



# 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, March 22, 2018, 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](mailto: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](mailto: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, unless otherwise determined by the Board of Directors.

## **Announcements**

1. Announcements by the Chair
  - A. Any Board Member who knows of a conflict of interest or potential conflict of interest with respect to any item on the agenda tonight is asked to disclose the same at this time.
  - B. Wednesday, April 4, 2018, the OWASA Board will convene for Diversity and Inclusion Session with VISIONS, Inc. at 6:00 p.m. in OWASA's Boardroom
2. Announcements by Board Members
3. Announcements by Staff
  - A. Update on the March 20, 2018, Agua Vista (Advanced Metering Infrastructure) Presentation for the Carrboro Board of Aldermen (Todd Taylor)
  - B. Wednesday, April 11, 2018, Presentation Regarding Agua Vista for the Chapel Hill Town Council (Todd Taylor)
  - C. Saturday, March 24, 2018 OWASA's Lake Recreation Season Begins (Todd Taylor)
  - D. Update on the March 21, 2018, Community Meeting Regarding a Prescribed Burn on the Cane Creek Mitigation Tract (Mary Darr)
4. Additional Comments, Suggestions, and Information Items by Board Members (Robert Morgan)

## **Petitions and Requests**

1. Public
2. Board
3. Staff

## **Consent Agenda**

### **Information and Reports**

1. 12 Month Board Meeting Schedule (Robert Morgan/Ed Kerwin)

2. Information on the Selection and Procurement of Solids Thickening Equipment for the Mason Farm Wastewater Treatment Plant (Simon Lobdell)

**Action**

3. Minutes of the February 22, 2018 Meeting of the Board of Directors (Andrea Orbich)
4. Minutes of the March 8, 2018 Closed Session of the Board of Directors for the Purpose of Discussing a Personnel Matter (Barbara Foushee)

**Regular Agenda**

**Discussion**

5. Review Fiscal Year 2019 Draft Budget and Rate Adjustment Information (Stephen Winters)

**Discussion and Action**

6. Resolution Setting the Date of May 24, 2018 for a Public Hearing on OWASA's Fiscal Year 2019 Budget (Stephen Winters)
7. Resolution Setting the Date of May 24, 2018 for a Public Hearing on Proposed Revisions to OWASA's Schedule of Rates, Fees and Charges (Stephen Winters)
8. Series Resolution of the Orange Water and Sewer Authority Relating to the Issuance of Water and Sewer System Revenue Refunding Bonds (Stephen Winters)

**Summary of Board Meeting Action Items**

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

**Closed Session**

10. The Board of Directors will convene in a Closed Session for the Purpose of Discussing a Personnel Matter (Barbara Foushee)

**OWASA Board of Directors – 12 Month Board Meeting Schedule** (March 16, 2018)

Month	Board Meetings		Committee & Other Meetings and Reports
	Work Session	Business Meeting	
March 2018	Discuss and Approve Energy Management Plan Update Continue Discussion on Perfluorinated Compounds FY 19 Draft Budget & Rates (C) CS - ED Interim Review (C)  3/8/2018	Information on the Selection and Procurement of WWTP Solids Thickening Equipment FY 19 Draft Budget & Rates and Proposed Staff Rate Adjustment Recommendation (C) Set date for Public Hearings – FY 19 Budget & Rates (C) Adopt Series Resolution for bond refunding CS – ED Interim Review (C)  3/22/2018	AMI Update for Carrboro BOA (3/20/2018)  Human Resources Committee (TBD)
April 2018	Award the Rogerson Drive Pump Station Phase 2 Contract (Tentative) Discuss Revisions to Retiree Health Insurance for New Hires and 457 Deferred Compensation Review Employee Health and Dental Insurance Renewal (C) Status of Action Items on Communications During Emergencies FY 19 Draft Budget and Rates and Authorize Staff to Publish Proposed Rates (C) Review Action Plan for Improvements Identified by Organizational Assessment Appointment of the Nominating Committee (C) 4/12/2018	Q3 Financial Report (C) Award the WWTP Intermediate Pump Station Rehabilitation Contract Agua Vista Update Discuss Criteria for Draft Banking RFP  4/26/2018	3 <sup>rd</sup> Board Session with VISIONS, Inc. (4/4/2018)  AMI Update for Chapel Hill Town Council (4/11/2018)
May 2018	Award the Galvanized Water Main Replacement Contract Approve Employee Health and Dental Insurance Renewal (C) Discuss Employee Merit Pay for FY 19 <b>Discuss Draft Community Engagement Plan for Forestry Management</b> 5/10/2018	Public Hearings – FY 19 Budget and Rates (C) (Tentative) Budget Amendment for FY 2018 CIP  5/24/2018	NRTS Committee Meeting to discuss Source Water Protection (TBD)
June 2018	<b>(Tentative) Discuss LRWSP – Demands &amp; Yield</b> Approve FY 19 Budget and Rates (C) Election of Officers (C) (Tentative) Review Draft WTP & WWTP Reliability and Risk Assessment Report 6/14/2018	TBD  6/28/2018	
July 2018	Award the Pritchard Avenue Water Main Construction Contract 7/12/2018	TBD 7/26/2018	
August 2018	TBD 8/9/2018	Award the WWTP Solids Thickening Construction Contract Preliminary 12 Month Financial Report (C) CIP Semiannual Report (C) (Tentative) Discuss AMI Policies (other than manual read) CS – General Counsel Review (C) 8/23/2018	NRTS Committee meeting to continue discussion of Drought Response Operating Protocol (TBD)
September 2018	EEO/Affirmative Action Report (C)	Annual Report and Financial Audit (C) Approve General Counsel Engagement (C)	

## OWASA Board of Directors – 12 Month Board Meeting Schedule (March 16, 2018)

	Annual Report on Disposal of Surplus Personal Property Review Updated Implementation Plan for D&I Program Discuss Action Plan from WTP/WWTP Reliability and Risk Assessment Project Discuss KPI Deep Dive on Water Loss and Non-Revenue Water CS – General Counsel Review 9/13/2018	(C)	CS – ED Review 9/27/2018	(C)
October 2018	CS – ED Review 10/11/2018	(C)	Q1 Financial Report Strategic Trends Report and Strategic Plan Update 10/25/2018	(C) (C)
November 2018	TBD 11/8/2018		<i>Holiday - no meeting</i>	
December 2018	TBD 12/13/2018		<i>Holiday - no meeting</i>	
January 2019	Employee Health and Dental Insurance Update Appoint Audit Firm Affordability Outreach Program Plan Update 1/10/2019	(C) (C)	Annual Lakes Recreation Report CIP Semiannual Report Q2 Financial Report FY 20 Budget Calendar and Assumptions 1/24/2019	(C) (C) (C) (C)
February 2019	CS - General Counsel Interim Review 2/14/2019	(C)	CS - General Counsel Interim Review 2/28/2019	(C)

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

The 12 Month Board Meeting Schedule will be reviewed and updated at each monthly work session and may also be discussed and updated at the Board's business meetings.

In addition to the initiatives shown in this schedule, staff will be working on other Strategic Plan and organizational priorities that are not expected to require major additional discussion with the Board except as part of budget deliberations.

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

- Development of a plan and policy framework for OWASA lands is considered a longer-term priority. The NRTS Committee discussed this issue in September 2017 and determined it was lower priority than Forestry Management. Staff will develop a Community Engagement Plan for Forestry Management by June 2018, and currently plan to present a draft in May 2018.
- Improve effectiveness as a learning organization is considered a longer-term priority.
- Water Conservation Plan will be prepared concurrent with update of the Long-Range Water Supply Plan.

## **OWASA Board of Directors – 12 Month Board Meeting Schedule** (March 16, 2018)

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

## OWASA Board of Directors – 12 Month Board Meeting Schedule (March 16, 2018)

Abbreviations Used in Draft Schedule:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>☐ Recurring agenda item (generally these are “required” items)</li> <li>AMI Advanced Metering Infrastructure</li> <li>CE Community Engagement</li> <li>CEP Community Engagement Plan</li> <li>CIP Capital Improvements Program</li> <li>COLA Cost of Labor Adjustment</li> <li>CS Closed Session of the Board</li> <li>CY Calendar Year</li> <li>D&amp;I Diversity and Inclusion</li> <li>ED Executive Director</li> <li>FY Fiscal Year</li> </ul> | <ul style="list-style-type: none"> <li>JLP Jordan Lake Partnership</li> <li>LRWSP Long-Range Water Supply Plan</li> <li>MST Mountains-to-Sea Trail</li> <li>MFMM Multi-Family Master Meter</li> <li>NRTS Natural Resources and Technical Services</li> <li>Q Quarter</li> <li>SOW Scope of Work</li> <li>TBD To Be Determined</li> <li>WTP Water Treatment Plant</li> <li>WWTP Wastewater Treatment Plant</li> </ul> |
|---|--|

### Current and Pending Key Projects and Stages

Project	Strategic Initiative	Project Lead	Mar-18	Apr-18	May-18	June-18	July-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19
AMI	6	Taylor	[Shaded Row]											
			[Green Row]											
LRWSP	1	Rouse				Demand & Yield								
Energy Plan	5	Tiger	[Shaded Row]											
			[Orange]											

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



# 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:** Simon Lobdell

**DATE:** March 14, 2018

**SUBJECT: Information on the Selection and Procurement of Solids Thickening Equipment for the Mason Farm Wastewater Treatment Plant (WWTP)**

This memorandum provides information about the selection and procurement of new rotary drum thickeners (RDT's) for the Mason Farm WWTP Solids Handling Improvements Project (CIP #278-51). The memo reviews our process for choosing RDTs as the preferred thickening technology, as well as our procurement process for the selected RDT. No Board action is required at this time.

### Background

The Mason Farm WWTP uses thickeners to concentrate solids generated in the WWTP for anaerobic digestion which produce biosolids for recycling. The current units are gravity belt thickeners (GBTs) which have reached the end of their useful life. The Capital Improvements Program (CIP) initially anticipated replacing the units with new units using similar technology. However, during preliminary design, staff and our engineering consultant (CDM Smith) evaluated alternative technologies and found that RDTs would be preferred. Primarily, the RDT's are anticipated to be more reliable, generate less odors and be more cost effective to operate and maintain. The RDT's will have a notable reduction in washwater, generate more concentrated solids, and may result in between 25,000 and 70,000 kWh of electrical energy savings (largely depending on final commissioning).

The project scope also includes the improvement of a number of auxiliary systems including the waste activated solids (WAS) pumping, primary solids pumping, and odor control systems. The design of these systems cannot be finalized until a vendor is selected for the RDT because the foundation design, piping, and secondary components are largely dependent on equipment details specific to the selected vendor and model. The team chose to select a vendor and RDT system before design was complete to reduce bid uncertainty with the general construction contract.

## **Discussion**

Staff and CDM Smith developed equipment and vendor requirements and a set of weighted evaluation criteria, and in January 2018 issued a public Request for Proposal to meet these specifications. Three vendors (FKC, Parkson and JWC) submitted proposals by the bid deadline. Purchasing statute requires the award be made to the lowest responsible, responsive bidder. Two out of three bidders showed insufficient experience for the design parameters listed. Because of this, we consider Parkson to be the only responsive bidder. (Responsiveness in this case refers to a bid's conformance with specifications.)

The attached engineer's recommendation (Attachment 1) reviews the three vendors who submitted bids. This recommendation is weighted towards performance and reliability with cost as an important but secondary factor. Based on the engineer's review and Parkson's broad experience with similar applications, they recommended Parkson for award. Staff concurs with this recommendation because of Parkson's experience with 'blended solids' (i.e., a combination of WAS and primary solids), the physical limitations of our existing building, and the team's confidence in the operations and maintenance costs anticipated. This reasoning is described further below.

Firstly, Parkson is the only vendor with multiple facilities that operate with a blended primary and secondary solid stream similar to the Mason Farm WWTP. Primary solids and secondary solids are distinctly different in their corrosivity and material handling properties. Without a body of experience to back up the claim by other manufacturers of their suitability for the blended application, we would anticipate that significant modifications to their proposed design (and price) would be needed to achieve performance equivalent to Parkson. Secondly, the Parkson unit fits well within the footprint of the existing building, whereas the FKC unit would be substantially larger and provide less space for maintenance or future process improvements. Finally, the energy performance of the units is differentiated mainly by the washwater use, and the FKC unit requires twice the volume of water to achieve the required performance.

The Parkson unit recommended by the engineer was pilot tested at the plant and found to be reliable and easy to operate. As a specific example of the advantages of the Parkson unit, the use of chains and sprockets for rotation of the equipment is anticipated to be more reliable and fail-safe than the proposed direct-coupled drives of the FKC unit. The Parkson proposal is more expensive than the other vendors but not to a degree to warrant the extra effort and risks associated with alternative vendors. Additionally, the Parkson proposal is within OWASA's budget and comparable in cost to our overall estimate for the project. The table below shows the engineer's overall assessment of cost and the other criteria considered for the recommendation.



<i>Criteria Description</i>	<i>Criteria Weighting</i>	<i>Parkson Submittal</i>	<i>FKC Submittal</i>	<i>JWC-IPEC Submittal</i>
<i>Company Information and Experience</i>	35%	5	3	1
<i>Technical Support</i>	20%	5	3	1
<i>Warranty</i>	10%	5	5	3
<i>Pricing and Cost</i>	35%	4	5	4.8
		(\$414,725)	(\$369,000)	(\$378,700)
<b><i>Weighted Total</i></b>		<b>4.65</b>	<b>3.90</b>	<b>2.53</b>

Table 1 - Summary of Bid Results

Parkson’s proposed price is within our original budget and will present no significant design issues. The final bid-ready design is expected to be complete by the summer of 2018.

### **Procurement**

As allowed by statute, the Board has delegated the authority to award contracts to purchase equipment over \$90,000 to the Executive Director and update the Board at the next meeting after the purchase is awarded. Therefore, no Board action is required; however, this current selection decision essentially commits OWASA for a future purchase of specific equipment (roughly \$415,000) as part of a future construction contract to be bid this fall. The future general contractor construction contract will list the selected vendor as the sole supplier because the listed equipment was publicly and competitively bid. In this case, we are not actually awarding a purchase contract, but instead securing the price now and awarding the equipment scope via the general contractor contract later. Alerting the Board now is in keeping with the spirit of the statute and OWASA purchasing policy.

Sometimes in these situations, staff may choose to pre-purchase equipment rather than include it in the general contractor’s scope. However, since the construction activity on this project centers around the thickening equipment, it is better to keep this responsibility with the general contractor that has to manage the whole project.

### **Conclusion**

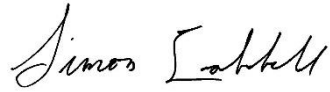
Based on the selection criteria included with the RFP for these units, the Parkson unit is recommended by both the engineer and staff and is the unit most likely to satisfy OWASA’s expectations. Staff recommends proceeding with negotiation of a final scope of supply with Parkson which will then be included with the construction contract to be bid this fall. Please let me know if you have any questions or comments.

Information on the Selection and Procurement of Solids Thickening Equipment for the  
Mason Farm WWTP

March 14, 2018

Page 4

Respectfully submitted,

A handwritten signature in black ink that reads "Simon Lobdell". The signature is written in a cursive style with a large initial 'S' and a distinct 'L'.

Simon Lobdell  
Utilities Engineer

Attachment 1 – Engineer’s recommendation

March 6, 2018

Mr. Simon Lobdell, P.E.  
 Project Manager  
 Orange Water and Sewer Authority  
 400 Jones Ferry Road  
 Carrboro, North Carolina 27510

Subject: Mason Farm Wastewater Solids Facility Improvements  
 Rotary Drum Thickeners Equipment Recommendation

Dear Simon:

CDM Smith has reviewed proposals from three equipment manufacturers that responded to the request for proposals (RFP) issued by OWASA for Rotary Drum Thickeners for Mason Farm Wastewater Treatment Plant. Submittals were received from Parkson Corporation (Parkson); FKC Co. (FKC); and JWC-IPEC. The proposals were evaluated using the criteria defined in the RFP. A summary of the evaluation is provided in the table and paragraphs below.

Criteria Description	Criteria Weighting	Parkson Submittal	FKC Submittal	JWC-IPEC Submittal
Company Information and Experience	35%	5	3	1
Technical Support	20%	5	3	1
Warranty	10%	5	5	3
Pricing and Cost	35%	4 (\$414,725)	5 (\$369,000)	4.8 (\$378,700)
<b>Weighted Total</b>		<b>4.65</b>	<b>3.90</b>	<b>2.53</b>

Note: Raw scores are shown in the table.

### Company Information and Experience

A key differentiator for Parkson is the company's experience with rotary drum thickeners in municipal wastewater applications. Parkson's installation list includes over 270 units installed with most of these installations having capacity equal to or greater than the required capacity for this project (300 gpm). FKC's installation list identified 50 North American installations in municipal and industrial wastewater applications with 19 units having capacity equal to or greater than the required capacity. JWC-IPEC's submitted reference list includes 23 installed units with 6 units identified with capacity matching the requirements of this project. The

minimum qualification required by the RFP was 20 installations having capacity equal to or exceeding 300 gpm in the last 10 years.

Parkson's submittal also indicates more experience with co-thickening a blend of primary solids and WAS compared to the other manufacturers. Parkson identifies facilities in Georgia, South Carolina, and New Jersey where combined primary and WAS are thickened. OWASA staff visited facilities in Georgia and South Carolina to examine the equipment and provided positive feedback on the installations. FKC's proposal identifies one facility in Washington with multiple units used to thicken combined primary and WAS. JWC-IPEC's proposal does not indicate any co-thickening experience.

### **Technical Support**

A second differentiator for Parkson is the number and location of technical support staff for the equipment. Specifically, Parkson has multiple technical support staff located in the southeastern United States, including North Carolina. FKC has local representation in North Carolina; however, the company's United State headquarters, including warehouse and service center, is Port Angeles, Washington. JWC-IPEC has local representation in North Carolina, but no information was provided on the number or location of support staff.

### **Warranty**

All three manufacturers indicated they could comply with the standard 2-year warranty for the equipment. Both Parkson and FKC offered extended warranties as part of the proposal. Parkson offered an extended warranty at a rate of \$10,000 per year while FKC offered a 5-year warranty with the base price. JWC-IPEC did not offer any extended warranty.

### **Pricing and Cost**

In evaluating the price proposal from each manufacturer, FKC offered the lowest equipment purchase price. JWC-IPEC offered a price similar to FKC. Parkson's price proposal was approximately 10% higher in cost than the FKC proposal.

With the pricing provided, Parkson did not identify deviations from the project specification.

For the pricing provided, FKC noted several deviations from the project specification. The most significant deviations are:

- FKC does not require a washwater booster pump
- FKC will utilize a large flocculation tank and agitator. The overall dimension for the FKC unit is longer and wider than the other manufacturers; however, the unit can be installed within the constraints identified in the RFP.
- FKC utilizes perforated screens instead of wire mesh. CDM Smith's experience in headworks and primary solids applications are that perforated screens are more prone to

material accumulation from hair and stringy material (hair-pinning) that will be present in primary solids.

- FKC's arrangement includes a drive that directly mounts to the drive shaft, eliminating the need for chains and sprockets. This arrangement allows many of the main components, including bearings, of the drive train to be installed in a dry environment. However, a drive chain can provide some protection against catastrophic failures to the drive end that could occur with a direct drive.
- FKC requires 38 gpm washwater at 40 psi. This volume exceeds the 20 gpm maximum allowable washwater consumption. The hydraulic power requirement is similar to Parkson's requirement of 18 gpm at 100 psi,
- FKC is proposing on two dual-drum units. The dual drums operate on a single drive.

JWC/IPEC noted several deviations from the project specification, including:

- JWC-IPEC does not require washwater booster pumps
- JAC-IPEC's washwater consumption is 35 gpm, exceeding the 20 gpm maximum specified
- JWC-IPEC does not agree to performance guarantees with respect to polymer consumption.

### **Summary**

CDM Smith recommends OWASA select Parkson's proposal for the Mason Farm Solids Improvements Project. The primary basis of this recommendation is the company's experience in municipal wastewater solids thickening, specifically in co-thickening primary solids and WAS. Parkson's proposal exceeds the minimum experience qualifications established for the project with over 12 installed units and 10 years of operating history in a co-thickening application. FKC's proposal indicates 5 installed units in a co-thickening application – all at the same facility – with about 2 years of operating history.

