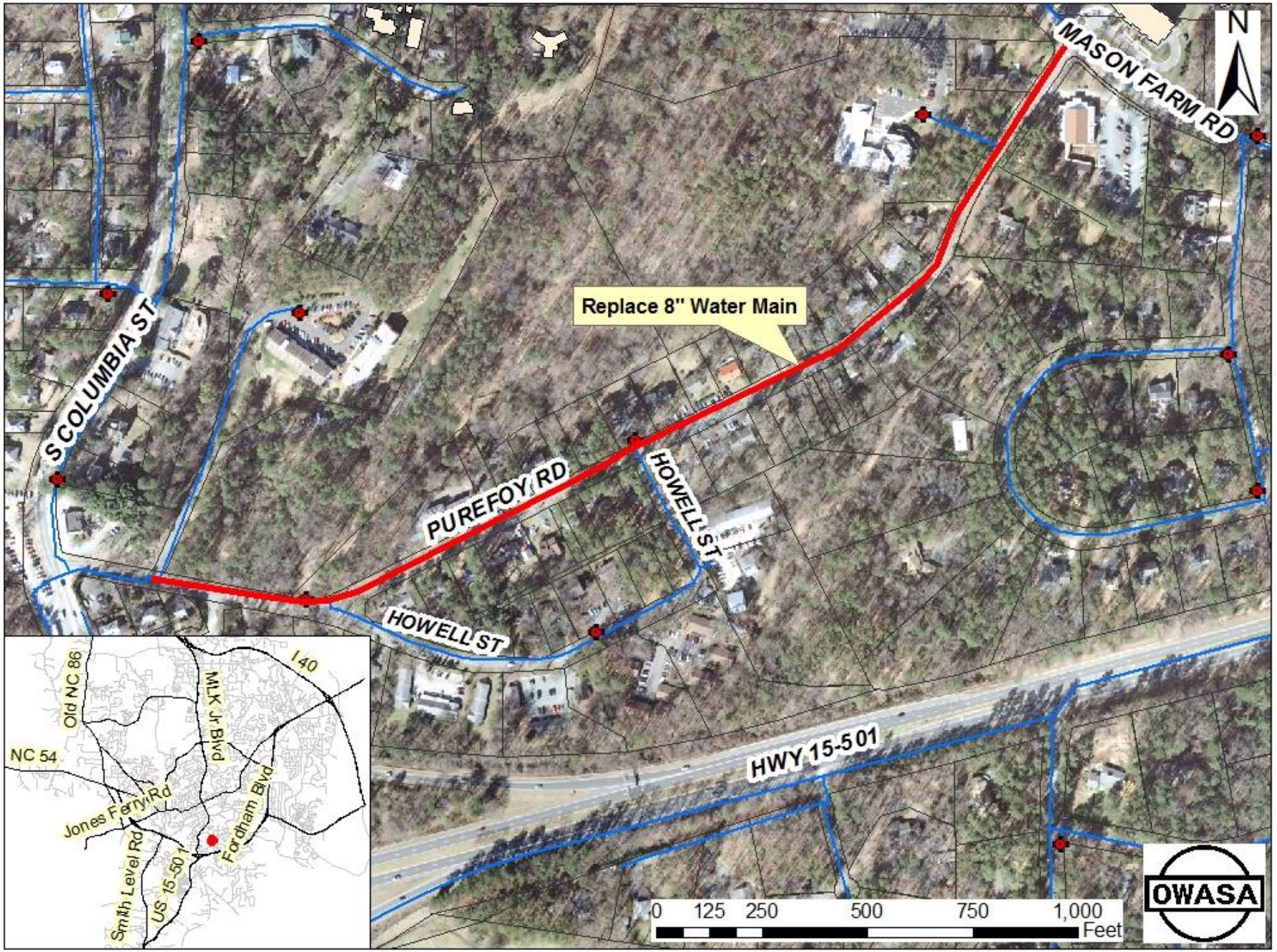
McKim and Creed's recommendation that the construction contract for this project be awarded to Moffat is attached along with the certified bid tabulation (Attachment 2). OWASA staff strongly concurs with this recommendation and requests the Board's adoption of the attached resolution (Attachment 3) awarding the construction contract to Moffat.

Please let me know if you have any questions or need additional information. I can be reached at 537-4248 or vgangadharan@owasa.org. Thank you.

Vishnu Gangadharan, P.E.
Utilities Engineer

Attachment 1 – Project Location Map
Attachment 2 – September 2, 2015 Community Meeting Summary
Attachment 3 – Engineer's Recommendation for Award and Certified Bid Tabulation
Attachment 4 – Resolution

Purefoy Road Water Main Replacement



ORANGE WATER AND SEWER AUTHORITY

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

COMMMUNITY MEETING SUMMARY

REPLACING WATER LINE ON PUREFOY ROAD

September 2, 2015 at 7 PM in the Community Church of Chapel Hill, 106 Purefoy Road

Participants

Citizens present:	Brad Kosiba, Buildings/Grounds, Community Church Joan and Arlan East, owners/residents at 311 Purefoy; also own 315 Purefoy
OWASA:	Mary Darr; Vishnu Gangadharan; Greg Feller; David Malinauskas, McKim & Creed

Discussion

Vishnu Gangadharan summarized the purpose, location, timing and impacts of the project. (Please see notes below.)

Mr. Kosiba asked OWASA to coordinate with him regarding service interruptions affecting the Community Church because it includes a day care program, and to contact the day care program on the opposite side of Purefoy (Chapel Hill Kehillah, 1200 Mason Farm Road) about service interruptions.

Mr. and Ms. East said they reside at 311 Purefoy and own 315 Purefoy. They indicated no concerns about the project at this point.

Summary of introduction by Vishnu Gangadharan

The purpose of the project is to maintain reliable service. Existing concrete pipe, which had 4 repairs/service interruptions in the last two years, will be replaced with iron pipe.

The project is designed. OWASA will receive bids soon and select a contractor this fall. Construction may begin early in 2016.

The new pipe will be installed on the south side of Purefoy a few feet from the edge of the pavement. The existing pipe on the north side of the road will be abandoned in place and filled with concrete.

The contractor's planned work hours are 7 AM to 7 PM on weekdays.

One lane of Purefoy Road will be closed at the work area on a given day between 9 AM and 4 PM. There may be times when both lanes will be closed temporarily. A work area may be about 200 feet long.