In June 2017, Parkson delivered a demonstration unit to the Mason Farm WWTP for a 2-week pilot test. The testing demonstrated the unit's capabilities with respect to thickened solids concentration, polymer consumption, and solids capture efficiency.



Simon Lobdell, P.E.  
March 6, 2018  
Page 4

CDM Smith's appreciates the opportunity to work this OWASA on this important project. We look forward to discussing these recommendations with you and finalizing the design of the project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jonathan Treadway". The signature is fluid and cursive, written over a light blue rectangular background.

Jonathan Treadway, P.E.  
CDM Smith Inc.

cc: Monica Dodson  
F. Ross Stroud  
Richard Tsang

Orange Water and Sewer Authority  
Meeting of the Board of Directors  
February 22, 2018

The Board of Directors of the Orange Water and Sewer Authority (OWASA) held a regular meeting on Thursday, February 22, 2018, at 7:00 p.m. in Chapel Hill Town Hall Council Chamber.

Board Members present: Robert Morgan (Chair), Yinka Ayankoya (Secretary), Jeff Danner, Ray DuBose, Barbara Foushee, John N. Morris, Ruchir Vora and John A. Young. Board Member absent: Heather Payne (Vice Chair).

OWASA staff present: Mary Darr, Monica Dodson, Robert Epting, Esq., (Epting and Hackney), Katie Harrold, Ken Loflin, Andrea Orbich, Johnny Riley, Nick Rogers, Todd Taylor, Mary Tiger and Stephen Winters.

Others present: Alice Boyle, Sara Baumgartner, N. Helen Carlson, Rachel Connerly, Margaret Holton (University of North Carolina Water Resources Manager), Martha Kelder, Ben Poulson (UNC Associate Director of Energy Services), Sharon Reese, Lisa Stanffer, Corey Sturmer, Logan Valleroy, Claire Viadro and Lamont Wilkins.

#### Motions

1. Yinka Ayankoya made a motion to approve the Minutes January 25, 2018 Meeting of the Board of Directors; second by Ray DuBose and unanimously approved.
2. Yinka Ayankoya made a motion to approve the Minutes February 8, 2018 Closed Session of the Board of Directors for the purpose of discussing a personnel matter; second by Ray DuBose and unanimously approved.
3. John Young made a motion that for the 2018-2019 Birdwatching Season, the Cane Creek Reservoir be open for two Saturday mornings; second by John Morris and the motion failed with a vote of three to five with Yinka Ayankoya, Jeff Danner, Ray DuBose, Robert Morgan and Ruchir Vora opposed.
4. BE IT RESOLVED THAT the Board of Directors of the Orange Water and Sewer Authority adopts the Resolution Accepting North Carolina Division of Water Infrastructure's Loan Offer and Acceptance Documents for Six Projects and Authorizing Executive Director to Execute and Administer Loan Offer and Acceptance Documents. (Motion by John Young, second by Jeff Danner and unanimously approved.)
5. BE IT RESOLVED THAT the Board of Directors of the Orange Water and Sewer Authority adopts the Resolution Directing the Filing of an Application with the North Carolina Local Government Commission for Approval of the Issuance and Public Sale of Orange Water and

Sewer Authority Water and Sewer System Revenue Refunding Bonds, Series 2018. (Motion by Ray DuBose, second by Barbara Foushee and unanimously approved.)

6. BE IT RESOLVED THAT the Board of Directors of the Orange Water and Sewer Authority adopts the Resolution Requesting the North Carolina Government Commission to Approve the Financing Team to be Used in Connection with the Issuance and Sale of Orange Water and Sewer Authority Water and Sewer System Revenue Refunding Bonds, Series 2018. (Motion by Ray DuBose, second by Jeff Danner and unanimously approved.)

\* \* \* \* \*

#### Announcements

Robert Morgan asked if any Board Member knows of a conflict of interest or potential conflict of interest with respect to any item on the agenda tonight to disclose the same at this time; none were disclosed.

Ray DuBose said that he provided OWASA's annual update to the Orange County Board of Commissioners on February 20, 2018. The items reported on included: Water Supply, Rogers Road Sewer Project, Advanced Metering Infrastructure (Agua Vista), Fluoridation Review – Request to Orange County Health Department, Mountains-to-Sea Trail, Affordability Outreach, Communications and Community Relations Officer, and Employee Diversity and Inclusion. The Commissioners asked the following questions which staff responded to via e-mail on February 21, 2018: whether the Rogers Road work included service connections; whether solar or wind alternatives were being evaluated in our energy management plan; whether we were experiencing growth of reclaimed water system; and about the methodology used to determine the lowest tier for system development charges.

John Young said the Natural Resources and Technical Services Committee will meet to discuss and evaluate the Drought Response Operating Protocol on Monday, February 26, 2018, at 5:00 p.m. in the OWASA Boardroom.

Barbara Foushee said the Human Resources Committee will meet to continue discussing retiree health benefits for new hires and 457 deferred compensation on Monday, March 19, 2018, at 4:30 p.m. in the OWASA Boardroom.

Todd Taylor announced that the Jones Ferry Road Water Treatment Plant maintained the Excellence in Water Treatment Award for the seventh consecutive year in 2017. Mr. Taylor noted that this achievement is a true team effort across the organization and expressed appreciation to the Board and customers for their support necessary to promote this high level of service.

Ken Loflin announced that the annual chlorine disinfection of drinking water will begin on March 1, 2018 and will continue through the end of month. Chlorine disinfection ensures a high level of disinfection in the community's network of water mains.



Stephen Winters announced that he attended the February 19, 2018 forum of the Chapel Hill Alliance for a Livable Town (CHALT); Barbara Foushee and John Morris also attended. The forum discussed the sustainability of tiny homes, affordable housing in the community, challenges and how to overcome them.

#### Petitions and Requests

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

#### Item One: 12 Month Board Meeting Schedule

Ruchir Vora requested that an agenda item be added at a future agenda to discuss selection and retention of banking service providers; the Board agreed.

#### Item Two: Minutes

Yinka Ayankoya made a motion to approve the Minutes January 25, 2018 Meeting of the Board of Directors; second by Ray DuBose and unanimously approved. Please see Motion 1 above.

#### Item Three: Minutes

Yinka Ayankoya made a motion to approve the Minutes February 8, 2018 Closed Session of the Board of Directors for the purpose of discussing a personnel matter; second by Ray DuBose and unanimously approved. Please see Motion 2 above.

#### Item Four: Update on Unregulated Compounds in Water Resources, Including Recent Regional Analysis of Per-fluorinated Substances

Katie Harrold, Laboratory Supervisor (Water Treatment Plant) provided a presentation on unregulated compounds in water resources, including recent regional analysis of per- and polyfluoroalkyl substances.

Alice Boyle said she is concerned about what is added to the drinking water and does not consent to fluoridating the drinking water.

Rachel Connerly asked the Board to rethink fluoridating the drinking water.

Sara Baumgartner said she is opposed to fluorosilicic acid in the drinking water.

Claire Viadro thanked OWASA for looking at unregulated compounds in the drinking water. She also expressed disappointment in OWASA for reinstating fluoride in October 2017 and does not consent to fluoridating the drinking water.

Logan Valleroy said he does not give OWASA consent to fluoridate the drinking water.

Corey Sturmer petitioned the Board to provide evidence that the ingestion of hydrofluorosilicic acid in the drinking water does not harm, impact, or alter the thyroid in any way.

Robert Morgan noted that OWASA staff met with the Director of the Orange County Health Department to explore a County-wide process for the periodic review of drinking water fluoridation and the Orange County Board of Health is expected to consider this matter on February 28, 2018.

He also reminded the public that on March 9, 2017, the OWASA Board decided to continue the current policy of fluoridating drinking water. On April 13, 2017, the Board approved the Action Plan for improvements to the safety and reliability of the fluoride feed system at the Jones Ferry Road Water Treatment Plant. And, therefore, the Board took no further action on their requests at this time.

John Morris requested information regarding any on-going monitoring of Jordan Lake for perfluorinated compounds.

Ruchir Vora inquired if the EPA considers synergist effects of multiple compounds when evaluating health risks.

Robert Morgan noted staff's recommendation to continue to stay abreast of scientific research of various unregulated compounds and to provide updates to the Board as needed.

After discussion, the Board agreed to continue discussing this item at the March 8, 2018 meeting.

Item Five: Presentation on the Partnership for Safe Water and Partnership for Clean Water Programs

Todd Taylor (General Manager of Operations), Ken Loflin (Water Supply and Treatment Manager), Monica Dodson (Interim Wastewater Treatment and Biosolids Recycling Manager) and Nick Rogers (Assistant Distribution and Collection Systems Manager) provided a presentation on OWASA's participation in the Partnership for Safe Water and Partnership for Clean Water Programs.

The Board expressed appreciation to staff for a job well done and continued support in the Partnership programs.

Item Six: Response to a Request Regarding the Birdwatching Program at Cane Creek Reservoir

Johnny Riley, Senior Lake Warden, provided the Board the following options for the Birdwatching Program at Cane Creek Reservoir: current practice of Wednesday mornings from 7:00 – 11:00 a.m.; change from Wednesday to Friday mornings from 7:00 – 11:00 a.m.; or change from Wednesday morning to Saturday mornings from 7:00 – 11:00 a.m. at a cost of about \$145 per week/\$2,250 per year.

After discussion, John Young made a motion that for the 2018-2019 Birdwatching Season, the Cane Creek Reservoir be open for two Saturday mornings; second by John Morris and the motion failed with a vote of three to five with Yinka Ayankoya, Jeff Danner, Ray DuBose, Robert Morgan and Ruchir Vora opposed. Please see Motion No. 3 above.

After discussion, the Board agreed to continue with the current Birdwatching Program, Wednesday mornings from 7:00 – 11:00 a.m. during the non-recreational season at Cane Creek Reservoir.

Item Seven: Resolution Accepting Six Low-Interest Loan Offers from the State of North Carolina, and Authorizing Executive Director to Execute and Administer all Related Loan Offers and Acceptance Documents

Jeff Danner asked for clarification on the savings of the debt service comparison information as it relates to low-interest loans from the State of North Carolina.

John Young made a motion to approve the resolution; second by Jeff Danner and unanimously approved. Please see Motion No. 4 above.

Item Eight: Resolutions in Preparation of the Issuance of Series 2018 Water and Sewer Revenue Refunding Bonds

Ray DuBose made a motion to approve the Resolution Directing the Filing of an Application with the North Carolina Local Government Commission for Approval of the Issuance and Public Sale of Orange Water and Sewer Authority Water and Sewer System Revenue Refunding Bonds, Series 2018; second by Barbara Foushee and unanimously approved. Please see Motion No. 5 above.

Ray DuBose made a motion to approve the Resolution Requesting the North Carolina Local Government Commission to Approve the Financing Team to be Used in Connection with the Issuance and Sale of Orange Water and Sewer Authority Water and Sewer System Revenue Refunding Bonds, Series 2018; second by Jeff Danner and unanimously approved. Please see Motion No. 6 above.

Item Nine: Summary of Board Meeting Action Items

Todd Taylor noted the following items for staff follow-up:

- Consideration of criteria in arranging banking services will be added to the 12 Month Board Meeting Schedule.
- Provision of information regarding current status of on-going monitoring of Jordan Lake for perfluorinated compounds.
- Determination as to whether EPA considers synergist effects of multiple compounds when evaluating health risks.

- Clarify the savings expected from accepting the State’s low interest loan offer as compared with traditional bond financing.

Item Ten:     Closed Session

Without objection, the Board convened in a closed session for the purpose of discussing a personnel matter.

The Board meeting was adjourned at 9:15 p.m.

Respectfully submitted by:

Andrea Orbich  
Executive Assistant/Clerk to the Board

Attachments

DRAFT

Orange Water and Sewer Authority

Closed Session of the Board of Directors

March 8, 2018

The Board of Directors of Orange Water and Sewer Authority met in Closed Session on Thursday, March 8, 2018, following the Board meeting.

Board Members present: Robert Morgan (Chair), Yinka Ayankoya (Secretary), Jeff Danner, Barbara Foushee, John Morris, Ruchir Vora and John A. Young. Board Member absent: Heather Payne (Vice Chair) and Ray DuBose.

\*\*\*\*\*

ITEM ONE

The Board of Directors met in Closed Session without staff to evaluate the Executive Director's semiannual performance review.

No official action was taken at the meeting.

The meeting was adjourned at 8:45 p.m.

---

Barbara Foushee, Chair  
Human Resources Committee

**Agenda Item**

- Review Fiscal Year (FY) 2019 Draft Budget and Rate Adjustment Information

**Purpose**

- To provide a draft FY 2019 budget for the Board's review.
- Staff has been working to update OWASA's 15-year financial plan and analyzing the need for increases in monthly water and sewer service rates. Based on the planning work we have completed so far, staff believes it is possible for the Board to choose to leave monthly rates unchanged for FY 2019.
- Staff plans to continue its analysis and present rate adjustment alternatives to the Board when discussions on budget and rates continue at the Board's April 12, 2018 Work Session.

**Action Requested**

- Provide guidance to staff regarding any additional information the Board would like to review regarding the Draft FY 2019 budget and rates.

March 22, 2018



# 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 *EK*  
**FROM:** Stephen Winters, CPA  
**DATE:** March 16, 2018  
**SUBJECT:** Review Fiscal Year 2019 Draft Budget and Rate Adjustment Information

### Purpose

The purpose of this discussion is to provide the Board of Directors with information about the draft Operating Expense, Capital Improvements Program (CIP) and Capital Equipment Budgets for Fiscal Year (FY) 2019. The Board will continue to discuss these topics, as necessary, in order to be prepared to hold public hearings on May 24, 2018 and make final budget and rates decisions at the June 14, 2018 Board meeting.

### Summary of the draft budget

Expenditures in the draft FY 2019 Budget include

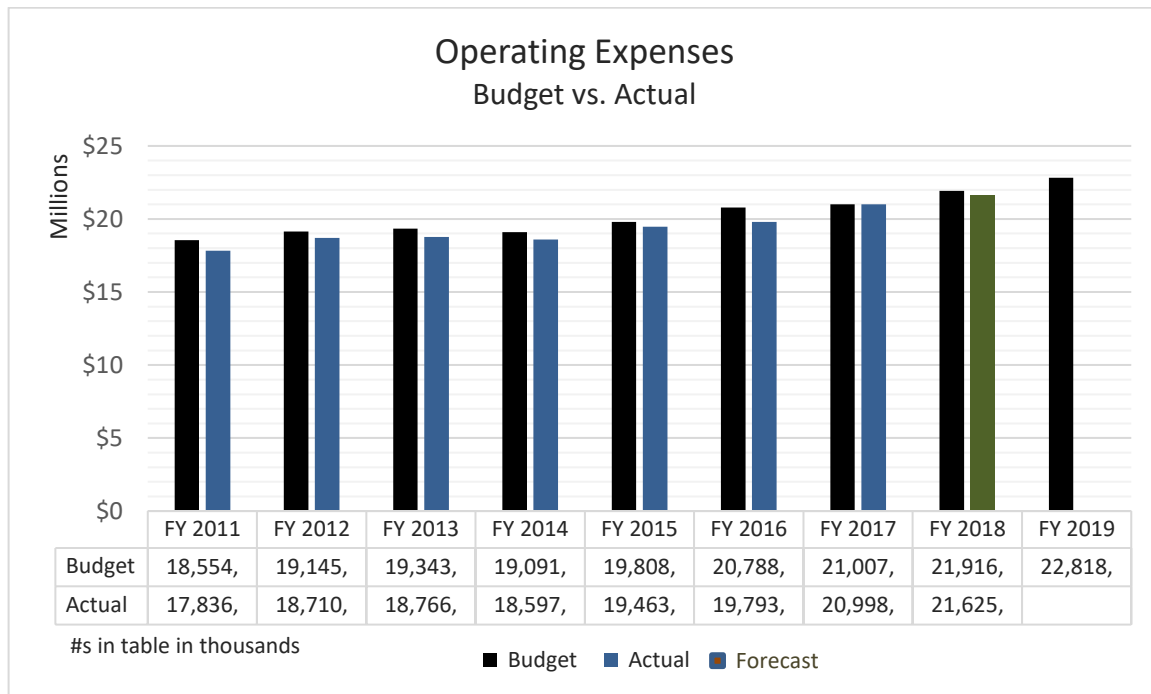
Category	Amount (in thousands)
Operating Expense	\$22,818
Capital Equipment Expenditures	871
Capital Improvements Program (CIP)	21,967
Debt Service on Outstanding Bonds and Loans	7,156
Total	\$52,812

### Operating Expenses

The Board reviewed the draft Operating Expense Budget at its meeting on March 8, 2018. The following are responses to the Board's questions about the draft Operating Expense Budget.

- Overtime – The draft FY 2019 Budget includes about \$296,000 in overtime expense. This is 7% greater than the budget for FY 2018 and 1.7% less than the updated forecast for FY 2018. The amount budgeted is based on each departments' need to cover staff absences and vacancies, after-hours emergencies and other duties, holidays, training and other meetings. Part of the increase from the FY 2018 Budget results from merit and cost of labor wage increases (4% or more). The overtime budget for FY 2019 is in line with the amount we expect to spend in FY 2018.
- The draft FY 2019 Budget includes \$42,859 expense for Group Life, Accidental Death and Dismemberment Insurance. This is 4.6% greater than the updated forecast for FY 2018 and in line with the typical annual expense. The one budget outlier is the result of under-budgeting this expense in FY 2018.

The following graphs show historical information about the Operating Expense Budget:



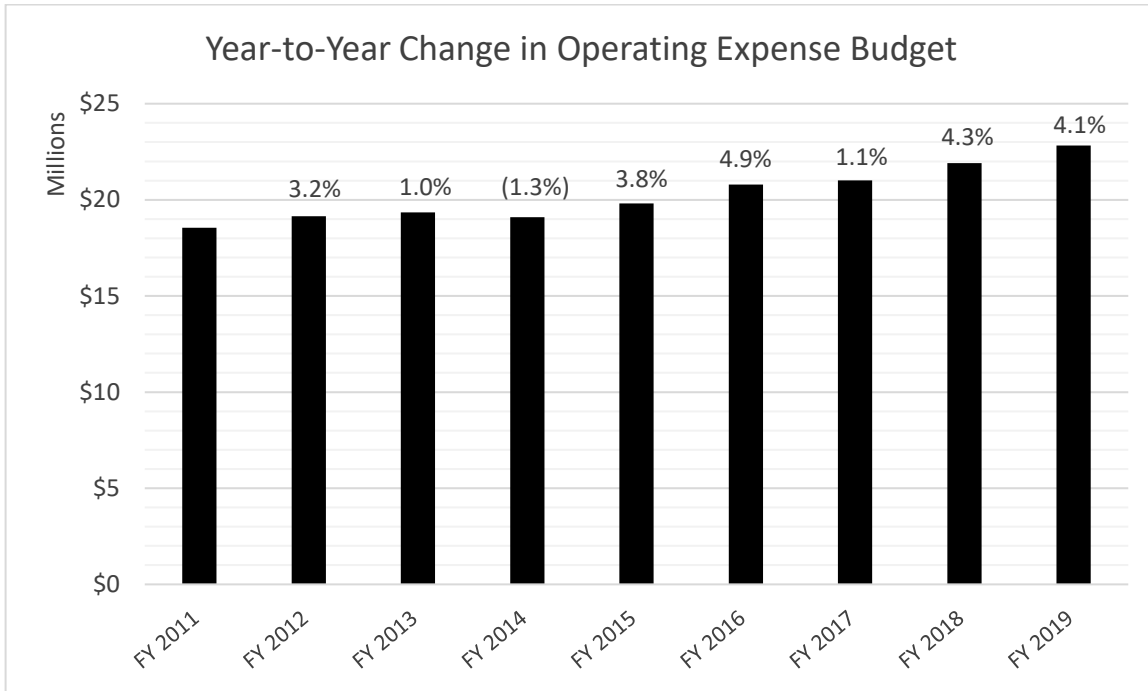
Graph 1

Graph 1 shows that our budget has increased in all but one of the past eight years. It also shows that we have consistently finished the year under, but near budget.

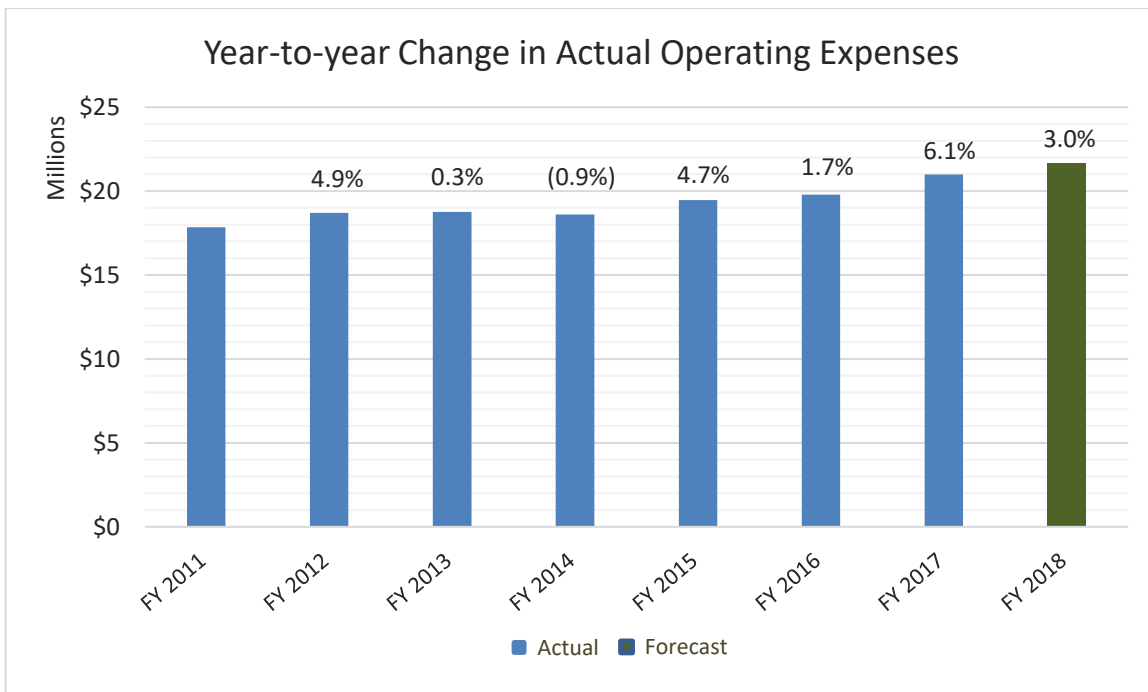
Graph 2 shows the annual budget for the last eight years and the FY19 budget request including the percentage change from year to year. The highest percentage change was 4.9% in FY 2016. In FY 2014, the budget was 1.3% less than the previous year.

Graph 3 shows the actual annual expenses for the past seven years and the expected spending for the current fiscal year. The largest annual change was 6.1% in FY 2017. In FY 2014, actual expenses were 0.9% less than the previous year.





Graph 2



Graph 3

The draft FY 2019 Budget is 4.1% more than the budget for FY 2018 and 5.3% greater than the forecast for FY 2018.

About 56% or \$12.8 million of OWASA’s expenses in the draft FY 2019 Budget are personnel-related. Increases in this expense reflect the Board’s commitment to annual merit and cost of labor wage increases as well as increases in related costs such as payroll taxes and employee health insurance coverage.

	<b>Increase in FY19 Budget Compared to FY18 Forecast</b>	
	<b>Amount</b>	<b>Percent</b>
Personnel-Related Expenses	\$620,009	5.1%
Other Non-Personnel Operating Expenses	\$524,161	5.4%
Total Operating Expenses (excluding construction credits)	\$1,144,170	5.2%

Other notable increases in expenses in the draft FY 2019 Budget compared to the FY 2018 Forecast include:

<b>Other Non-Personnel Operating Expenses</b>	<b>Increase in FY19 Budget Compared to FY18 Forecast</b>		<b>Notes</b>
	<b>Amount</b>	<b>Percent</b>	
Electricity	\$39,044	3.5%	Anticipated unit price increases
Chemicals	\$46,541	2.1%	Anticipated unit price increases
Consultants	\$302,028	70.0%	<ul style="list-style-type: none"> <li>• FY18 spending for Long-Range Water Supply Plan not incurred</li> <li>• FY19 Long-Range Water Supply Plan expenses expected to be higher than what was planned for FY18</li> <li>• FY18 IT projects deferred until FY19</li> <li>• Update Water Treatment Plant operations and maintenance manual</li> </ul>
Education and training	\$35,570	25.7%	Some departments have not had time to attend training classes in FY18. The budget reflects our routine expected investment in employee education and training.
Rents and leases	\$47,943	73.5%	Pump rental to facilitate required maintenance of Nunn Mountain water storage tank
Total of these budget to forecast increases	\$471,126		

The expense increases shown above account for 90% of the total increase of \$524,161 in Other Non-Personnel Operating Expenses in the FY 2019 Budget compared to the FY 2018 Forecast.

**Capital Equipment Expenditures**

A list of capital equipment purchases included in the draft Budget can be found in Table 3 of Attachment 1.

## **Capital Improvements Program**

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

Attachment 2, Table 1 includes brief information about the required and proposed FY 2019 projects. The draft FY 2019 CIP Budget totals \$22.0 million, or about \$1.2 million less the amount we projected last year. Projects which are already underway (highlighted in blue) comprise over 93% of the draft FY 2019 CIP Budget.

The draft FY 2019-2023 CIP Budget is shown in Attachment 2, Table 2, with required projects and projects already underway highlighted in blue. The draft FY 2019-2023 CIP Budget totals \$103.7 million, or about \$2.4 million higher than the projections we made last year.

The draft FY 2019-2023 CIP Budget was developed based on the following assumptions:

- Current levels of service will be maintained.
- Current CIP staffing levels will be maintained.
- Service area growth will remain within projections.
- Reclaimed water system will not be expanded.
- Mason Farm Wastewater Treatment Plant (WWTP) will continue to produce Class A biosolids.
- Biosolids recycling will continue at roughly 75% land application and 25% dewatering.
- No funding is included for a biogas-to-energy project at the WWTP.
- Our Jordan Lake allocation will be maintained, but no funding is included for a regional water intake/treatment facility at Jordan Lake.
- No funding or investments for construction of infrastructure that may be necessary to obtain improved (guaranteed) agreements with the City of Durham and Town of Cary for water purchases during extreme droughts or operational emergencies.
- The regulatory environment for water treatment, wastewater treatment, reclaimed water and biosolids recycling will remain substantially as it is today.

We are comfortable that the levels of investment presented in this CIP Budget leaves OWASA well-postured to remain the sustainable, responsible and environmentally focused organization that this community deserves and has come to expect.

## **Rate Adjustment Information**

Staff has been working with rate consultants to update OWASA's 15-year financial plan and analyzing the need for increases in monthly water and sewer rates. Based on the planning work we have completed so far, staff believes it is possible for the Board to choose to leave monthly rates unchanged for FY 2019. However, we plan to continue our analysis and present alternatives to the Board when discussions on budget and rates continue at the April 12, 2018 Work Session. Based on the current draft of the FY 2019 Budget, the following rate adjustment option is likely to be included in those presented to the Board:

<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
0.0%	4.0%	4.0%	6.0%	6.0%

When rate adjustment options are presented for the Board’s consideration on April 12, 2018, each option’s impact on OWASA’s performance against its Financial Management Policy objectives will be included in the analysis.

**Potential Operating Expense Deferrals**

The draft FY 2019 Budget has been prepared to provide the resources staff believes are necessary for continuing to deliver the levels of service expected by OWASA’s customers and to support programs and priorities of the Board. Based on the Board’s discussion at its March 8, 2018 meeting, staff has prepared a prioritized list of expenses currently in the draft FY 2019 Budget that could be deferred to a future year. Deferring these expenses would have consequences but staff believes the service levels for essential services could be maintained for the near-term.

**Next Steps**

We plan to discuss the FY 2019 Budget and present rate adjustment options at the April 12, 2018 Board meeting. Public hearings for the budget and rates are tentatively scheduled for May 24, 2018 and the Board’s final approval on June 14, 2018.

**Action Requested**

Provide guidance to staff regarding any additional information the Board would like to review regarding the draft FY 2019 Budget.



\_\_\_\_\_  
Stephen Winters, CPA  
Director of Finance and Customer Service

- Attachments:
- Attachment 1, Table 1 – Summary of draft FY 2019 Budget
  - Attachment 1, Table 2 – Details of draft FY 2019 Budget
  - Attachment 1, Table 3 – Draft FY 2019 Capital Equipment Budget
  - Attachment 1, Table 4 – Potential Operating Expense Deferrals
  - Attachment 2, Table 1 – Draft FY 2019 CIP Budget
  - Attachment 2, Table 2 – Draft FY 2019-23 CIP Budget

**Orange Water and Sewer Authority  
Draft FY 2019 Budget Information**

	<b>FY16 Actual</b>	<b>FY17 Actual</b>	<b>FY18 Budget</b>	<b>FY18 Forecast</b>	<b>FY19 Budget</b>	<b>FY19 Amounts in last year's model</b>	<b>FY19 Budget Compared to FY18 Forecast</b>	<b>FY19 Budget Compared to FY18 Budget</b>	<b>FY19 Budget compared to amount in last year's model</b>
Operating Expenses	19,793,818	20,998,593	21,920,477	21,665,927	22,818,960	22,703,460	5.3%	4.1%	0.5%
Capital Equipment	332,252	1,724,456	1,231,100	1,231,100	871,135	900,000	-29.2%	-29.2%	-3.2%
CIP	7,538,017	9,692,697	15,085,000	20,246,000	21,966,733	23,189,000	8.5%	45.6%	-5.3%
<b>Total</b>	<b>27,664,087</b>	<b>32,415,746</b>	<b>38,236,577</b>	<b>43,143,027</b>	<b>45,656,829</b>	<b>46,792,460</b>			

Assumptions include:

1	4% combined merit and COLA wage increase
2	10% health and dental insurance increase
3	New Safety and Risk Manager position in HR - budget increase for difference in wages between Accounting Tech II position which was reclassified to HR Safety Manager
4	New Communications and Community Relations Officer (CCRO) position in Admin - budget increase for difference in wages between Public Affairs Administrator position which was reclassified to CCRO
5	One new Lab Analyst to meet increasing staffing needs including operating new equipment for managing drinking water taste and odor issues
6	2.5% vacancy allowance
7	135 funded positions
8	140 authorized positions

EXPENDITURE CLASSIFICATION	FY 2016 Actual	FY 2017 Actual	FY 2018 Budget	FY 2018 Forecast (as of Feb. 2018)	FY 2019 Budget Request	Dollar variance FY19 v FY18 Budgets	Percent variance FY19 v FY18 Budgets	Dollar variance FY19 Budget v FY18 Forecast	Percent variance FY19 Budget v FY18 Forecast
<b>SALARIES</b>									
SALARIES AND WAGES, REGULAR	7,343,784	7,564,689	7,773,625	7,776,214	8,161,052	387,427	5.0%	384,839	4.9%
SALARIES AND WAGES, OVERTIME	267,684	339,115	276,200	300,877	295,620	19,420	7.0%	(5,257)	-1.7%
STANDBY PAY	44,116	48,427	43,780	47,107	44,627	847	1.9%	(2,480)	-5.3%
PART-TIME	80,194	158,427	144,912	107,825	93,606	(51,306)	-35.4%	(14,219)	-13.2%
PER DIEM	12,750	11,550	15,000	15,000	-	(15,000)	-100.0%	(15,000)	-100.0%
Total	7,748,528	8,122,208	8,253,517	8,247,023	8,594,906	341,389	4.1%	347,883	4.2%
<b>PAYROLL TAXES AND EMPLOYEE BENEFITS</b>									
FICA	569,007	619,190	606,091	610,139	635,162	29,071	4.8%	25,023	4.1%
RETIREMENT CONTRIBUTION	510,261	598,985	597,971	607,169	627,773	29,802	5.0%	20,604	3.4%
DEFERRED COMPENSATION	180,045	187,565	181,480	184,502	170,560	(10,920)	-6.0%	(13,942)	-7.6%
WORKERS COMPENSATION	158,241	173,042	121,680	125,340	119,878	(1,802)	-1.5%	(5,462)	-4.4%
HEALTH INSURANCE	1,631,609	1,654,664	2,059,404	1,984,102	2,211,429	152,025	7.4%	227,327	11.5%
DENTAL INSURANCE	53,429	46,651	55,630	54,319	55,563	(67)	-0.1%	1,244	2.3%
VISION INSURANCE	31,120	34,411	40,000	25,453	35,000	(5,000)	-12.5%	9,547	37.5%
WELLNESS PROFRA REIMBURSEMENT	2,421	2,074	2,300	1,797	2,400	100	4.3%	603	33.6%
RETIREEES & COBRA INSURANCE	209,881	198,402	213,773	200,372	211,406	(2,367)	-1.1%	11,033	5.5%
DISABILITY INSURANCE	33,045	33,833	36,732	35,411	36,843	111	0.3%	1,432	4.0%
AUTOMOBILE ALLOWANCE	6,500	6,750	6,000	6,000	6,000	-	0.0%	-	0.0%
UNEMPLOYMENT TAX	1,486	1,968	15,000	9,540	10,000	(5,000)	-33.3%	460	4.8%
UNIFORMS	59,251	61,126	57,183	63,110	55,473	(1,710)	-3.0%	(7,637)	-12.1%
GROUP LIFE & A.D. & D.	39,488	41,128	7,336	40,965	42,859	35,522	484.2%	1,894	4.6%
VACATION ACCRUED	-	10,975	-	-	-	-	-	-	-
Total	3,485,784	3,670,764	4,000,581	3,948,220	4,220,346	219,766	5.5%	272,126	6.9%
<b>UTILITIES</b>									
ELECTRICITY	1,075,156	1,148,288	1,146,420	1,111,601	1,150,645	4,224	0.4%	39,044	3.5%
TELEPHONE - LOCAL	110,729	106,991	110,400	118,634	125,440	15,040	13.6%	6,806	5.7%
CELL PHONES	50,733	53,441	58,100	58,100	61,300	3,200	5.5%	3,200	5.5%
FUEL	92,311	108,750	68,525	66,637	69,888	1,364	2.0%	3,251	4.9%
WASTE DISPOSAL	534,314	253,596	305,030	298,484	289,430	(15,600)	-5.1%	(9,054)	-3.0%
Total	1,863,243	1,671,066	1,688,475	1,653,456	1,696,703	8,228	0.5%	43,247	2.6%
<b>MATERIALS AND SUPPLIES</b>									
CHEMICALS	1,888,609	2,190,143	2,104,897	2,188,580	2,235,122	130,225	6.2%	46,541	2.1%
LAND APPLICATION	25,265	54,340	50,000	49,261	50,000	-	0.0%	739	1.5%
SMALL TOOLS	31,586	16,269	25,155	24,557	22,446	(2,710)	-10.8%	(2,111)	-8.6%
SUBSCRIPTIONS	1,160	1,510	2,425	2,355	1,765	(660)	-27.2%	(590)	-25.0%
LAKE SUPPLIES	25,485	21,340	59,328	49,986	35,060	(24,268)	-40.9%	(14,926)	-29.9%
FUEL - VEHICLES	95,950	118,980	151,118	144,108	165,555	14,437	9.6%	21,447	14.9%
OFFICE SUPPLIES	37,323	34,923	43,375	38,087	46,660	3,285	7.6%	8,573	22.5%
COMPUTER EQUIPMENT & PARTS	73,146	90,410	87,700	87,075	87,300	(400)	-0.5%	225	0.3%

EXPENDITURE CLASSIFICATION	FY 2016 Actual	FY 2017 Actual	FY 2018 Budget	FY 2018 Forecast (as of Feb. 2018)	FY 2019 Budget Request	Dollar variance FY19 v FY18 Budgets	Percent variance FY19 v FY18 Budgets	Dollar variance FY19 Budget v FY18 Forecast	Percent variance FY19 Budget v FY18 Forecast
LABORATORY EXPENSES	229,663	233,071	215,343	237,947	240,214	24,871	11.5%	2,267	1.0%
SAFETY SUPPLIES	48,336	59,565	61,685	60,558	87,933	26,248	42.6%	27,375	45.2%
OTHER	26,168	24,967	24,650	18,916	21,400	(3,250)	-13.2%	2,484	13.1%
Total	2,482,691	2,845,518	2,825,676	2,901,431	2,993,454	167,778	5.9%	92,023	3.2%
<b>MAINTENANCE</b>									
MAINTENANCE - EQUIPMENT	890,594	1,235,063	1,002,625	994,119	1,002,665	40	0.0%	8,546	0.9%
MAINTENANCE - PUMPING EQUIPMENT	189,510	336,492	369,450	363,180	384,225	14,775	4.0%	21,045	5.8%
MAINTENANCE - RESERVOIR & TANK	148,619	153,520	170,900	223,155	194,500	23,600	13.8%	(28,655)	-12.8%
FACILITIES	41,135	8,435	32,300	33,325	32,300	-	0.0%	(1,025)	-3.1%
BUILDINGS	311,601	263,700	302,725	296,947	293,225	(9,500)	-3.1%	(3,722)	-1.3%
MAINTENANCE - MAINS	331,460	465,747	434,400	428,618	437,800	3,400	0.8%	9,182	2.1%
MAINTENANCE - METERS	295,046	162,006	439,790	325,641	341,900	(97,890)	-22.3%	16,259	5.0%
MAINTENANCE - HYDRANTS	18,733	37,695	23,925	18,313	23,519	(406)	-1.7%	5,205	28.4%
MAINTENANCE - SERVICE LINES	61,035	83,280	67,584	79,856	82,777	15,193	22.5%	2,921	3.7%
GROUNDS	81,547	75,289	82,000	86,949	87,000	5,000	6.1%	51	0.1%
MOTOR VEHICLES	177,781	201,735	185,500	188,885	186,000	500	0.3%	(2,885)	-1.5%
Total	2,547,061	3,022,962	3,111,199	3,038,988	3,065,911	(45,288)	-1.5%	26,923	0.9%
<b>PROFESSIONAL SERVICES</b>									
LEGAL	258,420	280,300	240,000	261,600	240,000	-	0.0%	(21,600)	-8.3%
ACCOUNTING	23,688	38,263	32,000	31,928	32,000	-	0.0%	72	0.2%
ENGINEERING	1,550	970	12,500	4,151	7,500	(5,000)	-40.0%	3,349	80.7%
INSURANCE	232,405	230,788	225,798	225,314	228,800	3,002	1.3%	3,486	1.5%
COLLECTION SERVICES	35,468	34,624	40,000	40,470	40,000	-	0.0%	(470)	-1.2%
CONSULTANTS	514,344	583,364	602,700	431,472	733,500	130,800	21.7%	302,028	70.0%
FINANCIAL SERVICES	251,042	233,949	267,100	275,755	253,877	(13,223)	-5.0%	(21,879)	-7.9%
TRUSTEE SERVICES	17,050	11,561	29,350	28,600	20,000	(9,350)	-31.9%	(8,600)	-30.1%
OTHER	61,025	61,859	85,000	69,906	86,000	1,000	1.2%	16,095	23.0%
Total	1,394,992	1,475,678	1,534,448	1,369,197	1,641,677	107,228	7.0%	272,480	19.9%
<b>COMMUNICATIONS</b>									
POSTAGE AND FREIGHT	105,815	79,590	112,800	115,327	113,200	400	0.4%	(2,127)	-1.8%
CUSTOMER INFORMATION	29,162	41,575	24,387	24,387	25,387	1,000	4.1%	1,000	4.1%
ADVERTISING	30,952	36,924	28,950	29,081	35,950	7,000	24.2%	6,869	23.6%
OTHER	4,160	5,000	4,950	4,950	8,950	4,000	80.8%	4,000	80.8%
Total	170,089	163,089	171,087	173,745	183,487	12,400	7.2%	9,742	5.6%
<b>PRINTING AND REPRODUCTION</b>									
PRINTING AND REPRODUCTION	7,293	7,980	14,000	11,666	10,850	(3,150)	-22.5%	(816)	-7.0%
Total	7,293	7,980	14,000	11,666	10,850	(3,150)	-22.5%	(816)	-7.0%