Service will be interrupted when the new water line is connected to meters and to the existing water pipes in the OWASA system. Meter connections will involve service interruption for normally less than an hour and customers will be notified in advance. Some water meters will be relocated and related service interruptions will last somewhat longer.

The work will involve noise, dust and mud.

During the project, OWASA will add valves to water meters to prevent water from flowing backward through a meter and into the OWASA system. The purpose of backflow prevention valves is to avoid the potential for contaminated water from a private plumbing system to enter the public water system.

When water in a plumbing system cannot flow back into the OWASA system, pressure in the plumbing system may increase when water expands due to the normal operation of a water heater. Customers may wish to check whether they have already or consider whether to install a device such as an expansion tank to handle the expansion of water when it is heated. OWASA does not require installation of expansion control devices but they may be required under plumbing codes, e.g., when a water heater is installed or replaced.

OWASA will provide project updates once a month starting about a month before work begins. OWASA asks customers to share their e-mail addresses to save time, postage and paper.

Customers are welcome to contact OWASA at any time with questions or comments:

- Vishnu Gangadharan, P.E., Engineering Manager for Capital Projects, 919-537-4248 or vgangadharan@owasa.org

- Jeremy Fireline, P.E., Utilities Engineer/Project manager, 919-537-4249 or jfireline@owasa.org

McKIM&CREED

ENGINEERS

SURVEYORS

PLANNERS

October 9, 2015

M&C 01519-0036 (54)

Mr. Vishnu Gangadharan, PE
Orange Water & Sewer Authority
400 Jones Ferry Road
Carrboro, NC 27510

RE: Purefoy Road Water Main Replacement
Recommendation of Award

Dear Mr. Gangadharan:

The referenced project includes replacement of approximately 2,800 LF of existing 8" asbestos cement (AC) water main with approximately 2,800 LF of 8" ductile iron (DI) water main in Purefoy Road between Holland Road and Mason Farm Road.

Prior to bid advertisement, for (4) contractors were prequalified for the construction project utilizing the Orange Water and Sewer Authority (OWASA) prequalification process. Prequalified contractors were listed in the bid documents, and only bidders who had been prequalified were allowed to submit bids on this contract.

On Wednesday, September 23, 2015 at 2:00 p.m., OWASA originally received bids for the project. Two (2) bids were received and were returned to bidders unopened, as the statutory requirement of receipt of three (3) bids for a formal bid opening was not met. The project was re-bid in accordance with statutory requirements for formal bidding on Monday, October 5, 2015 at 2:00 p.m.

For the re-bid, two (2) bids were received from prequalified contractors and opened. The advertisement and bidding procedures were consistent with statutory requirements to the best of our knowledge. Please refer to the attached detailed bid tabulations and bid summary tabulation for both bids. The low bid received was from Moffat Pipe, Inc. (License # 54906) in the base bid amount of $936,975.00.

Venture IV Building

Suite 500

1730 Varsity Drive

Raleigh, NC 27606

919.233.8091

Fax 919.233.8031

www.mckimcreed.com

Moffat Pipe, Inc. is properly licensed and experienced in the type of construction involved, as indicated by the prequalification process. Based on our review of the bids, we recommend award of the project to the lowest responsible, responsive bidder, Moffat Pipe, Inc., in the base bid amount of $936,975.00.

This recommendation of award is subject to OWASA review and approval.

If you have any questions please let me know.

Sincerely,

McKIM & CREED, INC.



David G. Malinauskas, PE
Project Engineer

Enclosures

cc: Mr. Jeremy Fireline, PE – OWASA, w/encl.
Mr. Darren Berger – OWASA, w/encl.
File, w/encl.

BID TABULATION

Orange Water and Sewer Authority
Purefoy Road Water Main Replacement
(Project 12)
CIP No. 275-20
RE-BID DATE: October 5, 2015 at 2:00 PM
M&C Project No. 01519-0036

BIDDER	LICENSE #	BID BOND	ACKNOWLEDGE ADDENDUM NO. 1	ACKNOWLEDGE ADDENDUM NO. 2	BASE BID
Moffat Pipe, Inc.	54906	✓	✓	✓	$936,975.00
Pipeline Utilities, Inc.	13040	✓	✓	✓	$984,000.00



Certified as Correct

David G. Malinauskas, PE — 10/6/15 (Date)
Project Engineer
McKim & Creed, Inc.

CERTIFIED DETAILED BID TABULATION
ORANGE WATER AND SEWER AUTHORITY
PUREFOY ROAD WATER MAIN REPLACEMENT
(PROJECT 12)
CIP NO. 275-20
RE-BID DATE: OCTOBER 5, 2015 @ 2:00 PM
MC PROJECT NO. 01519-0036