EXPENDITURE CLASSIFICATION	FY 2016 Actual	FY 2017 Actual	FY 2018 Budget	FY 2018 Forecast (as of Feb. 2018)	FY 2019 Budget Request	Dollar variance FY19 v FY18 Budgets	Percent variance FY19 v FY18 Budgets	Dollar variance FY19 Budget v FY18 Forecast	Percent variance FY19 Budget v FY18 Forecast
<b>EDUCATION AND DEVELOPMENT</b>									
EDUCATION AND DEVELOPMENT	105,541	103,681	154,475	138,260	173,830	19,355	12.5%	35,570	25.7%
BOARD TRAVEL	-	-	-	300	-	-		(300)	-100.0%
Total	105,541	103,681	154,475	138,560	173,830	19,355	12.5%	35,270	25.5%
<b>MISCELLANEOUS</b>									
DUES AND MEMBERSHIPS	43,110	37,770	141,531	144,381	147,383	5,852	4.1%	3,002	2.1%
CONSERVATION	1,459	3,703	6,000	6,000	6,000	-	0.0%	-	0.0%
EASEMENTS			-	2,000	6,000	6,000		4,000	200.0%
OVERAGES AND SHORTAGES	167	(486)	-	-	-	-		-	
UNCOLLECTABLE ACCOUNTS	23,197	27,717	30,000	30,389	30,000	-	0.0%	(389)	-1.3%
RENT AND LEASES	59,351	66,171	62,838	65,220	113,163	50,325	80.1%	47,943	73.5%
FOREST MANAGEMENT	43,960	(560)	8,200	14,369	12,000	3,800	46.3%	(2,369)	-16.5%
BOARD EXPENSES	2,743	3,378	4,500	4,500	7,000	2,500	55.6%	2,500	55.6%
RECRUITMENT	1,787	-	4,000	10,632	4,000	-	0.0%	(6,632)	-62.4%
OTHER	45,443	60,227	69,950	75,012	72,250	2,300	3.3%	(2,762)	-3.7%
Total	221,217	197,920	327,019	352,503	397,796	70,777	21.6%	45,293	12.8%
Total Personnel Services	11,234,312	11,792,972	12,254,098	12,195,244	12,815,252	561,154	4.6%	620,009	5.1%
Total Operating Services	8,792,127	9,487,894	9,826,379	9,639,547	10,163,708	337,329	3.4%	524,161	5.4%
Total Operating and Maintenance	20,026,439	21,280,866	22,080,477	21,834,791	22,978,960	898,483	4.1%	1,144,170	5.2%
CONSTRUCTION CREDIT	(232,621)	(282,273)	(160,000)	(168,864)	(160,000)	-	0.0%	8,864	-5.2%
Net	19,793,818	20,998,593	21,920,477	21,665,927	22,818,960	898,483	4.1%	1,153,033	5.3%



Department	Equipment Description	FY 2019 Request	Notes
Water Treatment and Supply	GC-MS with Gerstel Twister	\$245,000	Using in-house analysis for taste/odor compounds, turn-around time compared to using a contract lab is reduced to 2 hours vs 3-5 days. To analyze samples daily via contract lab would cost \$200,000 - \$241,000 annually (not including jar tests to optimize treatment approach). The new instrument will also allow for in-house screening for non-target compounds. Can also analyze for THMs for special samples (currently costs ~\$4,320 annually with contract lab).
Wastewater Treatment	Biosolids Liquid Tankers	\$150,000	Replaces aging tankers 21-29 and 21-38; both have significant corrosion and corresponding leaks. Attempts to repair them have only worked temporarily.
IT	Network and Server Equipment	\$52,000	University Lake firewall and Cane Creek firewall devices, network edge switches in WTP outbuildings, WWTP Backup device, environmental monitors for server rooms, Test / Dev / Utility Server are all at the end of support and need to be replaced.
Distribution	Tool Truck	\$32,000	Replaces 2001 model with 104,093 miles. We have spent approximately \$19,225 this year in maintenance. The transmission is slipping and the motor is using oil.
Distribution	Tool Truck	\$53,000	Replaces 2001 model with 163,874 miles. We have spent approximately \$28,728 in past few years on maintenance. In 2017, the truck was brought into maintenance shop 20 times for repairs.
Engineering and Planning	Small SUV (e.g. Ford Edge)	\$25,000	Replaces 2005 Honda Civic with 81,000 miles. The Honda is aging and does not fit use as our vehicle to visit construction sites. It was purchased for OWASA's courier to make deliveries and pick-ups. Staff typically won't drive it out of town for training, conferences, etc. because it is shakey at highway speeds. We have spent nearly \$7,000 to maintain the car over the last 5 years.
Engineering and Planning	GPS Receiver	\$13,500	Replaces existing GPS receiver purchased in 2010 that is no longer compatible with the software we use. GPS receiver is used to locate OWASA's assets and improve the accuracy of our GIS. In addition to being compatible with our current software, the replacement receiver will perform better in tree canopies and between tall buildings we encounter on campus.
Collection	Diamond Flail Mower	\$12,000	New type of equipment for the mowing crew. It would be used on a track loader to help minimize damage to easements.
Distribution	Pickup Truck	\$30,000	Replaces 2004 model with 146,000 miles. The transmission is slipping and making noise. The whole rear-end has had to be replaced.
Water Treatment and Supply	Ferris IS3200Z mower 61" deck 35HP Kawasaki motor	\$11,235	Within the past year, two of our oldest mowers were taken out of service due to catastrophic failures. Currently we have two operational riding mowers at Cane Creek and we need three to efficiently maintain the grounds.
Wastewater Treatment	3/4T 4WD Pickup Truck	\$42,000	Replaces vehicle that supports biosolids recycling program staff.
Wastewater Treatment	Emergency Bypass Pump (WWTP)	\$50,000	Need high-flow, low-head pump for emergency pumping needs at the WWTP.
Water Treatment and Supply	EchoSmart Media Expansion Interface Analyzer by Entech Design, Inc.	\$12,000	Adequate filter media expansion and turbidity readings below 10 NTU are important indicators in confirming proper filter washes. This online meter would provide continuous readings that would allow us to optimize our filter washing process. Additionally, this meter would be particularly useful in performing filter condition assessments.
Distribution	2 New Kaufman Trailers	\$13,400	Existing trailers are too heavy and it is difficult to tie-down equipment. We would like to upgrade to one that's more usable and safer.
Wastewater Treatment	Laboratory Equipment Replacements	\$20,000	Replaces aging lab equipment - all equipment 12-15 years old. Centrifuge, solids oven and water bath.
Water Treatment and Supply	2019 F-250 Extended Cab 4X4 with service body	\$42,000	This is a replacement based on Condition Assessment and Replacement schedule. This replaces vehicle # 11-10 which is a 1998 Dodge Ram 3500 service body with 128,706 miles on it.
Collection	Pump Off Equipment for Vac-Con	\$15,000	Allows pumping water simultaneously with vacuuming.

		<b>FY 2019</b>	
<b>Department</b>	<b>Equipment Description</b>	<b>Request</b>	<b>Notes</b>
Distribution	New Sediment Truck	\$53,000	For sediment control
Total Capital Equipment Budget Request		\$871,135	

**Department requests that have been deferred to future year**

Distribution			
Distribution	305E2 Trackhoe	\$72,000	To replace an outdated bobcat and for accessing a site on UNC campus that we cannot access with any other piece of equipment make repairs to the water line that is between two UNC buildings.
Wastewater Treatment	Mid-sized SUV	\$28,000	To replace a 1995 pool vehicle for the WWTP staff
Collection	T 76 Tractor	\$42,000	Allows video inspection of 12" and larger pipes.
Distribution	Tandem Dump Truck	\$150,000	To replace a 2001 model with 49,009 miles. Lifetime maintenance cost on current equipment has been approximately \$52,000.
Total Deferrals		\$292,000	

The Operating Expense budget has been developed based on the resources staff believes are necessary for delivering expected levels of service. The list below includes expenses that are less mission critical than others and, therefore, there is some level of discretion as to when, and in some cases if, funds are spent on them. Staff does not recommend eliminating these from the FY 2019 Budget but provides them for the Board's consideration.

Item No.	Description	Priority ranking	Totals
		from 1 to 3 (1=first to cut)	
1	Eliminate backflow testing compliance fees by having customers pay for inspections instead of OWASA covering the cost	1	\$28,000
2	Eliminate painting areas in administration building and Water Treatment Plant	1	\$23,000
3	Defer purchase of metal locator for construction inspector	1	\$900
4	Reduce Forest Management budget to reflect CC Mitigation Tract prescribed burn in FY 18	1	\$2,500
5	Eliminate book and periodical purchases	1	\$800
6	Discontinue snacks/refreshments at Board meetings and meals at committee meetings or Community Room improvements.	1	\$7,000
7	Discontinue food budget for affordability partners, hosting professional affiliation meetings; discontinue OWASA polo shirts for new employees and Board Members; do not purchase new chairs for break room	1	\$3,500
8	Eliminate OWASA and individual dues for members except those required for professional certifications	1	\$25,500
9	Reduce office supplies expense and delay furniture purchases	1	\$8,250
10	Stop Skype broadcast of Board meetings to eliminate overtime costs	2	\$1,500
11	Defer Water Treatment Plant Operating Manual update	2	\$50,000
12	Defer drinking water taste and odor panel training	2	\$13,000
13	Skip the cleaning of certain basins at the water plant	2	\$20,000
14	Prepare and print CIP, Budget, CAFR books in house	2	\$3,800
15	Eliminate energy management consulting	2	\$30,000
16	Discontinue copying, printing, dry mounting documents for community meetings, framing resolutions for Board and retiring (30-years) staff members, dry mounting posters	2	\$1,150
17	Do not purchase dye tablets, low-flow shower heads, low-flow fixtures or other outreach material	2	\$6,000
18	Eliminate consulting fees for Hill, Chesson and Woody (health insurance consultants)	2	\$60,000
19	Eliminate fees for managing our Employee Assistance Program.	2	\$4,500
20	Eliminate fees for Envirosafe-safety training and hazard assessment	2	\$52,500
21	Eliminate fees for HR administrative support	2	\$1,500
22	Eliminate Diversity and Inclusion consulting fees	2	\$100,000
23	Eliminate fees for compliance training (sexual harassment)	2	\$20,000
24	Eliminate fees for core training (part of Diversity and Inclusion program)	2	\$20,000

<b>Item</b>		<b>Priority ranking</b>	<b>Totals</b>
<b>No.</b>	<b>Description</b>	<b>from 1 to 3</b>	
		<b>(1=first to cut)</b>	
25	Eliminate fire hydrant painting	2	\$5,000
26	Reduce part-time hours	2	\$2,650
27	Radios - rely solely on cell phones for communications in event of emergency	3	\$8,000
28	Defer Nunn Mt elevated tank interior cleaning and touchup and the pump rentals that are needed to do this work.	3	\$52,000
29	Do not produce blue thumb newsletters, create required water and wastewater in-house, discontinue Spanish translations, etc.	3	\$24,000
30	Discontinue televising Board meetings and taping new intro for Board Chair	3	\$8,950
31	Eliminate employee events (appreciation day, retirement parties, holiday lunch, etc.)	3	\$30,000
32	Reduce education and training expense	3	\$62,500
	Totals		\$676,500

Draft FY 2019 CIP

CIP No.	Project	FY2019	Comments
270-04	Jordan Lake Raw Water Supply Allocation	\$ 5,000	Ongoing required payment
270-09	Quarry Reservoir Development	\$ 15,000	Ongoing required payment
270-11	University Lake Pump Station Improvements	\$ 1,500,000	Replacement of aging pumps #1 - #3 with new, more efficient pumps and variable frequency drives (VFD's)
270-28	University Lake Permanganate Facility	\$ 450,000	New chemical storage and feed facility to improve water treatment
272-14	Water Facility Security Upgrades	\$ 38,000	Security improvements at remote sites including Cane Creek Reservoir, University Lake, and booster pump stations
272-37	WTP Belt Filter Press Replacement	\$ 512,000	Replacement of existing, aging dewatering equipment that does not have redundancy
272-38	WTP Sedimentation Basin Rehabilitation	\$ 1,800,000	Concrete rehabilitation of sedimentation basin walls and channels
272-40	WTP Filter Media and Backwash Improvements	\$ 100,000	Completion of construction which commenced in FY 2018
275-15	Water Main Upgrades - Road Improvement Projects	\$ 181,000	Water main upgrades undertaken as part of North Carolina Department of Transportation roadway projects; FY 2019 funds are for payment for prior work along Smith Level Road
275-20	Fordham Service Road Water Main Replacement	\$ 250,000	Construction along service road south of Fordham Boulevard; being coordinated with adjacent development
275-20	Brandywine Road Water Main Replacement	\$ 862,000	Completion of construction expected to commence in FY 2018
275-21	High Priority Water Main Replacement	\$ 2,242,000	FY 2019 funds are primarily for construction of Pritchard Avenue Water Main, and the start of construction for Manning Drive Water Main and Country Club Road Water Main
275-46	Dobbins Drive Water Main Replacement	\$ 288,000	Completion of design and construction; coordinated with Dobbins Drive Sewer Main project
275-52	West Cameron Avenue Water Main	\$ 25,000	Planning, design, and construction; majority of construction to occur in summer of calendar year 2020
275-76	Advanced Metering Infrastructure (AMI) System	\$ 1,225,000	Completion of deployment of AMI System
275-77	Galvanized Water Main Replacements	\$ 1,100,000	Start of construction to replace or abandon 1.6 miles of galvanized water mains
276-18	Sanitary Sewer Rehabilitation	\$ 2,091,000	Near-term identified needs for rehabilitation of collection system
276-45	Bolinwood Drive Interceptor	\$ 100,000	Capacity improvements as identified by 2010 Collection System Master Plan
276-48	Dobbins Drive Interceptor Upgrades	\$ 315,000	Completion of design and construction to increase collection system capacity; coordinated with Dobbins Drive Water Main project
276-53	Creek Crossing Access Improvements	\$ 20,000	Sitework to improve vehicular access as needed to maintain facilities (primarily aerial sewer crossings at creeks and streams)
276-57	Sanitary Sewer Hydraulic Model	\$ 334,000	Updated capacity analysis and master planning for the collection system; flow monitoring is ongoing as of March 2018
277-31B	Rogerson Drive Pump Station Rehabilitation Phase 2	\$ 1,555,000	FY 2019 funds are for Phase 2 construction including electrical, HVAC, and odor control upgrades to improve reliability and odor control at the second largest wastewater pump station
278-11	WWTP Headworks Concrete Rehabilitation	\$ 1,700,000	Completion of design and construction on fast-tracked project to rehabilitate a critical WWTP structure
278-46	Comprehensive Coatings Program	\$ 150,000	Continuation of programmatic coating of priority equipment and structures to protect assets and extend their useful life
278-51	WWTP Solids Thickening Improvements	\$ 1,200,000	Replace aging gravity belt thickeners with new rotary drum thickeners
278-54	WWTP Intermediate Pump Station (IPS) Rehabilitation	\$ 400,000	Completion of construction in FY 2019 for electrical, HVAC, and VFD's; future funding is for pump replacements
278-58	WWTP Non-potable Water Pump Replacements	\$ 50,000	Completion of construction work commencing in FY 2018 to replace aging pumps
278-68	Roofing / Building Envelope Rehabilitation	\$ 34,000	Roof replacements as prioritized and scoped from a FY 2017 assessment
278-72A	WWTP Secondary Clarifier (SC) Rehabilitation	\$ 750,000	Funding is for rehabilitation of concrete and aging equipment in SC #2 and #3
278-72B	WWTP Secondary Clarifier Pumping Improvements	\$ 100,000	Improvements to the return activated pumping system for the secondary clarifiers to improve clarifier performance
278-73	Wastewater Treatment Plant (WWTP) SCADA System Upgrade	\$ 60,000	Completion of improvements to the WWTP's control system which commenced in FY 2018 to improve functionality and operator awareness
278-78A	WWTP Fermenter Tank and Pumps Rehabilitation	\$ 100,000	Funds are for cleaning, draining, inspection and recommendations for fermenter tank rehabilitation; improvements to be included with Solids Thickening construction
278-80A	Primary Sludge Pump Station Rehabilitation and Old Lab Building Demolition	\$ 25,000	Funding for near-term work that may be identified by FY 2018 study
278-80B	WWTP Chemical Building and Bulk Tank Piping Rehabilitation	\$ 100,000	Completion of design and construction as recommended by ongoing FY 2018 study to improve chemical feed and storage facilities
278-80B	WWTP Spray Water System	\$ 100,000	Completion of design and construction as recommended by ongoing FY 2018 study to improve operational efficiency
280-06	Administration Building HVAC System Upgrade	\$ 820,000	Completion of construction which commenced in FY 2018
270-new	University Lake Dam Flashboard Replacement	\$ 325,000	Flashboard (part of the dam used to increase the depth of the impoundment) replacement as recommended by recent inspection
271-05	Cane Creek Raw Water Transmission Main Capacity Study	\$ 40,000	Condition assessment of raw water main
272-42	WTP Finished Water Pump (FWP) Improvements	\$ 25,000	Improvements to FWP #5 VFD and electrical, and FWPs #4 and #6 pumps/motors
272-46A	WTP Chemical Feed Upgrades	\$ 75,000	Upgrades to several chemical feed systems as identified by risk evaluation and other needs to improve reliability and treatment
272-new	WTP Supervisory Control and Data Acquisition (SCADA) Equipment Replacement	\$ 15,000	Replacement of critical process control equipment which will not be supported by manufacturer after 2023
272-new	Heating, Ventilation, and Air Conditioning (HVAC) Replacement Program	\$ 45,000	Age, condition, and energy efficiency-based equipment replacement based on Advanced Energy audit
273-09	Barbee Chapel Road Booster Pump Station (BPS) Study	\$ 75,000	Study to re-evaluate BPS location, needed improvements, timing, and cost estimate.
275-53	Water Distribution System Hydraulic Model	\$ 30,000	Placeholder funding for on-call modeling, plus FY 2020-2021 update of full hydraulic model

CIP No.	Project	FY2019	Comments
275-new	Kensington Drive Water Main Replacement	\$ 100,000	Funds for completion of design in FY 2019 and construction in FY 2020
275-new	Distribution System SCADA integration	\$ 25,000	Upgrades to allow for real-time monitoring of distribution system pressure
275-new	Distribution System Sampling Stations	\$ 85,000	Additional sampling sites to improve water quality monitoring capabilities for the distribution system
275-new	Distribution System Prioritization Model	\$ 75,000	Comprehensive overhaul of prioritization model used to determine distribution system rehabilitation
276-46	Willow Drive Interceptor Replacement	\$ 25,000	Capacity improvements as identified by 2010 Collection System Master Plan
276-58	Prince Street common service replacement	\$ 30,000	Replacement of common (shared by more than one property) service lateral that is in poor condition
277-new	Rogerson Drive Force Main (Highway 54 crossing and northern routing study)	\$ 50,000	Initial funding of routing study for future alignment of Rogerson Drive Force Main, including alternatives analysis for crossing Highway 54
277-new	Pump Station Operational Assessments	\$ 25,000	Motor and pump efficiency assessments at identified pump stations
278-77	WWTP Bar Screen Replacement	\$ 150,000	Replacement of two bar screens at plant headworks
278-new	Fixed Continuous Gas Monitoring Systems	\$ 100,000	Installation of gas monitoring systems in identified WWTP structures to provide continuous air monitoring
278-new	WWTP Server Room	\$ 75,000	Architectural modifications, and installation of equipment and HVAC to support new technology infrastructure
<b>Total FY 2019</b>		<b>\$ 21,967,000</b>	

<b>Projects Underway as of 3-16-2018</b>	<b>\$ 20,597,000</b>
--	----------------------

Draft FY 2019 - 2023 CIP

CIP No.	Project	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2019 - FY 2023
270-04	Jordan Lake Raw Water Supply Allocation	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 25,000
270-09	Quarry Reservoir Development	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 75,000
270-11	University Lake Pump Station Improvements	\$ 1,500,000	\$ 455,000	\$ -	\$ -	\$ -	\$ 1,955,000
270-16	Cane Creek Pump Station Improvements	\$ -	\$ 100,000	\$ 1,200,000	\$ -	\$ -	\$ 1,300,000
270-28	University Lake Permanganate Facility	\$ 450,000	\$ 750,000	\$ -	\$ -	\$ -	\$ 1,200,000
270-29	University Lake Fishing Pier and Boat Launch	\$ -	\$ -	\$ 70,000	\$ -	\$ -	\$ 70,000
270-30	Cane Creek Dam Rehabilitation	\$ -	\$ -	\$ 50,000	\$ 500,000	\$ -	\$ 550,000
270-31	Cane Creek Resurfacing	\$ -	\$ -	\$ -	\$ 70,000	\$ -	\$ 70,000
270-new	University Lake Dam Flashboard Replacement	\$ 325,000	\$ 250,000	\$ -	\$ -	\$ -	\$ 575,000
270-new	Cane Creek Solar Photovoltaic System	\$ -	\$ 25,000	\$ 1,600,000	\$ -	\$ -	\$ 1,625,000
271-05	Cane Creek Raw Water Transmission Main Capacity Study	\$ 40,000	\$ -	\$ -	\$ -	\$ -	\$ 40,000
272-10	Long Term Funding for Water Facility Asset Rehabilitation or Replacement	\$ -	\$ -	\$ -	\$ 2,725,000	\$ 3,407,000	\$ 6,132,000
272-14	Water Facility Security Upgrades	\$ 38,000	\$ -	\$ -	\$ -	\$ -	\$ 38,000
272-35	WTP Flash Mix Basins Isolation Valve Replacement	\$ -	\$ -	\$ -	\$ 70,000	\$ 300,000	\$ 370,000
272-37	WTP Belt Filter Press Replacement	\$ 512,000	\$ 975,000	\$ -	\$ -	\$ -	\$ 1,487,000
272-38	WTP Sedimentation Basin Rehabilitation	\$ 1,800,000	\$ 1,630,000	\$ -	\$ -	\$ -	\$ 3,430,000
272-40	WTP Filter Media and Backwash Improvements	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ 100,000
272-41	WTP Process, Sedimentation Basin, and Pulsator Turbidimeters	\$ -	\$ -	\$ 150,000	\$ -	\$ -	\$ 150,000
272-42	WTP Finished Water Pump (FWP) Improvements	\$ 25,000	\$ 150,000	\$ 1,200,000	\$ -	\$ -	\$ 1,375,000
272-43	WTP Track Vac System Replacement	\$ -	\$ -	\$ -	\$ 116,000	\$ -	\$ 116,000
272-46A	WTP Chemical Feed Upgrades	\$ 75,000	\$ 500,000	\$ -	\$ -	\$ -	\$ 575,000
272-46B	WTP Chemical Storage Improvements	\$ -	\$ 25,000	\$ -	\$ -	\$ -	\$ 25,000
272-new	WTP Supervisory Control and Data Acquisition (SCADA) Equipment Replacement	\$ 15,000	\$ 200,000	\$ -	\$ -	\$ -	\$ 215,000
272-new	Heating, Ventilation, and Air Conditioning (HVAC) Replacement Program	\$ 45,000	\$ 10,000	\$ 25,000	\$ 125,000	\$ -	\$ 205,000
272-new	WTP SCADA Master Plan	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ 100,000
272-new	WTP Filter Console / Operator Console Replacement	\$ -	\$ -	\$ 25,000	\$ 150,000	\$ -	\$ 175,000
273-09	Barbee Chapel Road Booster Pump Station (BPS) Study	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ 75,000
274-new	Storage Tank Water Quality Monitors	\$ -	\$ -	\$ 100,000	\$ -	\$ -	\$ 100,000
275-15	Water Main Upgrades - Road Improvement Projects	\$ 181,000	\$ -	\$ -	\$ -	\$ -	\$ 181,000
275-20	Fordham Service Road Water Main Replacement	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ 250,000
275-20	Brandywine Road Water Main Replacement	\$ 862,000	\$ -	\$ -	\$ -	\$ -	\$ 862,000
275-20	Long Term Funding for Water Distribution System Asset Rehabilitation or Replacement	\$ -	\$ -	\$ -	\$ 2,259,000	\$ 2,497,000	\$ 4,756,000
275-21	High Priority Water Main Replacement	\$ 2,242,000	\$ 5,313,000	\$ 4,278,000	\$ 5,248,000	\$ -	\$ 17,081,000
275-46	Dobbins Drive Water Main Replacement	\$ 288,000	\$ 1,150,000	\$ -	\$ -	\$ -	\$ 1,438,000
275-52	West Cameron Avenue Water Main	\$ 25,000	\$ 298,000	\$ 1,487,000	\$ -	\$ -	\$ 1,810,000
275-53	Water Distribution System Hydraulic Model	\$ 30,000	\$ 250,000	\$ 50,000	\$ 30,000	\$ 30,000	\$ 390,000
275-76	Advanced Metering Infrastructure (AMI) System	\$ 1,225,000	\$ -	\$ -	\$ -	\$ -	\$ 1,225,000
275-77	Galvanized Water Main Replacements	\$ 1,100,000	\$ 600,000	\$ -	\$ -	\$ -	\$ 1,700,000
275-new	Kensington Drive Water Main Replacement	\$ 100,000	\$ 1,220,000	\$ -	\$ -	\$ -	\$ 1,320,000
275-new	Distribution System SCADA integration	\$ 25,000	\$ 25,000	\$ -	\$ -	\$ -	\$ 50,000
275-new	Distribution System Sampling Stations	\$ 85,000	\$ 85,000	\$ -	\$ -	\$ -	\$ 170,000
275-new	Distribution System Prioritization Model	\$ 75,000	\$ 100,000	\$ -	\$ -	\$ -	\$ 175,000
275-new	Porthole Alley Water Main Abandonment	\$ -	\$ -	\$ 30,000	\$ -	\$ -	\$ 30,000
275-new	Valve Insertion Program	\$ -	\$ 30,000	\$ 30,000	\$ 30,000	\$ -	\$ 90,000
275-new	Distribution System Large Vault Replacement	\$ -	\$ 40,000	\$ 100,000	\$ -	\$ -	\$ 140,000
275-new	MLK Boulevard Water Main Abandonment	\$ -	\$ 100,000	\$ 1,000,000	\$ -	\$ -	\$ 1,100,000
276-17	Sanitary Sewer Condition Evaluation	\$ -	\$ 744,000	\$ -	\$ 906,000	\$ -	\$ 1,650,000
276-18	Sanitary Sewer Rehabilitation	\$ 2,091,000	\$ 2,429,000	\$ 2,730,000	\$ -	\$ -	\$ 7,250,000
276-18	Long Term Funding for Wastewater Collection System Asset Rehabilitation or Replacement	\$ -	\$ -	\$ -	\$ 3,817,000	\$ 4,520,000	\$ 8,337,000
276-45	Bolinwood Drive Interceptor	\$ 100,000	\$ 900,000	\$ -	\$ -	\$ -	\$ 1,000,000
276-46	Willow Drive Interceptor Replacement	\$ 25,000	\$ 100,000	\$ -	\$ -	\$ -	\$ 125,000

CIP No.	Project	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total FY 2019 - FY 2023
276-48	Dobbins Drive Interceptor Upgrades	\$ 315,000	\$ 1,259,000	\$ -	\$ -	\$ -	\$ 1,574,000
276-52	Rocky Branch Interceptor Upgrade (Phase 1)	\$ -	\$ 62,000	\$ 706,000	\$ -	\$ -	\$ 768,000
276-53	Creek Crossing Access Improvements	\$ 20,000	\$ 563,000	\$ 263,000	\$ -	\$ -	\$ 846,000
276-57	Sanitary Sewer Hydraulic Model	\$ 334,000	\$ 150,000	\$ -	\$ -	\$ -	\$ 484,000
276-58	Prince Street common service replacement	\$ 30,000	\$ 50,000	\$ -	\$ -	\$ -	\$ 80,000
276-new	Manhole Installations	\$ -	\$ 35,000	\$ 80,000	\$ -	\$ -	\$ 115,000
277-21	Force Main Condition Evaluation	\$ -	\$ -	\$ 50,000	\$ -	\$ 300,000	\$ 350,000
277-31B	Rogerson Drive Pump Station Rehabilitation Phase 2	\$ 1,555,000	\$ -	\$ -	\$ -	\$ -	\$ 1,555,000
277-37	Knolls PS Rehab	\$ -	\$ -	\$ 15,000	\$ -	\$ -	\$ 15,000
277-39A	North Lakeshore Drive Pump Station	\$ -	\$ -	\$ 15,000	\$ -	\$ -	\$ 15,000
277-39B	Chapel Hill North Pump Station Rehabilitation	\$ -	\$ 25,000	\$ 75,000	\$ -	\$ -	\$ 100,000
277-39C	Clayton Rd Pump Station Replacement	\$ -	\$ -	\$ 15,000	\$ -	\$ -	\$ 15,000
277-39-F	Patterson Place Pump Station	\$ -	\$ -	\$ 15,000	\$ -	\$ -	\$ 15,000
277-new	Rogerson Drive Force Main (Highway 54 crossing and northern routing study)	\$ 50,000	\$ 200,000	\$ -	\$ -	\$ -	\$ 250,000
277-new	Pump Station Operational Assessments	\$ 25,000	\$ 25,000	\$ -	\$ -	\$ -	\$ 50,000
277-new	Rogerson Drive Force Main Gravity Interconnect to Meeting of the Waters Interceptor	\$ -	\$ -	\$ 25,000	\$ -	\$ -	\$ 25,000
278-11	WWTP Headworks Concrete Rehabilitation	\$ 1,700,000	\$ 500,000	\$ -	\$ -	\$ -	\$ 2,200,000
278-11	Long Term Funding for Wastewater Facility Asset Rehabilitation or Replacement	\$ -	\$ -	\$ -	\$ 5,580,000	\$ 5,464,000	\$ 11,044,000
278-46	Comprehensive Coatings Program	\$ 150,000	\$ 100,000	\$ -	\$ -	\$ -	\$ 250,000
278-50	WWTP Warehouse	\$ -	\$ 75,000	\$ 600,000	\$ -	\$ -	\$ 675,000
278-51	WWTP Solids Thickening Improvements	\$ 1,200,000	\$ 2,700,000	\$ -	\$ -	\$ -	\$ 3,900,000
278-54	WWTP Intermediate Pump Station (IPS) Rehabilitation	\$ 400,000	\$ -	\$ -	\$ 100,000	\$ 600,000	\$ 1,100,000
278-58	WWTP Non-potable Water Pump Replacements	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ 50,000
278-61	WWTP Pavement	\$ -	\$ -	\$ -	\$ 25,000	\$ -	\$ 25,000
278-68	Roofing / Building Envelope Rehabilitation	\$ 34,000	\$ 226,000	\$ 285,000	\$ 184,000	\$ -	\$ 729,000
278-72A	WWTP Secondary Clarifier (SC) Rehabilitation	\$ 750,000	\$ -	\$ -	\$ -	\$ -	\$ 750,000
278-72B	WWTP Secondary Clarifier Pumping Improvements	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ 100,000
278-73	Wastewater Treatment Plant (WWTP) SCADA System Upgrade	\$ 60,000	\$ -	\$ -	\$ -	\$ -	\$ 60,000
278-75	WWTP Facilities Planning / Capacity Upgrade	\$ -	\$ 150,000	\$ 150,000	\$ -	\$ -	\$ 300,000
278-77	WWTP Bar Screen Replacement	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ 150,000
278-78A	WWTP Fermenter Tank and Pumps Rehabilitation	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ 100,000
278-80A	Primary Sludge Pump Station Rehabilitation and Old Lab Building Demolition	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ 25,000
278-80B	WWTP Chemical Building and Bulk Tank Piping Rehabilitation	\$ 100,000	\$ 350,000	\$ -	\$ -	\$ -	\$ 450,000
278-80B	WWTP Spray Water System	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ 100,000
278-80C	On-Site Biosolids Storage Tanks – Hyperboloid Mixing System	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000
278-80C	WWTP Scum Pump Station Rehabilitation	\$ -	\$ 200,000	\$ -	\$ -	\$ -	\$ 200,000
278-new	Fixed Continuous Gas Monitoring Systems	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ 100,000
278-new	WWTP Server Room	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ 75,000
278-new	WWTP Flow Monitoring	\$ -	\$ -	\$ 25,000	\$ 125,000	\$ -	\$ 150,000
278-new	Primary Clarifier Rehab	\$ -	\$ 90,000	\$ 500,000	\$ -	\$ -	\$ 590,000
280-06	Administration Building HVAC System Upgrade	\$ 820,000	\$ -	\$ -	\$ -	\$ -	\$ 820,000
280-13	Admin Building Locker Room Rehabilitation and Improvements	\$ -	\$ -	\$ 30,000	\$ -	\$ -	\$ 30,000
	<b>Recommended FY 2019 - 2023 CIP</b>	<b>\$ 21,967,000</b>	<b>\$ 25,484,000</b>	<b>\$ 16,994,000</b>	<b>\$ 22,080,000</b>	<b>\$ 17,138,000</b>	<b>\$ 103,663,000</b>



**Agenda Item**

- Resolution Setting the Date of May 24, 2018 for a Public Hearing on OWASA's Fiscal Year (FY) 2019 Budget

**Background**

- General Statutes (G.S.) of North Carolina require that before adopting the annual budget, the Board shall hold a public hearing at which time any persons who wish to be heard on the budget may comment.
- Notice of the time and place of the public hearing shall be advertised prior to the date of the public hearing, and a copy of the budget is to be provided to news media in the county.
- Notice is to be mailed to the University, the Towns of Chapel Hill and Carrboro and to Orange County.
- In order to satisfy public notice requirements and to allow for budget adoption tentatively scheduled for June 14, 2018, the attached resolution sets May 24, 2018 as the date of the public hearing on OWASA's budget.

**Action Needed**

- Adopt the Resolution Setting the Date of May 24, 2018 for a Public Hearing on OWASA's FY 2019 budget

March 22, 2018




# 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:** March 16, 2018

**SUBJECT:** Resolution Setting the Date of May 24, 2018 for a Public Hearing on OWASA's Fiscal Year (FY) 2019 Budget

### **Purpose and background**

Section 159-12 of the General Statutes (G.S.) of North Carolina requires that before adopting the annual budget, the Board shall hold a public hearing at which time any persons who wish to be heard on the budget may comment. Historically, the OWASA Board of Directors has conducted the public hearing during the second meeting in May. Statutes also require that the proposed budget be filed with the Clerk to the Board where it shall remain available for public inspection until the budget ordinance is adopted.

Notice of the time and place of the public hearing shall be advertised prior to the date of the public hearing, and a copy of the budget is to be provided to news media in the county. Additionally, the notice is to be mailed to the University of North Carolina at Chapel Hill, the Towns of Chapel Hill and Carrboro, and to Orange County.

The attached resolution sets May 24, 2018 as the date of the public hearing on OWASA's FY 2019 budget. Adoption of the budget is tentatively scheduled for June 14, 2018.



---

Stephen Winters, CPA  
Director of Finance and Customer Service

**RESOLUTION SETTING THE DATE OF MAY 24, 2018 FOR A PUBLIC HEARING ON  
OWASA’S FISCAL YEAR 2019 BUDGET**

**WHEREAS**, Section 159-12 of the General Statutes of North Carolina requires a Public Hearing on the budget for the ensuing fiscal year; and

**WHEREAS**, in accordance with Section 7.05 of the Bond Order, and Section 159-13 of the General Statutes of North Carolina, the Board of Directors of Orange Water and Sewer Authority shall adopt an Annual Budget for the Fiscal Year 2019 on or before the first day of July 2018; and

**WHEREAS**, said proposed Budget will be placed with the Clerk to the Board and will be available for public inspection;

**NOW, THEREFORE, BE IT RESOLVED:**

1. That a Public Hearing is hereby set for Thursday, May 24, 2018, at 7:00 P.M., in Chapel Hill Town Hall, for the purpose of receiving public comment on the proposed Fiscal Year 2019 budget.
2. That any interested persons may appear in-person, or by agent or attorney, and present any comments they may have regarding the proposed budget.
3. That notice of the time and place of the Public Hearing shall be advertised and mailed at least ten days prior to the date fixed above for the Public Hearing to The University of North Carolina at Chapel Hill, and to the Towns of Chapel Hill and Carrboro and to Orange County.

Adopted this 22nd day of March 2018.

---

Robert Morgan, Chair

ATTEST:

---

Yinka Ayankoya, Secretary

**Agenda Item**

- Resolution Setting the Date of May 24, 2018 for a Public Hearing on Proposed Revisions to OWASA's Schedule of Rates, Fees and Charges

**Background**

- Although there is no statutory requirement for a water and sewer authority to hold a public hearing on proposed revisions to rates, OWASA historically holds such a public hearing in conjunction with the public hearing on the annual budget during its second meeting in May.
- The Agreement of Sale and Purchase with The University of North Carolina at Chapel Hill requires that The University be provided a 90-day notice prior to implementing changes in rates, fees and charges.
- The attached resolution sets May 24, 2018, as the date for a public hearing on revisions to rates, fees and charges that, if approved, would go into effect in Fiscal Year 2019.

**Action Needed**

- Adopt the Resolution Setting the Date of May 24, 2018 for a Public Hearing on Proposed Revisions to OWASA's Rates, Fees and Charges.

March 22, 2018




# 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:** March 16, 2018

**SUBJECT:** Resolution Setting the Date of May 24, 2018 for a Public Hearing on Proposed Revisions to OWASA's Schedule of Rates, Fees and Charges

### **Purpose and background**

Although there is no statutory requirement for a water and sewer authority to hold a public hearing on proposed revisions to rates, OWASA historically holds such a public hearing in conjunction with the public hearing on the annual budget during the Board's second meeting in May. Information on the annual budget and revisions to rates provided by staff during the public hearings is typically combined into a single presentation.

Any proposed adjustment to rates, fees and other charges will be recommended to become effective during the new fiscal year. The Agreement of Sale and Purchase with the University of North Carolina at Chapel Hill requires that the University be provided a 90-day notice prior to implementing changes in rates, fees and charges.

The attached resolution sets May 24, 2018, as the date for a public hearing on revisions to rates, fees and charges. Receiving public comment at the hearing will provide sufficient time to consider public input; adopt a revised schedule of rates, fees and other charges before June 30, 2018, and enable us to meet the notification requirements for the University before any new rates go into effect.



Stephen Winters, CPA  
Director of Finance and Customer Service

**RESOLUTION SETTING MAY 24, 2018 AS THE DATE FOR A PUBLIC HEARING ON  
PROPOSED REVISIONS TO OWASA'S SCHEDULE OF RATES, FEES AND  
CHARGES**

**WHEREAS**, the Orange Water and Sewer Authority must charge fees sufficient to provide financial resources to recover the cost of ongoing operations, pay for capital improvements, and provide sufficient financial resources to ensure sustainable fiscal strength and stability; and

**WHEREAS**, Section 162A-6 of the General Statutes of North Carolina and Section 7.04 of the Amended and Restated Bond Order adopted September 13, 2001, provide for the revision of such rates, fees and charges;

**NOW, THEREFORE, BE IT RESOLVED:**

1. That a Public Hearing is hereby set for Thursday, May 24, 2018 at 7:00 P.M., in Chapel Hill Town Hall, for the purpose of receiving public comment on any proposed adjustments to Orange Water and Sewer Authority's rates, fees and charges.
2. That any interested persons may appear in person, or by agent or attorney, to present comments on the proposed modifications to the current schedule of rates, fees and charges.
3. That notice of the time and place of the Public Hearing shall be advertised and shall be mailed at least ten days prior to the date fixed above for the Public Hearing to the University of North Carolina at Chapel Hill, Town of Carrboro, Town of Chapel Hill, and Orange County.

Adopted this 22nd day of March 2018.

\_\_\_\_\_  
Robert Morgan, Chair

ATTEST:

\_\_\_\_\_  
Yinka Ayankoya, Secretary

**Agenda Item**

- Series Resolution of the Orange Water and Sewer Authority relating to the issuance of Water and Sewer System Revenue Refunding Bonds

**Purpose**

- To seek Board approval of the Series Resolution related to the issuance of the Series 2018 refunding bonds.

**Background**

- OWASA has \$20 million outstanding variable rate bonds.
- OWASA has an opportunity reduce risks associated with potential interest rate increases and eliminate other risks unique to variable rate bonds by refunding its outstanding variable rate bonds.
- To be able to proceed with issuing the bonds, the Series Resolution must be adopted by the Board.

**Action Needed**

- Approve the Series Resolution.

March 22, 2018



# 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 *EK*

**FROM:** Stephen Winters, CPA

**DATE:** March 16, 2018

**SUBJECT:** Series Resolution of the Orange Water and Sewer Authority relating to the issuance of Water and Sewer System Revenue Refunding Bonds

### Background

On February 22, 2018, the Board approved a resolution to apply to the Local Government Commission for approval of issuing refunding bonds to retire our outstanding Series 2004B variable rate bonds with fixed rate bonds.