				MOFFAT PIPE, INC			PIPELINE UTILITIES, INC.		
Item	Description	Quantity		Unit Price		Total Cost	Unit Price		Total Cost
1	Mobilization (Maximum 5% of Total Bid)	1	LS	$45,000.00	/LS	$ 45,000.00	$49,000.00	/LS	$ 49,000.00
2	8" Diameter Ductile Iron Pipe, Class 350 RJ Water Line	2,850	LF	$ 100.00	/LF	$285,000.00	$ 78.00	/LF	$222,300.00
3	6" Diameter Ductile Iron Pipe, Class 350 RJ Water Line	75	LF	$ 200.00	/LF	$ 15,000.00	$ 87.00	/LF	$ 6,525.00
4	Testing, Seeding and Restoration								
	a. 8" Water Line	2,850	LF	$ 1.00	/LF	$ 2,850.00	$ 17.00	/LF	$ 48,450.00
	b. 6" Water Line	75	LF	$ 1.00	/LF	$ 75.00	$ 76.00	/LF	$ 5,700.00
5	Ductile Iron RJ Fittings (Compact Weight)	1,550	LB	$ 12.00	/LB	$ 18,600.00	$ 11.00	/LB	$ 17,050.00
6	8" Gate Valve with Box	19	EA	$ 3,500.00	/EA	$ 66,500.00	$ 1,795.00	/EA	$ 34,105.00
7	6" Gate Valve with Box	4	EA	$ 3,250.00	/EA	$ 13,000.00	$ 1,477.00	/EA	$ 5,908.00
8	Fire Hydrant Assembly Complete with Valve and Box	2	EA	$ 7,000.00	/EA	$ 14,000.00	$ 5,338.00	/EA	$ 10,676.00
9	1" Air Release Valve in Manhole (complete)	1	EA	$10,000.00	/EA	$ 10,000.00	$ 5,664.00	/EA	$ 5,664.00
10	2" Blow Off Assembly	2	EA	$ 3,500.00	/EA	$ 7,000.00	$ 3,660.00	/EA	$ 7,320.00
11	New 3/4" or 1" Service, Meter Setter and Meter Box (complete)								
	a. Same Side as Main (Open Cut)	20	EA	$ 2,000.00	/EA	$ 40,000.00	$ 1,722.00	/EA	$ 34,440.00
	b. Opposite Side of Main (Trenchless)	20	EA	$ 2,250.00	/EA	$ 45,000.00	$ 2,270.00	/EA	$ 45,400.00
12	New 1" Dual Service, 3/4" Metter Setters and Meter Boxes (complete)								
	a. Same Side as Main (Open Cut)	5	EA	$ 2,700.00	/EA	$ 13,500.00	$ 2,613.00	/EA	$ 13,065.00
	b. Opposite Side of Main (Trenchless)	6	EA	$ 3,600.00	/EA	$ 21,600.00	$ 2,699.00	/EA	$ 16,194.00
13	New 2" Multi Service, 3/4" Metter Setters and Meter Boxes Installed by Open Cut (complete)	2	EA	$10,000.00	/EA	$ 20,000.00	$ 6,664.00	/EA	$ 13,328.00
14	Remove and Replace Asphalt Roadway (6" CABC, 10" B25.0B, 2" SF9.5A) - Mason Farm Road	85	SY	$ 110.00	/SY	$ 9,350.00	$ 242.00	/SY	$ 20,570.00
15	Remove and Replace Asphalt Roadway (10" CABC, 3" B25.0B, 1" SF9.5A) - Town of Chapel Hill Roads	1,400	SY	$ 65.00	/SY	$ 91,000.00	$ 93.00	/SY	$130,200.00
16	Mill and Overlay (1.5" SF9.5A)	4,250	SY	$ 15.00	/SY	$ 63,750.00	$ 12.00	/SY	$ 51,000.00
17	Rock Removal and Replacement with Select Backfill	50	CY	$ 200.00	/CY	$ 10,000.00	$ 369.00	/CY	$ 18,450.00
18	Removal and Replacement of Unsuitable Materials	250	CY	$ 60.00	/CY	$ 15,000.00	$ 51.00	/CY	$ 12,750.00
19	Silt Fence	250	LF	$ 3.00	/LF	$ 750.00	$ 5.00	/LF	$ 1,250.00
20	Inlet Protection	6	EA	$ 200.00	/EA	$ 1,200.00	$ 132.00	/EA	$ 792.00
21	Wattles for Erosion Control/Inlet Protection	20	EA	$ 75.00	/EA	$ 1,500.00	$ 104.00	/EA	$ 2,080.00
22	Remove and Replace Concrete Curb & Gutter	50	LF	$ 100.00	/LF	$ 5,000.00	$ 44.00	/LF	$ 2,200.00
23	Remove and Replace Existing Speed Table	4	EA	$ 4,200.00	/EA	$ 16,800.00	$ 4,000.00	/EA	$ 16,000.00
24	Yard Bollard	6	EA	$ 300.00	/EA	$ 1,800.00	$ 675.00	/EA	$ 4,050.00
25	Remove/Abandon Existing Water Lines, Services, Valves and Fire Hydrants	1	LS	$10,000.00	/LS	$ 10,000.00	$66,406.00	/LS	$ 66,406.00
26	Traffic Control	1	LS	$10,000.00	/LS	$ 10,000.00	$41,427.00	/LS	$ 41,427.00

CERTIFIED DETAILED BID TABULATION
ORANGE WATER AND SEWER AUTHORITY
PUREFOY ROAD WATER MAIN REPLACEMENT
(PROJECT 12)
CIP NO. 275-20
RE-BID DATE: OCTOBER 5, 2015 @ 2:00 PM
MC PROJECT NO. 01519-0036

				MOFFAT PIPE, INC			PIPELINE UTILITIES, INC.		
Item	Description	Quantity		Unit Price		Total Cost	Unit Price		Total Cost
27	Project Sign	2	EA	$ 2,000.00	/EA	$ 4,000.00	$ 1,000.00	/EA	$ 2,000.00
28	Testing Allowance (Vibration Monitoring)	1	LS	$ 1,000.00	/LS	$ 1,000.00	$ 1,000.00	/LS	$ 1,000.00
29	ToCH Testing Allowance	1	LS	$ 5,000.00	/LS	$ 5,000.00	$ 5,000.00	/LS	$ 5,000.00
30	ToCH Street Cut Fee Allowance	1	LS	$70,700.00	/LS	$ 70,700.00	$70,700.00	/LS	$ 70,700.00
31	ToCH Engineering Fee Allowance	1	LS	$ 3,000.00	/LS	$ 3,000.00	$ 3,000.00	/LS	$ 3,000.00
TOTAL BID AMOUNT IN FIGURES (ITEMS 1-31)						**$936,975.00**			**$984,000.00**



Certified as Correct

10/6/15

David G. Malinauskas, PE — Date
Project Engineer
McKim & Creed, Inc.

RESOLUTION AWARDING A CONSTRUCTION CONTRACT FOR THE PUREFOY ROAD WATER MAIN REPLACEMENT PROJECT

WHEREAS, there is a need to replace a water main within Purefoy Road; and

WHEREAS, plans and specifications for the construction of this project have been prepared by McKim and Creed; and

WHEREAS, advertisement for contractor qualifications was published on the websites of the North Carolina Institute of Minority Economic Development, North Carolina Department of Administration, and OWASA in May 2015, and four contractors were qualified to bid; and

WHEREAS, on September 1, 2015, the prequalified contractors were formally invited to submit construction bids for the project, and two bids were received; and

WHEREAS, upon re-advertisement of the contract, two bids were received on October 5, 2015; and

WHEREAS, Moffat Pipe, Inc., of Wake Forest, North Carolina has been determined to be the low responsive, responsible bidder for the project; and

WHEREAS, on June 11, 2015 the Board approved a resolution authorizing funds for Capital Improvement Projects, including funds for this project;

NOW, THEREFORE, BE IT RESOLVED:

1. That the Orange Water and Sewer Authority Board of Directors awards the construction contract to Moffat Pipe, Inc., the low responsive, responsible bidder for the Purefoy Road Water Main Replacement Project, in accordance with the approved plans and specifications, in the amount of $936,975, subject to such change orders as may apply.