In 2004, OWASA issued \$20 million of variable rate bonds which had much lower interest rates than long-term fixed rate bonds. This turned out to be advantageous for OWASA's customers. Interest rates have been at historic lows for most of the time these bonds have been outstanding; this has resulted in significant interest cost savings compared to what we would have paid on fixed interest rate bonds.

Interest rates on our variable rate bonds have recently begun to increase. While rates are still low, averaging approximately 1.25% during the months of January and February, they were as high as 1.75% for a week in December. In addition, with the passage of time, the 2004B bonds that were originally issued to mature towards the end of a 25-year financing term, now mature over the next 11 years where we can take advantage of shorter term fixed rates.

Refunding the variable rate bonds will reduce risks associated with potential interest rate increases and eliminate other risks unique to variable rate bonds. Additionally, we have the potential to reduce interest costs. The table below illustrates the potential debt service savings (or costs) that we could realize by refunding our variable rate bonds with fixed rate bonds using different assumptions on how variable rates may change in the future.



Scenario No.	Assumed Interest Rate Scenario	Assumed Max Rate – Reached in	Potential Savings from Refunding		
			Net Present Value Percent Savings	Total Savings	Net Present Value Savings
1	Rate increases of <b>50</b> basis points in each of the next <b>four</b> years	3% - FY 2021	3.2%	\$801,000	\$636,000
2	Rate increases of <b>25</b> basis points in each of the next <b>seven</b> years	3% - FY 2024	0.5%	\$205,000	\$112,000
3*	<b>Four</b> rate increases of <b>25</b> basis points over the next <b>seven</b> years	2.5% - FY 2024	(1.0%)	(\$206,000)	(\$148,000)

\* Negative numbers indicate additional costs.

The Series 2004B bonds will be refunded by the issuance of the Series 2018 Bonds. The closing date for the issuance is scheduled for May 1, 2018. We are monitoring the bond market and if conditions change to the point that it does not make sense to go through with the refunding, we can cancel the transaction up until the date of closing.


### Resolution

To be able to proceed with issuing the bonds, the attached Series Resolution must be adopted by the Board. In accordance with Section 2.08 of OWASA’s Bond Order dated September 13, 2001, the final formal action the Board of Directors must take to issue the refunding bonds is to adopt the Series 2018 Bond Resolution. The resolution has been prepared by OWASA’s Bond Counsel, McGuireWoods LLP.

The resolution specifies the terms and conditions relating to the determination of the total amount of the bonds to be issued, as well as the maturity structures, interest rates, and call provisions on the bonds. They also delegate, subject to certain conditions, to the Board Chair, Vice-Chair, the Executive Director or Director of Finance and Customer Service the authority to approve the exact principal amounts, the interest rates on the bonds, the maturity dates, the redemption provisions, and related matters, and to execute all required legal documents relating to the closing of the bonds. Please note that the blanks appearing on certain pages are intentional and will be filled-in after pricing takes place.

### Action Requested

Approve Series Resolution.



Stephen Winters, CPA  
 Director of Finance and Customer Service

Attachment: Series Resolution

SERIES RESOLUTION OF THE ORANGE WATER AND SEWER AUTHORITY RELATING TO THE ISSUANCE OF NOT EXCEEDING \$21,000,000 WATER AND SEWER SYSTEM REVENUE REFUNDING BONDS, SERIES 2018 OF SAID AUTHORITY PURSUANT TO THE PROVISIONS OF SECTION 2.08 OF AN AMENDED AND RESTATED BOND ORDER ADOPTED BY SAID AUTHORITY ON SEPTEMBER 13, 2001, AS AMENDED, AND REQUESTING THE LOCAL GOVERNMENT COMMISSION OF NORTH CAROLINA TO AWARD SAID BONDS AT PUBLIC SALE

WHEREAS, the Orange Water and Sewer Authority (“OWASA”), a public body and body politic and corporate of the State of North Carolina, is authorized under the provisions of the North Carolina Water and Sewer Authorities Act, as amended, and The State and Local Government Revenue Bond Act, as amended (collectively, the “Act”), to acquire, lease, construct, reconstruct, improve, extend, enlarge, equip, repair, maintain and operate water and sewer systems or any part thereof within Orange County, North Carolina, to issue revenue bonds of OWASA to pay the cost of such water and sewer systems and to issue revenue refunding bonds; and

WHEREAS, OWASA has heretofore issued (a) \$20,000,000 principal amount of its Water and Sewer System Revenue Bonds, Series 2004B, all of which are currently outstanding (the “Series 2004B Bonds”), (b) \$21,645,000 principal amount of its Water and Sewer System Revenue Refunding Bonds, Series 2010, which are currently outstanding in the principal amount of \$15,625,000, (c) \$15,695,000 principal amount of its Water and Sewer System Revenue Refunding Bonds, Series 2014, which are currently outstanding in the principal amount of \$14,955,000, and (d) \$8,995,000 principal amount of its Water and Sewer System Revenue Refunding Bonds, Series 2015, which are currently outstanding in the principal amount of \$6,470,000, pursuant to the Act and an amended and restated bond order adopted on September 13, 2001, as amended by a supplemental order adopted on October 28, 2010 (the Amended and Restated Bond Order, and any orders supplemental thereto and amendatory thereof, being hereinafter referred to as the “Order”); and

WHEREAS, Section 2.08 of the Order authorizes the issuance of revenue refunding bonds of OWASA in one or more series from time to time for refunding all or any part of the outstanding revenue bonds of any series issued under the Order or, to the extent permitted by law, other indebtedness; and

WHEREAS, OWASA has determined that it is desirable to refund all of the outstanding Series 2004B Bonds and to pay the cost of such refunding by issuing an additional series of revenue refunding bonds and using any other available funds as authorized by Section 2.08 of the Order; and

WHEREAS, OWASA has determined that it will be able to satisfy the requirements of Section 2.08 of the Order with respect to the issuance of such series of revenue refunding bonds; and

WHEREAS, pursuant to Section 2.08 of the Order, such series of revenue refunding bonds is to have such terms and provisions as may be provided by a series resolution to be adopted by OWASA prior to the issuance thereof;

NOW, THEREFORE, THE ORANGE WATER AND SEWER AUTHORITY DOES HEREBY DETERMINE AND RESOLVE, as follows:

Section 1. Definitions. Unless otherwise required by the context, capitalized words and terms used in this Resolution (this “Series Resolution”) and not otherwise defined herein shall have the same meanings in this Series Resolution as such words and terms are given in the Order, and the following words and terms shall have the following meanings:

“Bond Registrar” means The Bank of New York Mellon Trust Company, N.A. as designated by Section 2 of this Series Resolution, or any successor.

“Bond Year” means the period commencing on July 1 of any year and ending on June 30 of the following year.

“Business Day” means a day on which the Trustee, the Bond Registrar and the New York Stock Exchange are open for the purpose of conducting their businesses.

“Closing” means the delivery of and payment for the Series 2018 Bonds.

“Closing Date” means the date of the Closing.

“Costs of Issuance Account” means the account created and so designated by Section 5 of this Series Resolution.

“Electronic Means” means the following communication methods: e-mail; facsimile transmission; secure electronic transmission containing applicable authorization codes; passwords and/or authentication keys; or another method or system specified by the Trustee as available for use in connection with its services as Trustee under this Series Resolution.

“Interest Payment Date” means July 1, 2018, and each January 1 and July 1 thereafter, to and including the final maturity date of the Series 2018 Bonds.

“MSRB” means the Municipal Securities Rulemaking Board.

“Regular Record Date” means the 15th day of the month preceding any Interest Payment Date, whether or not a Business Day.

“Securities Depository” means The Depository Trust Company, New York, New York, or other recognized securities depository selected by OWASA, which maintains a book-entry system in respect of the Series 2018 Bonds, and shall include any substitute for or successor to the securities depository initially acting as Securities Depository.

“Securities Depository Nominee” means, as to any Securities Depository, such Securities Depository or the nominee of such Securities Depository in whose name there shall be registered on the registration books maintained by the Bond Registrar the Series 2018 Bond certificates to be delivered to such Securities Depository or its custodian during the continuation with such Securities Depository of participation in its book-entry system.

“Series Certificate” shall have the meaning given to such term by Section 4 of this Series Resolution.

“Series 2018 Bonds” means OWASA’s Water and Sewer System Revenue Refunding Bonds, Series 2018.

“Series 2018 Subaccount of the Interest Account” means the subaccount created and so designated by Section 5 of this Series Resolution.

“Series 2018 Subaccount of the Principal Account” means the subaccount created and so designated by Section 5 of this Series Resolution.

“Series 2018 Subaccount of the Redemption Account” means the subaccount created and so designated by Section 5 of this Series Resolution.

“Series 2018 Subaccount of the Sinking Fund Account” means the subaccount created and so designated by Section 5 of this Series Resolution.

“Sinking Fund Requirement” means, with respect to the Series 2018 Bonds that are Term Bonds, if any, for any Bond Year, the principal amount fixed or computed for retirement by purchase or redemption on or prior to July 1 of the following Bond Year.

The Sinking Fund Requirements shall be initially the respective principal amounts set forth in the Series Certificate.

The aggregate amount of such Sinking Fund Requirements for the Term Bonds, together with the amount due upon the final maturity of such Term Bonds, shall be equal to the aggregate principal amount of the Term Bonds. The Sinking Fund Requirements for the Term Bonds shall begin in the Bond Year determined as provided in the Series Certificate and shall end with the Bond Year immediately preceding the maturity of such Term Bonds (such final installment being payable at maturity and not redeemed). Any principal amount of Term Bonds retired by operation of the Series 2018 Subaccount of the Sinking Fund Account by purchase in excess of the total amount of the Sinking Fund Requirement for such Term Bonds, to and including such July 1, shall be credited against and reduce the future Sinking Fund Requirements for such Term Bonds in such manner as shall be specified in an Officer’s Certificate filed with the Trustee pursuant to Section 6 of this Series Resolution.

On or before the 45th day next preceding any July 1 on which Term Bonds are to be retired pursuant to the Sinking Fund Requirement, OWASA may deliver to the Trustee for cancellation Term Bonds required to be redeemed on such July 1 in any aggregate principal amount desired and receive a credit against amounts required to be transferred from the Series 2018 Subaccount of the Sinking Fund Account on account of such Term Bonds in the amount of 100% of the

principal amount of any such Term Bonds so purchased. Any principal amount of Term Bonds purchased by the Trustee and cancelled in excess of the principal amount required to be redeemed on such July 1, shall be credited against and reduce the principal amount of future Sinking Fund Requirements in such manner as shall be specified in an Officer's Certificate in substantially the form of the Officer's Certificate filed with the Trustee pursuant to Section 6 of this Series Resolution.

It shall be the duty of the Trustee, on or before the 15th day of July in each Bond Year, to recompute, if necessary, the Sinking Fund Requirement for such Bond Year and all subsequent Bond Years for the Term Bonds Outstanding. The Sinking Fund Requirement for such Bond Year as so recomputed shall continue to be applicable during the balance of such Bond Year and no adjustment shall be made therein by reason of Term Bonds purchased or redeemed or called for redemption during such Bond Year.

If any Term Bonds are paid or redeemed by operation of the Series 2018 Subaccount of the Redemption Account, the Trustee shall reduce future Sinking Fund Requirements therefor in such manner as shall be specified in an Officer's Certificate in substantially the form of the Officer's Certificate filed with the Trustee pursuant to Section 6 of this Series Resolution.

Section 2. Authorization of the Series 2018 Bonds Pursuant to the Order. (A) Series 2018 Bonds. Pursuant to the Act and Section 2.08 of the Order, OWASA hereby authorizes the issuance of revenue refunding bonds of OWASA, designated "Orange Water and Sewer Authority Water and Sewer System Revenue Refunding Bonds, Series 2018" (the "Series 2018 Bonds") in an aggregate principal amount not exceeding \$21,000,000, for the purpose of providing funds, together with other available funds, to (1) refund all of the outstanding Series 2004B Bonds and (2) pay certain expenses incurred in connection with the sale and issuance of the Series 2018 Bonds. Each Series 2018 Bond shall be dated the date of its delivery.

(B) Bond Provisions. The Series 2018 Bonds may consist of Serial Bonds and Term Bonds, shall bear interest at the rates, and shall mature, subject to any optional and mandatory sinking fund redemption, in the amounts and on the dates, all as hereinafter provided.

(C) Details; Interest Payment Dates. The Series 2018 Bonds shall be numbered consecutively from 2018-1 upward, shall be in the denomination of five thousand dollars (\$5,000) and integral multiples thereof and shall be registered and exchangeable, and the transfer thereof may be registered, all in accordance with the provisions of the Order. Interest on the Series 2018 Bonds shall be payable semiannually on each January 1 and July 1, commencing on July 1, 2018, until the maturity thereof.

(D) Book-Entry. The Series 2018 Bonds shall be issued by means of a book-entry system with no physical distribution of bond certificates to be made except as hereinafter provided. One bond certificate with respect to each date on which the Series 2018 Bonds are stated to mature, in the aggregate principal amount of the Series 2018 Bonds stated to mature on such date and registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"), will be issued and required to be deposited with DTC or its custodian. The book-entry system will evidence ownership of the Series 2018 Bonds in the principal amount of \$5,000 or any multiple thereof, with transfers of ownership effected on the records of DTC and its

participants pursuant to rules and procedures established by DTC and its participants. The principal of and any redemption premium on each Series 2018 Bond and interest with respect thereto shall be payable to Cede & Co., or any other person appearing on the registration books maintained by the Bond Registrar, as the registered owner of such Series 2018 Bond or its registered assigns or legal representatives. Transfer of principal, interest and any redemption premium payments to participants of DTC will be the responsibility of DTC, and transfer of principal, interest and any redemption premium payments to beneficial owners of the Series 2018 Bonds by participants of DTC will be the responsibility of such participants and other nominees of such beneficial owners. OWASA, the Bond Registrar and the Trustee shall not be responsible or liable for such transfers of payments or for maintaining, supervising or reviewing records maintained by DTC, its participants or persons acting through such participants.

In the event that (a) DTC determines not to continue to act as Securities Depository for the Series 2018 Bonds or (b) OWASA determines that continuation of the book-entry system of evidence and transfer of ownership of the Series 2018 Bonds would adversely affect the interests of the beneficial owners of the Series 2018 Bonds, OWASA shall discontinue the book-entry system with DTC. If OWASA identifies another qualified Securities Depository to replace DTC, OWASA shall make arrangements with DTC and such other Securities Depository to effect such replacement and deliver replacement Series 2018 Bonds registered in the name of such other Securities Depository or its Securities Depository Nominee in exchange for the outstanding Series 2018 Bonds, and the references to DTC or Cede & Co. in this Series Resolution shall thereupon be deemed to mean such other Securities Depository or its Securities Depository Nominee. If OWASA fails to identify another qualified Securities Depository to replace DTC, OWASA shall deliver replacement Series 2018 Bonds in the form of fully registered certificates in the denomination of \$5,000 or any multiple thereof in exchange for the outstanding Series 2018 Bonds as required by DTC.

(E) Bond Registrar. The Bank of New York Mellon Trust Company, N.A. is hereby appointed Bond Registrar for the Series 2018 Bonds.

Section 3. Delegation and Standards. OWASA hereby delegates to the Chair, the Vice-Chair, the Executive Director or the Director of Finance and Customer Service of OWASA, subject to the limitations contained herein, the power to determine and carry out the following with respect to the Series 2018 Bonds:

(A) Principal Amount. To determine the aggregate principal amount of the Series 2018 Bonds, such principal amount, not to exceed \$21,000,000, to be sufficient for the purposes described in Section 2(A) of this Series Resolution;

(B) Interest Rates. To determine the interest rate or rates on the Series 2018 Bonds, no such rate to exceed five and one-half percent (5.50 %) per annum;

(C) Maturities and Maturity Amounts. To determine the maturities and maturity amounts of the Series 2018 Bonds, no such maturity to extend beyond July 1, 2029;

(D) Serial and Term Bonds. To determine which Series 2018 Bonds are Serial Bonds, if any, and which Series 2018 Bonds are Term Bonds, if any, and the Sinking Fund Requirements for any such Term Bonds;

(E) Redemption Provisions. To determine the optional redemption provisions (if any) for the Series 2018 Bonds; provided, however, that the redemption price shall not exceed 103% of the face amount of the Series 2018 Bonds to be redeemed;

(F) Date of Sale. To determine the date of the sale of the Series 2018 Bonds;

(G) Public Sale. To approve the sale of the Series 2018 Bonds in a public sale in accordance with the provisions of Section 16 of this Series Resolution; provided, however, that the true interest cost for the Series 2018 Bonds shall not exceed three and six-tenths percent (3.60%) per annum;

(H) Application of Proceeds. To determine the amount of proceeds of the Series 2018 Bonds to be transferred to the Bond Registrar and be applied to the redemption of the Series 2004B Bonds and the amount of proceeds of the Series 2018 Bonds to be deposited to the credit of the Costs of Issuance Account; and

(I) Other Provisions. To determine any other provisions deemed advisable and not in conflict with the provisions of this Series Resolution or the Order.

Section 4. Series Certificate. The Chair, the Vice-Chair, the Executive Director or the Director of Finance and Customer Service of OWASA shall execute a certificate or certificates (collectively, the “Series Certificate”) evidencing the determinations or other actions taken by him pursuant to the authority granted in this Series Resolution, and any such Series Certificate shall be conclusive evidence of the action taken.

Section 5. Establishment of Account and Subaccounts. The following accounts and subaccounts are hereby established:

(a) Series 2018 Subaccount of the Interest Account;

(b) Series 2018 Subaccount of the Principal Account;

(c) Series 2018 Subaccount of the Redemption Account;

(d) Series 2018 Subaccount of the Sinking Fund Account; and

(e) Orange Water and Sewer Authority Water and Sewer System Revenue Refunding Bonds, Series 2018 Costs of Issuance Account.

The account and subaccounts mentioned above shall be established with and held by the Trustee pursuant to the Order and this Series Resolution.

Section 6. Sinking Fund Redemption Provisions for the Series 2018 Bonds. The Series 2018 Bonds that are Term Bonds, if any, shall be subject to mandatory redemption in part on each July 1, as specified in the Series Certificate required by Section 4 of this Series Resolution.

Money held in the Series 2018 Subaccount of the Sinking Fund Account shall be applied during each Bond Year to the purchase or retirement of Term Bonds then Outstanding as follows:

(a) The Trustee shall, at the request of OWASA, endeavor to purchase and cancel Term Bonds or portions thereof subject to redemption by operation of the Series 2018 Subaccount of the Sinking Fund Account or maturing on the next ensuing July 1 at the most advantageous price obtainable with reasonable diligence. The purchase price of each such Term Bond shall not exceed par plus accrued interest to the date of purchase. The Trustee shall pay the interest accrued on such Term Bonds to the date of settlement therefor from the Series 2018 Subaccount of the Interest Account or other funds provided by OWASA and the balance of the purchase price from the Series 2018 Subaccount of the Sinking Fund Account, but no such purchase shall be made by the Trustee from money in the Series 2018 Subaccount of the Sinking Fund Account within the period of forty-five (45) days immediately preceding any July 1 on which such Term Bonds are subject to redemption. The aggregate purchase price of Term Bonds, exclusive of accrued interest, during such Bond Year shall not exceed the amount deposited in the Series 2018 Subaccount of the Sinking Fund Account on account of the Sinking Fund Requirement for the Term Bonds for such Bond Year. If in any Bond Year the sum of the amount on deposit in the Series 2018 Subaccount of the Sinking Fund Account for the payment of any Term Bonds and the principal amount of the Term Bonds that were purchased during such Bond Year pursuant to the provisions of this paragraph (a) or delivered during such Bond Year to the Trustee by OWASA exceeds the Sinking Fund Requirement for the Outstanding Term Bonds for such Bond Year, the Trustee shall endeavor to purchase Outstanding Term Bonds with such excess money; and

(b) The Trustee shall call for redemption on July 1 immediately following the then current Bond Year the Term Bonds then subject to redemption in a principal amount equal to the aggregate Sinking Fund Requirement for the Term Bonds for such Bond Year, less the principal amount of any such Term Bonds retired during such Bond Year by purchase pursuant to paragraph (a) of this Section or delivered during such Bond Year to the Trustee by OWASA. If such July 1 is the stated maturity date of any such Term Bonds, the Trustee shall not call such Term Bonds for redemption but, on such maturity date, shall withdraw from the Sinking Fund Account and, not later than 10:00 A.M. on such date, remit by wire transfer to the Bond Registrar, in Federal Reserve or other immediately available funds, the amount required for paying the principal of such Term Bonds when due and payable. Not later than 10:00 A.M. on each such redemption date, the Trustee shall withdraw from the Series 2018 Subaccount of the Sinking Fund Account and remit by wire transfer to the Bond Registrar, in Federal Reserve or other immediately available funds, the respective amounts required for paying the Redemption Price of the Term Bonds or portions thereof so called for redemption.