2. That the Executive Director be, and hereby is, authorized to execute said contract, subject to prior approval of legal counsel, and to approve and execute change orders and such documents as may be required in connection with the construction contract.

Adopted this 22nd day of October, 2015.

_____
Robert Morgan, Vice Chair

ATTEST:

_____
Andrea Orbich, Assistant-Secretary

AGENDA ITEM

- **FINANCIAL REPORT FOR THE THREE MONTH PERIOD ENDED SEPTEMBER 30, 2015**

PURPOSE

- To inform the Board of Directors of OWASA's financial performance and fiscal position.

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.

- Highlights of the report include:

  - All financial performance targets were met.

  - Operating Revenues for the period were about $300,000 or 2.9% over budget.

  - Operating Expenses were about $460,000 or 9.3% less than budget.

  - Customer Fees (Service Availability Fees) exceeded budget for the period by approximately $490,000 .

  - Net Income less Debt Service was 35.3% or roughly $1.3 million over budget.

  - Capital Improvement Program expenditures were about 23% less than budgeted for the period.

  - Capital equipment expenditures were approximately $55,000.

ACTION NEEDED

- Receive and discuss the Financial Report for the three month period ended September 30, 2015.

October 22, 2015

ORANGE WATER AND SEWER AUTHORITY

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

MEMORANDUM

TO: Board of Directors

THROUGH: Ed Kerwin

FROM: Stephen Winters, CPA

DATE: October 16, 2015

SUBJECT: Financial Report for the three month period ended September 30, 2015

Purpose

The financial report for the three month period ended September 30, 2015 is presented to inform the Board of Directors of OWASA's financial position and financial performance in relation to budget.

Contents

- 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 potable water sales for the period was 6.53 million gallons per day (MGD), 6.88 was projected. Combined potable and reclaimed water sales for the period averaged 7.71 MGD versus a projection of 8.26.
- Total Operating Revenue was 2.9% or about $300,000 over budget.
- Revenue from new system connections was over budget by about $490,000. 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 four large meters that were anticipated to be installed in FY15 were delayed and spilled over into the current fiscal year.
- Total operating expenses for the period were 9.3% or about $460,000 less than budget. The largest variances are in maintenance, professional fees, waste disposal costs related to biosolids, and wages related to vacancies. These variances are primarily related to the timing of when we will incur the expenses; we do not expect to be significantly under budget for the year.
- Net Income less Debt Service for the period was approximately $1.3 million or 35.3% more than budget.
- Capital equipment expenditures were approximately $55,000. The annual budget (which includes equipment and computer software systems) totals $875,000. The year-to-date budget is shown to be equal to year-to-date expenditures because the capital equipment expenditure budget is not allocated or prorated across the months of the fiscal year.

- At the close of the first quarter, we are projecting to spend $9.4 million in FY 2016 for the Capital Improvements Program (CIP), or about 89% of budget. This total accounts for the addition of unplanned or expedited projects for the Rosemary Street Water Main Replacement, Plum Lane Water Main Replacement, and chemical tank replacements at the Water Treatment Plant. Schedule delays for the Wastewater Treatment Plant (WWTP) Digester Rehabilitation Project, the Gravity Sanitary Sewer Creek Crossings Upgrades, and the Rogerson Drive Pump Station Rehabilitation Project are deferring roughly $550,000 of planned and budgeted work into FY 2017. In addition, we are currently not expecting to be invoiced within FY 2016 for approximately $250,000 of water main upgrades within Smith Level Road which were completed by the North Carolina Department of Transportation and budgeted for reimbursement this fiscal year.

  It is important to note that the FY 2016 expenditure projection of 89% of budget falls within a fairly wide range, particularly this early in the fiscal year. We are currently estimating that expenditures may range anywhere from 78% to 103% of budget. However, nearly all of the major construction projects planned for FY 2016 are expected to be underway by the end of the second quarter, so we expect to have more accuracy and precision with the next quarterly projection and will consider accelerating some work programmed for FY 2017 at that time, should the projection indicate surplus FY 2016 funds to remain.

  The variance between actual expenditures ($761,000) and initially projected expenditures ($990,000) for the first quarter is due primarily to a late construction start on the Little Creek Interceptor project.

  Detailed information on FY 2016 CIP projects with significant budget or schedule variances will be provided as part of the recurring Semi-annual CIP Status Report in January.



Stephen Winters, CPA
Director of Finance and Customer Service

Orange Water and Sewer Authority

Financial Report
For the Three Month Period Ended
September 30, 2015

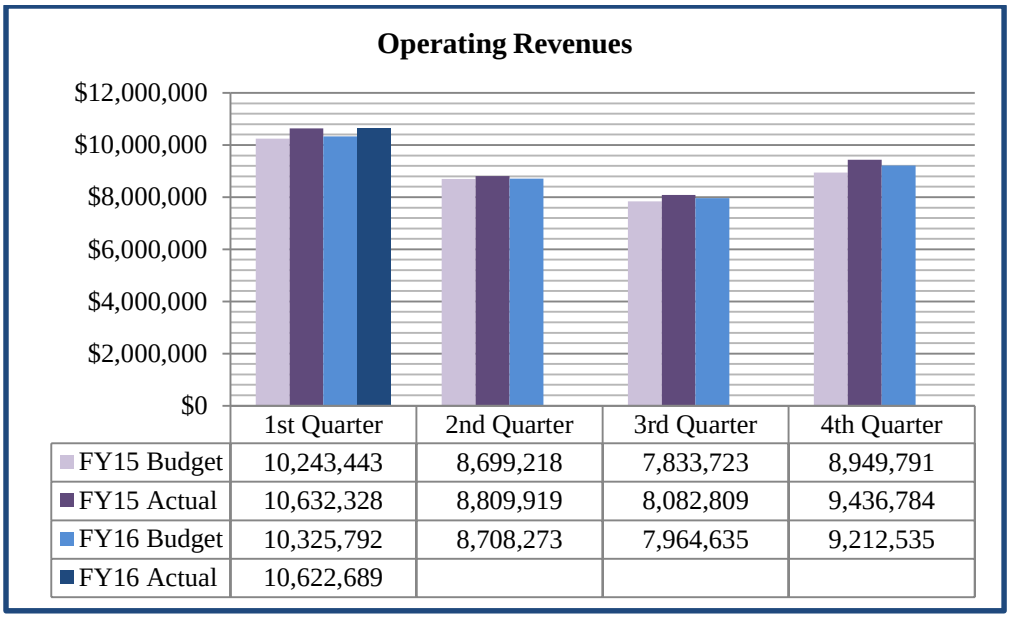
Orange Water and Sewer Authority
Statement of Net Position
September 30, 2015
(unaudited)

Assets	
Current Assets	
Cash	$28,749,459
Receivables	5,027,302
Inventory	809,412
Prepaid expenses	282,551
Restricted cash	2,227,721
Total Current Assets	37,096,445
Noncurrent Assets	
Capital assets (net of depreciation)	272,113,897
Other noncurrent assets	25,499,649
Total Noncurrent Assets	297,613,546
Total Assets	$334,709,991
Liabilities and Net Position	
Current Liabilities	
Accounts payable and accrued expenses	$1,388,525
Unearned income	617,930
Customer deposits	991,692
Total Current Liabilities	2,998,177
Noncurrent Liabilities	
Bonds payable	73,952,000
Other noncurrent liabilities	7,559,197
Total Noncurrent Liabilities	81,511,197
Net Position	
Contributed capital	114,400,684
Net position at the beginning of the year	131,762,085
Year-to-date accrual basis net income	4,037,878
Total Liabilities and Net Position	$334,709,991
Net income reconciliation:	
Accrual basis net income	$4,037,878
Depreciation, other post-employment benefits, and interest expense	2,794,378
Modified accrual basis net income	$6,832,256

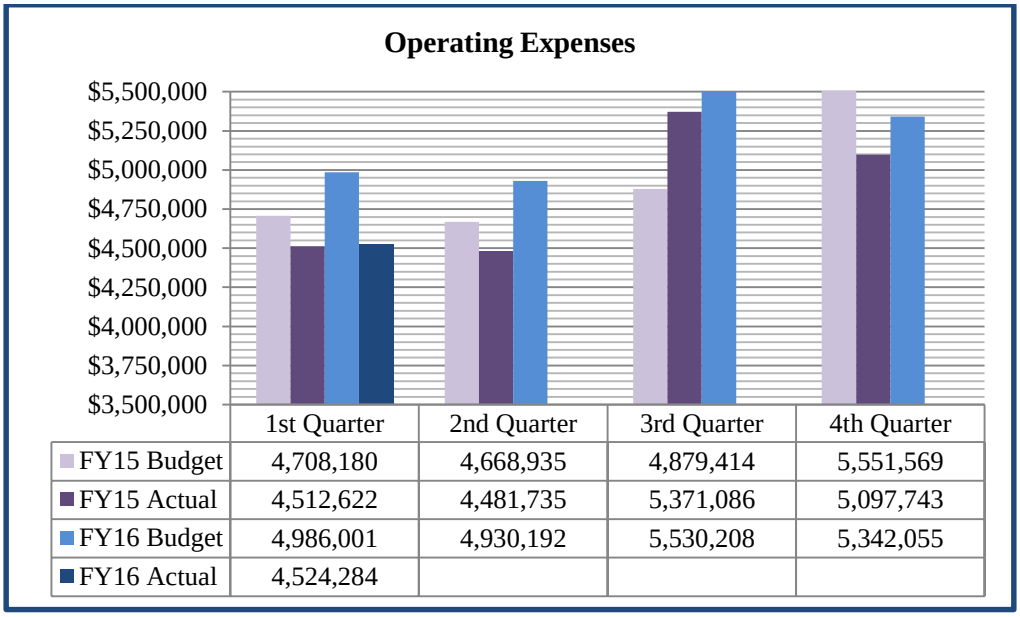
Orange Water and Sewer Authority
Income Statement
For the Three Month Period Ended September 30, 2015
(unaudited)

	Actual through September 30, 2015	Budget through September 30, 2015	Variance (effect on net change in Fund Balance)	Percent Variance
Operating Revenue:				
Water	$5,821,218	$5,684,893	$136,325	2.4%
Sewer	4,411,063	4,181,735	229,328	5.5
Reclaimed Water	141,176	207,833	(66,657)	(32.1)
Service Initiation Fees	69,525	39,606	29,919	75.5
Other	249,801	269,778	(19,977)	(7.4)
Refunds and Allowances	(70,094)	(58,053)	(12,041)	(20.7)
Total Operating Revenue	10,622,689	10,325,792	296,897	2.9
Non-operating Income:				
Customer Fees	730,219	239,895	490,324	204.4
Interest	3,632	8,643	(5,011)	(58.0)
Total Non-operating Income	733,851	248,538	485,313	195.3
Total Income	11,356,540	10,574,330	782,210	7.4
Operating Expense:				
General and Administrative	1,423,425	1,611,280	187,855	11.7
Water Supply and Treatment	1,191,015	1,173,307	(17,708)	(1.5)
Water Distribution	649,529	702,499	52,970	7.5
Wastewater Treatment	1,029,439	1,227,512	198,073	16.1
Wastewater Collection	230,876	271,403	40,527	14.9
Total Operating Expense	4,524,284	4,986,001	461,717	9.3
Net Income (modified accrual)	6,832,256	5,588,329	1,243,927	22.3
Debt Service	1,972,754	1,997,082	24,328	1.2
Net Income less Debt Service	4,859,502	3,591,247	1,268,255	35.3
Less: CIP Expenditures	761,000	990,000	229,000	23.1
Capital Equipment Expenditures	55,199	55,199	0	100.00
Net Change in Fund Balance	$4,043,303	($2,546,048)	$1,497,255	58.8

Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2015



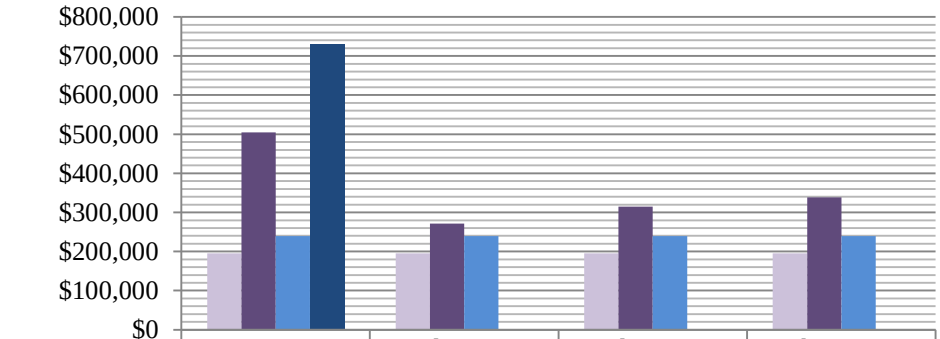
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
FY15 Budget	10,243,443	8,699,218	7,833,723	8,949,791
FY15 Actual	10,632,328	8,809,919	8,082,809	9,436,784
FY16 Budget	10,325,792	8,708,273	7,964,635	9,212,535
FY16 Actual	10,622,689			



	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	4,930,192	5,530,208	5,342,055
FY16 Actual	4,524,284			

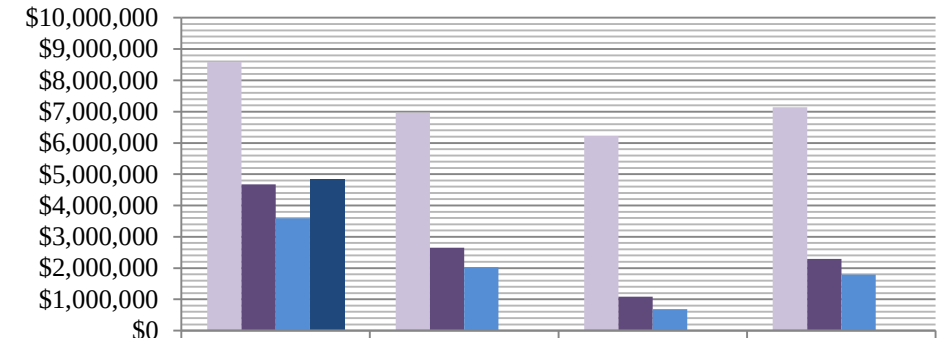
Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2015

Customer Fees (Service Availability Fees)



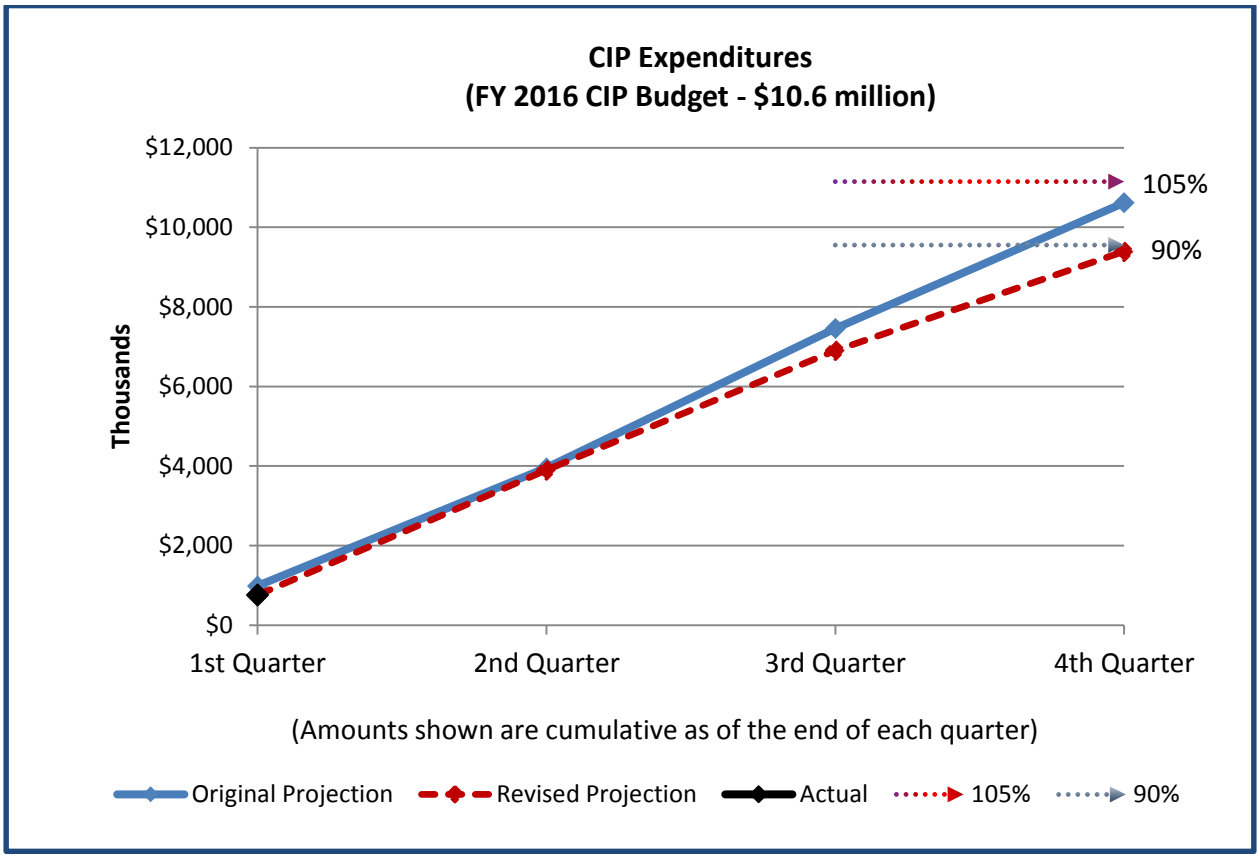
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
FY15 Budget	195,593	195,593	195,593	195,593
FY15 Actual	504,869	271,531	314,656	338,186
FY16 Budget	239,896	239,896	239,896	239,896
FY16 Actual	730,219			

Net Revenue less Debt Service



	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
FY15 Budget	8,582,116	6,964,597	6,220,959	7,140,859
FY15 Actual	4,678,908	2,654,224	1,082,376	2,292,025
FY16 Budget	3,591,248	2,029,537	685,883	1,793,936
FY16 Actual	4,859,502			

Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2015

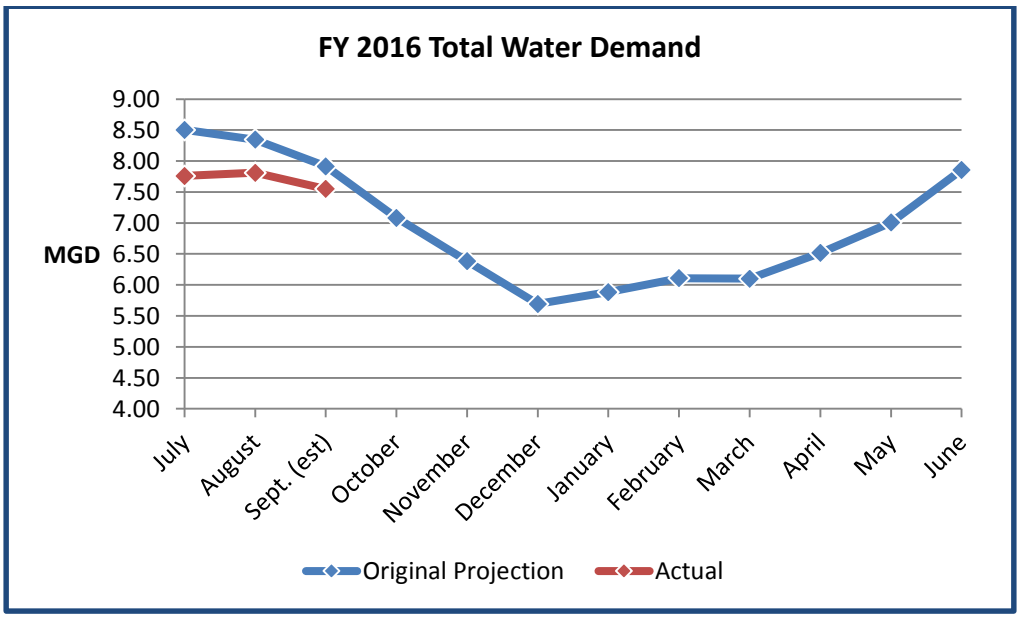


Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2015

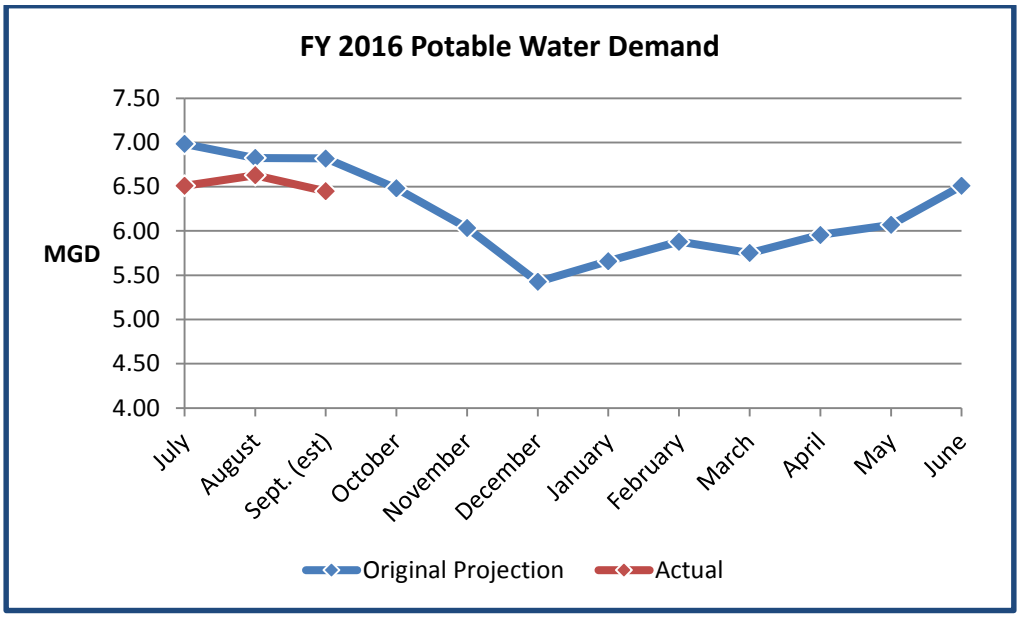
FY 2016 Water Sales Projection (Average Day)

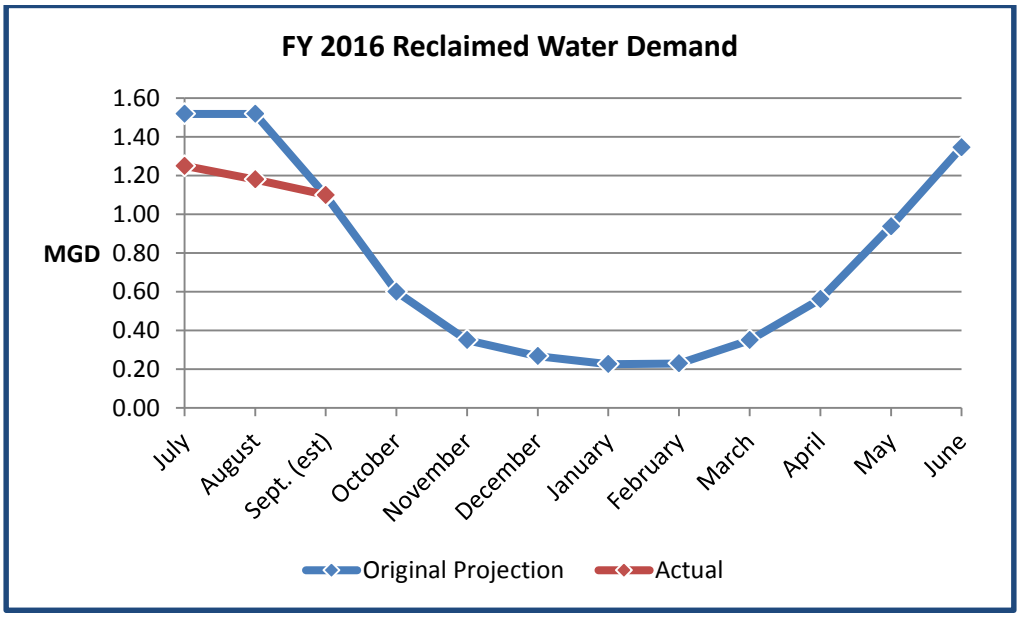
	Original FY 2016 Sales Projections		Actual FY 2016 Water Sales		Revised FY 2016 Sales Projections	
	PW	RCW	PW	RCW	PW	RCW
July	6.98	1.52	6.51	1.25	6.51	1.25
August	6.83	1.52	6.63	1.18	6.63	1.18
September	6.82	1.10	6.45	1.10	6.82	1.10
October	6.48	0.60			6.48	0.60
November	6.04	0.35			6.04	0.35
December	5.43	0.27			5.43	0.27
January	5.66	0.23			5.66	0.23
February	5.88	0.23			5.88	0.23
March	5.75	0.35			5.75	0.35
April	5.96	0.56			5.96	0.56
May	6.07	0.94			6.07	0.94
June	6.51	1.35			6.51	1.35
Average	6.20	0.75	6.53	1.18	6.14	0.70