If, in any Bond Year, by the application of money in the Series 2018 Subaccount of the Sinking Fund Account, the Trustee should purchase or receive from OWASA and cancel Term Bonds in excess of the aggregate Sinking Fund Requirement for such Bond Year, the Trustee shall file with OWASA not later than the twentieth (20th) day prior to the next July 1 on which Term Bonds are to be redeemed, a statement identifying the Term Bonds purchased or delivered during



such Bond Year and the amount of such excess. OWASA shall thereafter cause an Officer's Certificate to be filed with the Trustee not later than the tenth (10th) day prior to such July 1, setting forth with respect to the amount of such excess the Bond Years in which the Sinking Fund Requirements with respect to Term Bonds are to be reduced and the amount by which the Sinking Fund Requirements so determined are to be reduced.

Upon the retirement of any Term Bonds by purchase or redemption pursuant to the provisions of this Section, the Trustee shall file with OWASA a statement identifying such Term Bonds and setting forth the date of purchase or redemption, the amount of the purchase price or the Redemption Price of such Term Bonds, and the amount paid as interest thereon. The expenses incurred in connection with the purchase or redemption of any such Term Bonds shall be paid by OWASA as Current Expenses or from any other available moneys.

Section 7. Selection of Series 2018 Bonds for Redemption. The Series 2018 Bonds shall be redeemed only in whole multiples of five thousand dollars (\$5,000). If less than all of the Series 2018 Bonds are to be called for redemption, the Series 2018 Bonds to be so redeemed shall be called for redemption in the manner that OWASA shall determine as set forth in an Officer's Certificate filed with the Trustee.

If less than all of the Series 2018 Bonds of any one maturity are called for redemption, the Bond Registrar shall select the Series 2018 Bonds to be redeemed by lot, each five thousand dollar (\$5,000) portion of principal being counted as one Series 2018 Bond for this purpose; provided, however, that so long as the only registered owner of the Series 2018 Bonds is a Securities Depository Nominee, such selection shall be made by the Securities Depository.

Section 8. Redemption Notice. Not less than thirty (30) days but not more than sixty (60) days prior to the redemption date of any Series 2018 Bonds to be redeemed, whether such redemption be in whole or in part, the Bond Registrar shall cause a notice of any such redemption signed by the Bond Registrar to be mailed, first class, postage prepaid, to all Owners of Series 2018 Bonds to be redeemed in whole or in part, provided that notice to any Securities Depository shall be sent by Electronic Means if so required or requested by such Securities Depository and provided further that failure to give any such notice to any Owner or any defect in such notice shall not affect the validity of the proceedings for such redemption as to the Series 2018 Bonds of any other Owner to whom such notice has been properly given. Not less than thirty (30) days prior to the date of redemption, the Bond Registrar shall also give such notice of redemption to (A) the MSRB through its Electronic Municipal Market Access (EMMA) system, (B) at least one information service which disseminates redemption information by first class mail, postage prepaid, Electronic Means or overnight courier, and (C) the North Carolina Local Government Commission by first class mail, postage prepaid, but failure to give such notice or any defect therein shall not affect the validity of any proceedings for the redemption of any Series 2018 Bonds. Notwithstanding anything to the contrary herein, OWASA acknowledges and agrees that the Bond Registrar is not acting as the disclosure/dissemination agent for purposes of Rule 15c2-12 (as defined herein) in connection with any notice required to be posted with the MSRB via its Electronic Municipal Marketplace Access (EMMA) system.

Each such notice shall set forth the designation and date of the Series 2018 Bonds, the CUSIP numbers of the Series 2018 Bonds to be redeemed, the date fixed for redemption, the

Redemption Price to be paid, the address and phone number of the Trustee and Bond Registrar, the date of the redemption notice, the maturities of the Series 2018 Bonds to be redeemed and, if less than all of the Series 2018 Bonds of any one maturity then Outstanding shall be called for redemption, the distinctive numbers and letters, if any, of such Series 2018 Bonds to be redeemed and, in the case of Series 2018 Bonds to be redeemed in part only, the portion of the principal amount thereof to be redeemed. If any Series 2018 Bond is to be redeemed in part only, the notice of redemption shall also state also that on or after the redemption date, upon surrender of such Series 2018 Bond, a new Series 2018 Bond in principal amount equal to the unredeemed portion of such Series 2018 Bond will be issued.

Any notice of redemption (other than a notice given with respect to a mandatory sinking refund redemption) may state that the redemption to be effected is conditioned upon the receipt by the Trustee or Bond Registrar, on or prior to the redemption date, of moneys sufficient to pay the Redemption Price of and interest on the Series 2018 Bonds to be redeemed and that if such moneys are not so received such notice shall be of no force or effect and such Series 2018 Bonds shall not be required to be redeemed. In the event that such notice contains such a condition and moneys sufficient to pay the Redemption Price of and interest on such Series 2018 Bonds are not received by the Trustee or Bond Registrar on or prior to the redemption date, the redemption shall not be made and the Bond Registrar shall within a reasonable time thereafter give notice, in the manner in which the notice of redemption was given, that such moneys were not so received.

Section 9. Series 2018 Subaccount of the Redemption Account. The Trustee shall apply money in the Series 2018 Subaccount of the Redemption Account to the purchase or redemption of Series 2018 Bonds as follows:

(a) Subject to the provisions of paragraph (c) of this Section, the Trustee shall endeavor to purchase and cancel Series 2018 Bonds or portions thereof, regardless of whether such Series 2018 Bonds or portions thereof are then subject to redemption, at the most advantageous price obtainable with reasonable diligence, provided that the purchase price of each Series 2018 Bond shall not exceed the Redemption Price that would be payable on the next redemption date to the Owner of such Series 2018 Bond under the provisions of the Series Certificate. The Trustee shall pay the interest accrued on such Series 2018 Bonds or portions thereof to the date of settlement from the Series 2018 Subaccount of the Interest Account or other funds provided by OWASA and the balance of the purchase price from the Series 2018 Subaccount of the Redemption Account, but no such purchase shall be made by the Trustee from money in the Series 2018 Subaccount of the Redemption Account within the period of forty-five (45) days immediately preceding any date on which such Series 2018 Bonds or portions thereof are to be redeemed.

(b) Subject to the provisions of paragraph (c) of this Section, the Trustee shall call for redemption on a date permitted by this Series Resolution and the Series Certificate such amount of Series 2018 Bonds or portions thereof as, with the redemption premium, if any, will exhaust the money then held in the Series 2018 Subaccount of the Redemption Account as nearly as may be practicable; provided, however, that not less than Fifty Thousand Dollars (\$50,000) in principal amount of the Series 2018 Bonds shall be called for redemption at any one time unless the Trustee is so instructed by OWASA. The Trustee shall pay the accrued interest on the Series 2018 Bonds or portions thereof to be redeemed to the date of redemption from the Series 2018 Subaccount of the Interest Account or other funds provided by OWASA and the Redemption Price of such Series

2018 Bonds or portions thereof from the Series 2018 Subaccount of the Redemption Account. The Trustee shall withdraw from the Series 2018 Subaccount of the Redemption Account and set aside the amount required to pay the Redemption Price of the Series 2018 Bonds or portions thereof so called for redemption.

(c) Money in the Series 2018 Subaccount of the Redemption Account shall be applied by the Trustee in each Fiscal Year to the purchase or the redemption of Series 2018 Bonds then Outstanding in accordance with the latest Officer’s Certificate filed with the Trustee designating the Series 2018 Bonds to be redeemed. In the event no such certificate is filed (i) the Trustee shall apply such money to the purchase of Series 2018 Bonds bearing the highest rate of interest, (ii) if Series 2018 Bonds of more than one maturity bear the same interest rate, the Trustee shall redeem such Series 2018 Bonds in the inverse order of maturities, and (iii) if the Series 2018 Bonds bearing the highest rate of interest are Term Bonds, the Trustee shall reduce the Sinking Fund Requirements for such Term Bonds in inverse order of the scheduled redemption of such Term Bonds.

Upon the retirement of any Series 2018 Bonds by purchase or redemption pursuant to the provisions of this Section, the Trustee shall file with OWASA a statement identifying such Series 2018 Bonds and setting forth the date of purchase or redemption, the amount of the purchase price or the Redemption Price of such Bonds and the amount paid as interest thereon. The expenses incurred by the Trustee in connection with the purchase or redemption of any such Series 2018 Bonds shall be paid by OWASA from the Revenue Account as Current Expenses or from any other available moneys.

Section 10. Form of Series 2018 Bond. The Series 2018 Bonds and the Certificate of the North Carolina Local Government Commission and the Certificate of Authentication to be endorsed on all the Series 2018 Bonds shall be substantially in the following forms, with such variations, omissions and insertions as are required or permitted by the Order or this Series Resolution:

[Form of Series 2018 Bond]

No. R2018-\_\_ \$ \_\_\_\_\_

United States of America  
State of North Carolina

ORANGE WATER AND SEWER AUTHORITY

Water and Sewer System Revenue Refunding Bond,  
Series 2018

<u>Maturity Date</u>	<u>Dated Date</u>	<u>Interest Rate</u>	<u>CUSIP</u>
July 1, 20__	_____, 2018	___%	_____
Principal Amount: _____ DOLLARS (\$_____)			

Registered Owner:

The Orange Water and Sewer Authority (the “Authority”), a public body and body politic and corporate of the State of North Carolina, is justly indebted and for value received hereby promises to pay, solely from the sources and in the manner hereinafter set forth, to the Registered Owner shown above or registered assigns or legal representative, on the maturity date specified above (or earlier as stated hereinafter), upon the presentation and surrender hereof at the corporate trust office of The Bank of New York Mellon Trust Company, N.A., in East Syracuse, New York, or any successor bond registrar (the “Bond Registrar”), the principal amount shown above, and to pay, solely from such sources, to the person in whose name this bond (or one or more Predecessor Bonds, as defined in the Order hereinafter mentioned) is registered at the close of business on the regular record date for such interest, which shall be the 15th day of the calendar month next preceding an interest payment date (the “Regular Record Date”), interest on this bond from the interest payment date next preceding the date on which it is authenticated, unless it is authenticated on an interest payment date, in which event it shall bear interest from such date, or it is authenticated prior to July 1, 2018, in which event it shall bear interest from its date, payable on July 1, 2018 and semiannually thereafter on January 1 and July 1 of each year, at the rate per annum specified above until the principal sum hereof is paid. Any such interest not so punctually paid shall forthwith cease to be payable to the person who was the registered owner on such Regular Record Date and may be paid to the person in whose name this bond (or one or more Predecessor Bonds) is registered at the close of business on a Special Record Date, as defined in the Order, for the payment of such defaulted interest to be fixed by the Trustee hereinafter mentioned, notice whereof being given to registered owners not more than fifteen (15) days and not less than ten (10) days prior to such Special Record Date, or may be paid in any other lawful manner not inconsistent with the requirements of applicable law or any securities exchange on which the bonds may be listed and upon such notice as may be required by such law or exchange, all as more fully provided in the Order. All such payments shall be made in the lawful money of the United States of America.

This bond is one of a duly authorized series of revenue refunding bonds of the Authority, designated “Orange Water and Sewer Authority Water and Sewer System Revenue Refunding Bonds, Series 2018” (the “Series 2018 Bonds”), and issued for the purpose of providing funds, together with any other available funds, to (i) refund all of the Authority’s outstanding Water and Sewer System Revenue Bonds, Series 2004B (the “Series 2004B Bonds”) and (ii) pay certain expenses incurred in connection with the sale and issuance of the Series 2018 Bonds.

The Series 2018 Bonds are being issued by means of a book-entry system with no physical distribution of bond certificates to be made except as provided in the Series Resolution. One Series 2018 Bond certificate with respect to each date on which the Series 2018 Bonds are stated to mature, registered in the name of the Securities Depository Nominee (as defined in the Series Resolution), is being issued and required to be deposited with the Securities Depository (as defined in the Series Resolution) or its custodian. The book-entry system will evidence positions held in the Series 2018 Bonds by the Securities Depository’s participants, beneficial ownership of the Series 2018 Bonds in the principal amount of \$5,000 or any integral multiple thereof being evidenced in the records of such participants. Transfers of ownership will be effected on the records of the Securities Depository and its participants pursuant to rules and procedures

established by the Securities Depository and its participants. The Authority, the Bond Registrar and the Trustee will recognize the Securities Depository Nominee, while the registered owner of this Series 2018 Bond, as the owner of this Series 2018 Bond for all purposes, including (i) payments of principal of, and redemption premium, if any, and interest on, this Series 2018 Bond, (ii) notices and (iii) voting. Transfer of principal, interest and any redemption premium payments to participants of the Securities Depository will be the responsibility of the Securities Depository, and transfer of principal, interest and any redemption premium payments to beneficial owners of the Series 2018 Bonds by participants of the Securities Depository will be the responsibility of such participants and other nominees of such beneficial owners. The Authority, the Bond Registrar and the Trustee will not be responsible or liable for such transfers of payments or for maintaining, supervising or reviewing the records maintained by the Securities Depository, the Securities Depository Nominee, the Securities Depository's participants or persons acting through such participants. While the Securities Depository Nominee is the registered owner of this Series 2018 Bond, notwithstanding the provisions hereinabove contained, payments of principal of, redemption premium, if any, and interest on this Series 2018 Bond shall be made in accordance with existing arrangements between the Bond Registrar or its successors under the Series Resolution and the Securities Depository.

The Series 2018 Bonds are being issued under and pursuant to the Constitution and laws of the State of North Carolina, including the North Carolina Water and Sewer Authorities Act, as amended, and The State and Local Government Revenue Bond Act, as amended (collectively, the "Act"), an amended and restated bond order duly adopted by the Authority on September 13, 2001, as amended by a supplemental order adopted by the Authority on October 28, 2010 (said amended and restated bond order, together with all orders supplemental and amendatory thereto as therein permitted, being herein called the "Order") and a series resolution duly adopted by the Authority on March 22, 2018 (the "Series Resolution"). The Authority has heretofore issued and secured under the Order, \$20,000,000 original aggregate principal amount of its Series 2004B Bonds, all of which are currently outstanding, \$21,645,000 original aggregate principal amount of its Water and Sewer System Revenue Refunding Bonds, Series 2010, which are currently outstanding in the principal amount of \$15,625,000 (the "Series 2010 Bonds"), \$15,695,000 original aggregate principal amount of its Water and Sewer System Revenue Refunding Bonds, Series 2014, which are currently outstanding in the principal amount of \$14,955,000 (the "Series 2014 Bonds"), and \$8,995,000 original aggregate principal amount of its Water and Sewer System Revenue Refunding Bonds, Series 2015, which are currently outstanding in the principal amount of \$6,470,000 (the "Series 2015 Bonds"). The Order provides for the issuance from time to time under the conditions, limitations and restrictions therein set forth of additional bonds to provide funds for paying all or any part of the cost of any Additional Project (as defined in the Order), to provide funds for completing payment of the cost of the Project (as defined in the Order) and any Additional Project, and to provide funds to pay the cost (including financing costs) of refunding any bonds issued under the Order, Parity Debt (as defined in the Order) or Subordinated Indebtedness (as defined in the Order) (such additional bonds, the Series 2018 Bonds, the Series 2015 Bonds, the Series 2014 Bonds and the Series 2010 Bonds being herein collectively called the "Bonds"). Copies of the Order and the Series Resolution are on file at the corporate trust office of The Bank of New York Mellon Trust Company, N.A. (the "Trustee") in Jacksonville, Florida. By the acceptance of this bond, the registered owner hereof assents to all of the provisions of the Order and the Series Resolution.

The Series 2018 Bonds are special obligations of the Authority secured by a pledge, charge and lien upon Net Receipts (as defined in the Order). The Authority is not obligated to pay the principal of or the interest on the Series 2018 Bonds except, as provided in the Order, from Net Receipts or certain other monies made available therefor under the Order, and neither the faith and credit nor the taxing power of the State of North Carolina or any political subdivision thereof or the Authority is pledged to the payment of the principal of and the interest on the Series 2018 Bonds. The Order provides for the issuance or incurrence from time to time under the conditions, limitations and restrictions therein set forth of Bonds and Parity Debt (as defined in the Order) secured on a parity as to the pledge of Net Receipts.

Reference is made to the Order and the Series Resolution for a more complete statement of the provisions thereof and of the rights of the Authority, the Trustee and the registered owners of the Series 2018 Bonds.

The Order provides for the creation of a special fund designated “Orange Water and Sewer Authority Water and Sewer System Revenue Bonds Bond Fund” (the “Bond Fund”). Pursuant to the Series Resolution, special subaccounts have been created within the various accounts of the Bond Fund with respect to the Series 2018 Bonds (the “Subaccounts”), which Subaccounts are pledged to and charged with the payment of the principal of and the interest on the Series 2018 Bonds. The Series Resolution also provides for the deposit of Net Receipts to the credit of the Subaccounts to the extent and in the manner provided in the Order and the Series Resolution.

The Series 2018 Bonds are issuable as registered bonds without coupons, in denominations of \$5,000 or any integral multiple thereof. At the designated corporate trust office of the Bond Registrar, in the manner and subject to the limitations and conditions provided in the Order, Series 2018 Bonds may be exchanged for an equal aggregate principal amount of Bonds of the same maturity, of authorized denominations and bearing interest at the same rate.

The transfer of this bond is registrable by the registered owner hereof in person or by his attorney or legal representative at the designated corporate trust office of the Bond Registrar but only in the manner and subject to the limitations and conditions provided in the Order and upon surrender and cancellation of this bond. Upon any such registration of transfer the Authority shall execute and the Bond Registrar shall authenticate and deliver in exchange for this bond a new Series 2018 Bond or Series 2018 Bonds, registered in the name of the transferee, of authorized denominations, in aggregate principal amount equal to the principal amount of this bond, of the same maturity and bearing interest at the same rate. The Authority or the Bond Registrar may make a charge for every such exchange or registration of transfer of Series 2018 Bonds sufficient to reimburse it for any tax or other governmental charge required to be paid with respect to such exchange or registration of transfer, but no other charge shall be made to any registered owner for the privilege of exchanging or registering the transfer of Series 2018 Bonds. Neither the Authority nor the Bond Registrar shall be required to make any such exchange or registration of transfer of Series 2018 Bonds during the fifteen (15) days immediately preceding the date of first giving of notice of any redemption of Series 2018 Bonds or any portion thereof or of any Series 2018 Bond after such Series 2018 Bond or any portion thereof has been selected for redemption.

The Series 2018 Bonds maturing on or after July 1, 20\_\_ are subject to redemption, at the option of the Authority, on or after July 1, 20\_\_, in whole or in part (by lot within a maturity) at

any time. Any such redemption will be at the redemption prices (expressed as a percentage of the principal amount of Series 2018 Bonds to be redeemed), plus accrued interest thereon to the redemption date, all as set forth in the following table:

<u>Redemption Periods</u>	<u>Redemption Prices</u>
July 1, 20__ through June 30, 20__	%
July 1, 20__ through June 30, 20__	
July 1, 20__ and thereafter	

The Series 2018 Bonds at the time outstanding that are stated to mature on July 1, 20\_\_ are required to be redeemed in part by lot on July 1, 20\_\_ and on each July 1 thereafter from moneys deposited with the Trustee for such purpose. Such redemption shall be at a redemption price equal to 100% of the principal amount of the Series 2018 Bonds to be redeemed, plus accrued interest thereon to the redemption date.

If less than all of the Series 2018 Bonds are to be called for redemption, the Series 2018 Bonds to be so redeemed shall be called for redemption in the manner that the Authority shall determine as set forth in an Officer's Certificate filed with the Trustee. If less than all of the Series 2018 Bonds of any one maturity are called for redemption, the Bond Registrar shall select the Series 2018 Bonds to be redeemed by lot, each \$5,000 portion of principal being counted as one Series 2018 Bond for this purpose; provided, however, that so long as the only registered owner of the Series 2018 Bonds is the Securities Depository Nominee, such selection shall be made by the Securities Depository.

Not less than thirty (30) days but not more than sixty (60) days prior to the redemption date of any Series 2018 Bonds, either in whole or in part, the Bond Registrar shall cause a notice of any such redemption, signed by the Bond Registrar, to be mailed, first-class, postage prepaid, to all registered owners of Series 2018 Bonds or portions of Series 2018 Bonds to be redeemed at their addresses as they appear on the registration books maintained by the Bond Registrar, but failure so to mail any such notice shall not affect the validity of the proceedings for such redemption as to any registered owners to whom such notice was given as so required. The Bond Registrar shall also cause a notice of any such redemption to be given to such other parties as provided in the Series Resolution. On the date designated for redemption, notice having been given as aforesaid, the Series 2018 Bonds or portions of Series 2018 Bonds so called for redemption shall become and be due and payable at the redemption price provided for the redemption of such Series 2018 Bonds or portions thereof on such date, and, if the moneys for payment of the redemption price and the accrued interest are held by the Bond Registrar, as provided in the Order, interest on such Series 2018 Bonds or portions thereof shall cease to accrue, such Series 2018 Bonds or portions thereof shall cease to be entitled to any benefit or security under the Order, and the registered owners thereof shall have no rights in respect of such Series 2018 Bonds or portions thereof except to receive payment of the redemption price thereof and the accrued interest so held by the Bond Registrar. If a portion of this bond shall be called for redemption, a new Series 2018 Bond or Series 2018 Bonds in principal amount equal to the unredeemed portion hereof will be issued to the registered owner upon surrender hereof.

With respect to any notice of redemption of Series 2018 Bonds (other than a notice given with respect to a mandatory sinking fund redemption), such notice may state that such redemption shall be conditional upon the receipt by the Trustee or the Bond Registrar, on or prior to the date fixed for such redemption, of moneys sufficient to pay the redemption price of and accrued interest on such Series 2018 Bonds to be redeemed, and that if such moneys shall not have been so received, said notice shall be of no force and effect and the Authority shall not be required to redeem such Series 2018 Bonds. In the event that such notice of redemption contains such a condition and such moneys are not so received, the redemption shall not be made and the Bond Registrar shall within a reasonable time thereafter give notice, in the manner in which the notice of redemption was given, that such moneys were not so received.

The registered owner of this bond shall have no rights to enforce the provisions of the Order or to institute action to enforce the covenants therein, or to take any action with respect to any event of default under the Order or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Order.

In certain events, on the conditions, in the manner and with the effect set forth in the Order, the principal of all the Bonds and Parity Debt then outstanding under the Order may become or may be declared due and payable before the stated maturities thereof, together with the interest accrued thereon.

Modifications or alterations of the Order may be made by the Authority only to the extent and in the circumstances permitted by the Order.

As declared by the Act, this bond, subject only to the provisions for registration and registration of transfer stated herein and contained in the Order, is an investment security within the meaning of and for all the purposes of Article 8 of the Uniform Commercial Code of the State of North Carolina.

This bond is issued with the intent that the laws of the State of North Carolina shall govern its construction.

All acts, conditions and things required by the Constitution and laws of the State of North Carolina, the Order and the Series Resolution to happen, exist and be performed precedent to and in the issuance of this bond have happened, exist and have been performed as so required.

This bond shall not be valid or become obligatory for any purpose or be entitled to any benefit or security under the Order until this bond shall have been authenticated by the execution by the Bond Registrar of the certificate of authentication endorsed hereon.

IN WITNESS WHEREOF, the Orange Water and Sewer Authority has caused this bond to be signed by its Chair and its Secretary-Treasurer and the corporate seal of the Authority to be impressed hereon, all as of the \_\_\_ day of \_\_\_\_\_, 2018.



[Seal]

ORANGE WATER AND SEWER AUTHORITY

By: \_\_\_\_\_  
Chair

By: \_\_\_\_\_  
Secretary-Treasurer

CERTIFICATE OF LOCAL GOVERNMENT COMMISSION

The issuance of the within bond has been approved under the provisions of The State and Local Government Revenue Bond Act of North Carolina.

\_\_\_\_\_  
Secretary, Local Government Commission of  
North Carolina

CERTIFICATE OF AUTHENTICATION

This bond is one of the Bonds of the series designated therein and issued under the provisions of the within-mentioned Order and Series Resolution.

THE BANK OF NEW YORK MELLON  
TRUST COMPANY, N.A., as Bond  
Registrar

By: \_\_\_\_\_  
Vice President

Date of authentication: \_\_\_\_\_

ASSIGNMENT

FOR VALUE RECEIVED the undersigned registered owner thereof hereby sells, assigns and transfers unto \_\_\_\_\_

\_\_\_\_\_

[Please Print or Typewrite Name and Address of Transferee]

the within Bond and all rights thereunder and hereby irrevocably constitutes and appoints \_\_\_\_\_ attorney to register the transfer of said Bond on the books kept for registration thereof, with full power of substitution in the premises

Dated: \_\_\_\_\_

NOTICE: The assignor's signature to this assignment must correspond with the name as it appears upon the face of the within Bond in every particular, without alteration or enlargement or any change whatever.

Signature Guaranteed:

\_\_\_\_\_  
NOTICE: Signature must be guaranteed by an institution which is a participant in the Securities Transfer Agent Medallion program (STAMP) or similar program.

Section 11. Costs of Issuance Account. On the Closing Date, there shall be deposited to the Costs of Issuance Account the amount specified in clause (ii) of Section 12 of this Series Resolution. Money shall be disbursed from the Costs of Issuance Account, upon requisition of OWASA, for the purpose of paying the costs of issuance of the Series 2018 Bonds and, pending such disbursement, shall be held solely for the security of the Owners of the Series 2018 Bonds. Any balance remaining on deposit to the credit of the Costs of Issuance Account after the payment of the costs of issuance of the Series 2018 Bonds, as certified to the Trustee by an Authorized Officer of OWASA, shall be applied to such use or uses as shall be set forth in a written statement delivered to the Trustee by OWASA accompanied by an opinion of bond counsel to OWASA addressed to the Trustee to the effect that the proposed use or uses will not cause the interest on the Series 2018 Bonds to be includable in the gross income of the owners thereof for purposes of federal income taxation. In the event OWASA does not deliver an opinion of bond counsel as required by the preceding sentence, the Trustee shall transfer the money in excess of the amount then needed for Costs of Issuance to the Series 2018 Subaccount of the Principal Account and/or the Series 2018 Subaccount of the Sinking Fund Account, as determined by OWASA.

Section 12. Application of Proceeds of the Series 2018 Bonds. On the Closing Date, the Trustee shall apply the proceeds of the Series 2018 Bonds as follows:

- (i) the amount specified in the Series Certificate shall be transferred to the Bond Registrar and be applied to the redemption of the Series 2004B Bonds on the Closing Date; and
- (ii) the balance of such proceeds shall be deposited to the credit of the Costs of Issuance Account.

Section 13. Application of Net Receipts. On or before the dates set forth below, OWASA shall, subject to the provisions of the Order, deposit or cause to be deposited, from Net Receipts held in the Revenue Account, with the Trustee the following amounts, and the Trustee shall apply

such amounts to the various subaccounts and account specified in this Series Resolution in the following order:

(a) into the Series 2018 Subaccount of the Interest Account, on the Business Day immediately preceding each Interest Payment Date, an amount equal to the interest payable on the Series 2018 Bonds on such Interest Payment Date;

(b) into the Series 2018 Subaccount of the Principal Account, on the Business Day immediately preceding each July 1, beginning in the year specified in the Series Certificate, an amount equal to the principal of all Series 2018 Bonds that are Serial Bonds, if any, due on such July 1; and

(c) into the Sinking Fund Account, on the Business Day immediately preceding each July 1, beginning in the year specified in the Series Certificate, the amount required to retire the Series 2018 Bonds that are Term Bonds, if any, to be called by mandatory redemption or to be paid at maturity on such July 1 in accordance with the Sinking Fund Requirement therefor.

In addition, the Trustee shall deposit to the credit of the Series 2018 Subaccount of the Redemption Account all amounts as shall be delivered to the Trustee by OWASA from time to time with instructions that such amounts be so deposited for the redemption of the Series 2018 Bonds.

Section 14. Investment of Money. Money held for the credit of the Costs of Issuance Account and the subaccounts established by this Series Resolution shall be continuously invested and reinvested by the Trustee at the written direction of an Authorized Officer in Investment Obligations to the extent practicable. Any such Investment Obligations shall mature not later than the respective dates when the money held for the credit of such accounts or subaccounts will be required for the purposes intended. No Investment Obligations in any such account or subaccount may mature beyond the latest maturity date of any Series 2018 Bonds Outstanding at the time such Investment Obligations are deposited.

Investment Obligations acquired with money in or credited to any account or subaccount established hereunder shall be deemed at all times to be part of such account or subaccount. Any loss realized upon the disposition or maturity of such Investment Obligations shall be charged against such account or subaccount. The interest accruing on any such Investment Obligations and any profit realized upon the disposition or maturity of such Investment Obligations shall be credited to such account or subaccounts as follows:

<u>Accounts or Subaccounts</u>	<u>Credited to</u>
Costs of Issuance Account	Costs of Issuance Account
All Subaccounts	Respective Subaccounts

Any such interest accruing and any such profit realized shall be transferred upon the receipt thereof by OWASA or the Trustee, as the case may be, pursuant to the provisions of the Order and this Series Resolution.

An Authorized Officer shall give to the Trustee written directions respecting the investment of any money required to be invested hereunder, subject, however, to the provisions of this Section, and the Trustee shall then invest such money as so directed. The Trustee may request in writing additional direction or authorization from the Authorized Officer with respect to the proposed investment of money. Upon receipt of such directions, the Trustee shall invest, subject to the provisions of this Section, such money in accordance with such directions. The Trustee shall not be liable to OWASA for any loss suffered by OWASA as a result of or in connection with any investment in Investment Obligations made by the Trustee in good faith as instructed by or approved by an Authorized Officer.

The Trustee shall sell at the best price obtainable or, acting in a commercially reasonable manner, reduce to cash a sufficient amount of such Investment Obligations whenever it is necessary to do so in order to provide money to make any payment from any such account or subaccount. The Trustee shall not be liable or responsible for any loss resulting from any such investment.

Whenever a transfer of money between two or more of the accounts or subaccounts is permitted or required, such transfer may be made as a whole or value determined at the time of such transfer in accordance with Article VI of the Order, provided that the Investment Obligations transferred are those in which money of the receiving account or subaccount could be invested at the date of such transfer.

The Trustee may conclusively rely upon the Authorized Officer's written instructions as to both the suitability and legality of all directed investments. The Trustee may make any and all such investments through its own investment department or that of its affiliates or subsidiaries, and may charge its ordinary and customary fees for such investments. In the absence of written investment instructions from the Authorized Officer, the Trustee shall not be responsible or liable for keeping the moneys held by it hereunder fully invested.

Although OWASA recognizes that it may obtain a broker confirmation or written statement containing comparable information at no additional cost, OWASA hereby agrees that broker confirmations of permitted investments are not required to be issued by the Trustee for each month in which a monthly statement is rendered by the Trustee.

Section 15. Approval of Official Statement. The Preliminary Official Statement, to be dated on or about April 3, 2018, relating to the Series 2018 Bonds (the "Preliminary Official Statement") is hereby approved. OWASA hereby authorizes the use and distribution of the Preliminary Official Statement in connection with the offer of the Series 2018 Bonds in accordance with applicable law. OWASA authorizes and consents to the preparation and distribution of a final Official Statement relating to the Series 2018 Bonds (the "Official Statement"), in substantially the form of the Preliminary Official Statement, together with such changes as are necessary to reflect the final terms of the Series 2018 Bonds. The Chair, the Vice-Chair or the Executive Director of OWASA is hereby authorized and directed to execute and deliver the Official Statement, in substantially the form of the Preliminary Official Statement, together with such changes, specifications, and deletions as the Chair, the Vice-Chair or the Executive Director of OWASA, with the advice of counsel, may deem necessary and appropriate; such execution and

delivery shall be conclusive evidence of the approval and authorization in all respects of the form and content thereof.

Section 16. LGC Requested to Award the Series 2018 Bonds. OWASA hereby requests that the Local Government Commission of North Carolina award the Series 2018 Bonds at public sale after advertisement and upon sealed and electronic bids, in the amount and at the interest rates fixed pursuant to this Series Resolution, to the bidder offering to purchase the Series 2018 Bonds at the lowest interest cost to OWASA, such cost to be determined in accordance with the true interest cost method, subject to the approval thereof by the Chair, the Vice-Chair or the Executive Director of OWASA.

Section 17. Continuing Disclosure. OWASA hereby undertakes, for the benefit of the beneficial owners of the Series 2018 Bonds, to provide:

(A) by not later than seven months from the end of each Fiscal Year, commencing with the Fiscal Year ending June 30, 2018, to the MSRB, audited financial statements of OWASA for such Fiscal Year, if available, prepared in accordance with Section 159-34 of the General Statutes of North Carolina, as it may be amended from time to time, or any successor statute, or, if such audited financial statements of OWASA are not available by seven months from the end of such Fiscal Year, unaudited financial statements of OWASA for such Fiscal Year to be replaced subsequently by audited financial statements of OWASA to be delivered within 15 days after such audited financial statements become available for distribution;

(B) by not later than seven months from the end of each Fiscal Year, commencing with the Fiscal Year ending June 30, 2018, to the MSRB, (i) the financial and statistical data as of a date not earlier than the end of the preceding Fiscal Year for the type of information included under the following headings and tables in Appendix A to the Official Statement relating to the Series 2018 Bonds to the extent such items are not included in the financial statements referred to in (A) above:

- (1) “Rates, Fees and Charges” (tables and other rate information therein, excluding tables showing comparative bills for surrounding municipalities and future rate increases);
- (2) “Customer Accounts” (tables therein); and
- (3) “Historical Operating Results” (table therein);

(C) in a timely manner, not in excess of ten business days after the occurrence of the event, to the MSRB, notice of any of the following events with respect to the Series 2018 Bonds:

- (1) principal and interest payment delinquencies;
- (2) non-payment related defaults, if material;
- (3) unscheduled draws on any debt service reserves reflecting financial difficulties;

- (4) unscheduled draws on any credit enhancements reflecting financial difficulties;
- (5) substitution of any credit or liquidity providers, or their failure to perform;
- (6) adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the Series 2018 Bonds, or other material events affecting the tax status of the Series 2018 Bonds;
- (7) modification to the rights of the beneficial owners of the Series 2018 Bonds, if material;
- (8) bond calls, other than bond calls relating to any mandatory sinking fund redemptions, if material, and tender offers;
- (9) defeasances;
- (10) release, substitution or sale of any property securing repayment of the Series 2018 Bonds, if material;
- (11) rating changes;
- (12) bankruptcy, insolvency, receivership or similar event of OWASA, which shall be considered to occur when any of the following occur: the appointment of a receiver, fiscal agent or similar officer for OWASA in a proceeding under Title 11 of the United States Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of OWASA, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of OWASA;
- (13) the consummation of a merger, consolidation, or acquisition involving OWASA or the sale of all or substantially all of the assets of OWASA, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; and
- (14) appointment of a successor or additional Trustee or the change of name of a Trustee, if material; and

(D) in a timely manner, to the MSRB, notice of a failure of OWASA to provide required annual financial information described in (A) or (B) above on or before the date specified.

OWASA shall provide the documents referred to above to the MSRB in an electronic format as prescribed by the MSRB and accompanied by identifying information as prescribed by the MSRB.

OWASA may discharge its undertaking described above by transmitting the documents referred to above to any entity and any method authorized by the U.S. Securities Exchange Commission.

If OWASA fails to comply with the undertaking described above, the Trustee or any beneficial owner of the Series 2018 Bonds then Outstanding may take action to protect and enforce the rights of beneficial owners with respect to such undertaking, including an action for specific performance; provided, however, that OWASA's failure to comply with the undertaking will not constitute an event of default under the Bond Order and will not result in any acceleration of payment of the Series 2018 Bonds. All actions shall be instituted, had and maintained in the manner provided in this paragraph for the benefit of the beneficial owners of the Series 2018 Bonds.

OWASA reserves the right to modify from time to time the information to be provided to the extent necessary or appropriate in the judgment of OWASA, provided that:

(a) any such modification may only be made in connection with a change in circumstances that arises from a change in legal requirements, change in law, or change in the identity, nature, or status of OWASA; and

(b) the information to be provided, as modified, would have complied with the requirements of Rule 15c2-12 issued under the Securities Exchange Act of 1934, as amended ("Rule 15c2-12") as of the date of the Official Statement, after taking into account any amendments or interpretations of Rule 15c2-12, as well as any changes in circumstances; and

(c) any such modification does not materially impair the interests of the beneficial owners, as determined either by parties unaffiliated with OWASA (such as bond counsel or the Trustee), or by approving vote of the registered owners of not less than fifty-one percent (51%) in aggregate principal amount of the Series 2018 Bonds then Outstanding pursuant to the terms of the Order, as it may be amended from time to time.

OWASA also agrees that the annual financial information containing the amended operating data or financial information will explain, in narrative form, the reasons for the amendments and the impact of the change in the type of operating data or financial information being provided.

The provisions of this Section shall terminate upon payment, or provision having been made for payment in a manner consistent with Rule 15c2-12, in full of the principal of and interest on all of the Series 2018 Bonds.

Section 18. Authorization to OWASA Officials. The officers, agents and employees of OWASA and the officers and agents of the Trustee and the Bond Registrar are hereby authorized and directed to do all acts and things required of them by the provisions of the Series 2018 Bonds,

the Order, this Series Resolution and any other related documents or agreements for the full, punctual and complete performance of the terms, covenants, provisions and agreements therein.

Section 19. Exclusion From Gross Income Covenant. OWASA covenants that it will not take any action which will, or fail to take any action which failure will, cause interest on the Series 2018 Bonds to become includable in the gross income of the owners thereof for federal income tax purposes pursuant to the provisions of the Internal Revenue Code of 1986, as amended.

Section 20. Electronic Communications. The Trustee shall have the right to accept and act upon directions given pursuant to this Series Resolution and delivered using Electronic Means. If OWASA elects to give the Trustee directions using Electronic Means and the Trustee in its discretion elects to act upon such directions, the Trustee's understanding of such directions shall be deemed controlling. OWASA understands and agrees that the Trustee cannot determine the identity of the actual sender of such directions and that the Trustee shall conclusively presume that directions that purport to have been sent by an Authorized Officer have actually been sent by such Authorized Officer. OWASA shall be responsible for ensuring that only Authorized Officers transmit such directions to the Trustee and that all Authorized Officers treat applicable user and authorization codes, passwords and/or authentication keys as confidential and with appropriate care. The Trustee shall not be liable for any losses, costs or expenses arising directly or indirectly from the Trustee's reliance upon and compliance with such directions notwithstanding such directions conflict or are inconsistent with a subsequent written direction. OWASA agrees: (i) to assume all risks arising out of the use of Electronic Means to submit directions to the Trustee, including without limitation the risk of the Trustee acting on unauthorized directions and the risk of interception and misuse by third parties; (ii) that it is fully informed of the protections and risks associated with the various methods of transmitting directions to the Trustee and that there may be more secure methods of transmitting directions; (iii) that the security procedures (if any) to be followed in connection with its transmission of directions provide to it a commercially reasonable degree of protection in light of its particular needs and circumstances; and (iv) to notify the Trustee immediately upon learning of any compromised or unauthorized use of the security procedures.

Section 21. Effective Date. This Series Resolution shall take effect immediately upon its adoption. Notwithstanding the foregoing, if the Chair, the Vice-Chair, the Executive Director or the Director of Finance and Customer Service of OWASA shall determine that no Series 2018 Bonds shall be Term Bonds, as specified in the Series Certificate required by Section 4 of this Series Resolution, the terms and provisions of this Series Resolution with respect to Term Bonds and the mandatory redemption of Term Bonds pursuant to the Sinking Fund Requirements therefor shall be of no further force and effect.



Adopted this 22nd day of March, 2018.

---

Robert Morgan  
Chair

ATTEST:

---

Yinka Ayankoya  
Secretary