Estimates shown in red

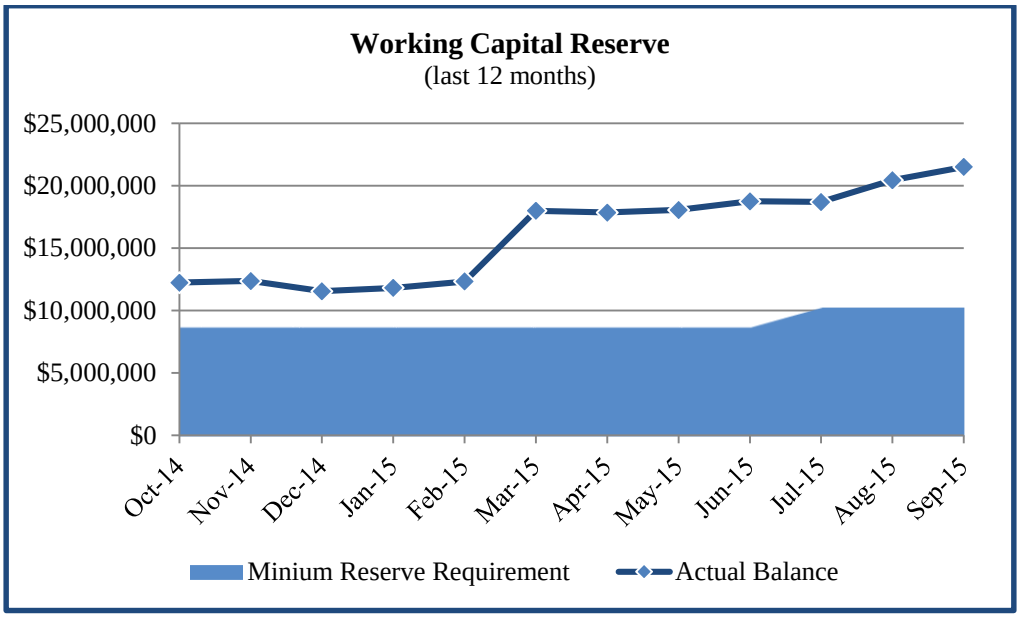


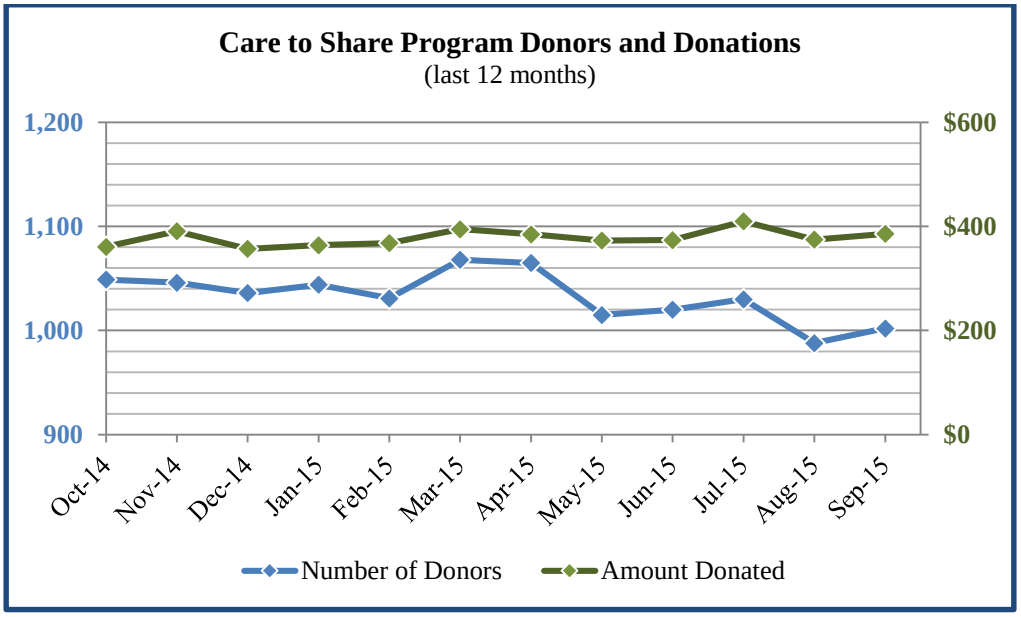
Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2015





Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2015





Orange Water and Sewer Authority
Financial Management Policy Report Card
For the Three Month Period Ended September 30, 2015

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	$21.5M
Capital Improvements Reserve	2% of Net Capital Assets (Funding $400,000 per year until reach goal of approximately $6M)	$2.4M	$2.8M	$2.4M
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 [1]	Annual Debt Service no more than 35% of Gross Revenue	21%	≤ 35%	22%
Cash Financing of Capital [1]	Annual revenues and reserves provide at least 30% of CIP funding	91%	≥ 30%	100%
Debt Service Coverage Ratio [1]	Annual Net Income not less than two times Annual Debt Service	2.3	2.0	2.0
Service Affordability Ratio [2]	Average annual OWASA bill not more than 1.5% of area median household income	1.42%	1.5%	1.39%

M = million

[1] Calculation based on the FY 2016 Annual Budget until full-year results are available.
[2] FY 2016 Calculation based on median household income of $60,802 (per 2013 U.S. Census Bureau, the most recent information available) and average monthly household water use of 4,000 gallons.