ORANGE WATER AND SEWER AUTHORITY

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

Agenda
Work Session of the OWASA Board of Directors
Thursday, November 9, 2017, 6:00 P.M.
OWASA Community Room

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

For items on the agenda, 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.

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

Announcements

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

b. Announcements by Board Members
   - Human Resources Committee will meet on Thursday, November 16, 2017 at 5:30 p.m. in the OWASA Boardroom to Continue Discussion on Employee Compensation and Benefits (Barbara Foushee)
   - Natural Resources and Technical Services Committee will meet on Tuesday, December 5, 2017, at 4:30 p.m., in OWASA's Boardroom to Discuss Biogas-to-Energy and Drought Planning and Response (Heather Payne)

c. Announcements by Staff
   - Introduce Allison Reinert, OWASA's new Utilities Engineer (Vishnu Gangadharan)
   - Update on the November 4, 2017 Open House at OWASA's Jones Ferry Road Campus (Ed Kerwin)

Discussion and Action

1. Position Reclassification for a New Safety and Risk Manager Position (Stephanie Glasgow)

Information and Reports

2. Financial Report for the Three Month Period Ended September 30, 2017 (Stephen Winters)

Discussion

3. Annual Review and Update of Strategic Trends and Utility Planning Issues and Strategic Plan Progress Report (Ruth Rouse/Ed Kerwin)
4. Discuss Revisions to Maternity/Paternity Leave (Stephanie Glasgow)
5. Discuss Financial Reserves Policy (Stephen Winters)

6. Review Board Work Schedule (Robert Morgan/Ed Kerwin)
    a. Request(s) by Board Committees, Board Members and Staff
    b. December 14, 2017 Work Session
    c. January 11, 2018 Work Session
    d. 12 Month Board Meeting Schedule
    e. Pending Key Staff Action Items

Summary of Work Session Items

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

Closed Session

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

Agenda Item 1:

Position Reclassification for a New Safety and Risk Manager Position

Purpose:

To obtain Board approval to amend the Schedule of Employee Classification and Authorized Compensation to reclassify the vacant Accounting Technician I position to the position of Safety and Risk Manager.

Background:

Over the past year, three long-term employees in the Finance Department retired. As a result, Jose Durant was hired to fill one of the vacant Accounting Technician positions, Kelly Satterfield, CPA was promoted into the Finance and Procurement Manager position, and Gloria Gladney was hired to fill the Financial Analyst position vacated when Kelly was promoted. The remaining Accounting Technician position remains vacant.

The change in Finance Department personnel provided the opportunity to make improvements to the assignment of responsibilities and more efficient processes among the Finance and Human Resources Departments.

We also determined that rather than fill the vacant Accounting Technician position, OWASA would be better-served by reclassifying this position to Safety and Risk Manager in our Human Resources Department. This new position will be directly responsible for the overall management and administration of OWASA's safety and risk management program. Having a designated full time professional will enhance our safety initiatives and allow existing Human Resources staff to allocate more time to our diversity and inclusion program, compensation and benefits strategies, and recruitment and retention.

Staff's proposal was reviewed and supported by the Human Resource Committee on October 18, 2017.

Information:

New Safety and Risk Manager

Safety and Risk Manager tasks include:

- Responsibility for the overall management and administration of OWASA's safety and risk management program.
- Provides leadership and accountability throughout the organization that safety is OWASA's number one priority.
- Plan, coordinate and/or conduct safety training sessions for employees.

November 9, 2017

- Conduct risk assessments, physical job site audits and prepare mitigation techniques for all facilities, locations and temporary job sites.
- Conduct investigations for personal and vehicle accidents.
- Manage, schedule, and maintain compliance regarding workers compensation.
- Manage, schedule and maintain compliance with DOT physicals, Safety Sensitive Physicals, drug and alcohol tests, hearing tests and inoculations, etc.
- Prepare, audit and update safety policies and manuals to include DOT regulations, confined space, lock out/tag out, respiratory protection, excavation and other pertinent programs.
- Develop and implement emergency preparedness and crisis response planning to include drills.
- Conduct Employee Safety Committee and Senior Safety Committee meetings, After Action Reviews and the annual Employee Safety Meeting.

Per our Pay Administration Guidelines, we applied our Job Evaluation procedure which assigns a salary range utilizing a *point factor evaluation* methodology. In addition to the internal evaluation, we did an external evaluation by surveying other entities. The responses are shown below.

Entity	**Position Title**	**Salary Range**
Town of Hillsborough	Safety and Risk Manager	$52,543 - $84,069
City of Whiteville	Safety and Risk Management Officer	$47,189 - $68,620
Alamance County Government	Safety Coordinator	$44,578 - $71,321
Town of Boone	Safety and Risk Manager	$47,746 - $71,619
City of Goldsboro	Safety Coordinator	$47,699 - $75,364
Orange County	Safety and Risk Manager	$53,764 - $88,099
Chapel Hill	Occupational Health and Safety Officer	$47,117 - $76,329
Town of Wake Forest	Safety and Risk Management Manager	$52,678 - $84,180

Recommendation:

The Human Resources Committee and staff recommend amending the Schedule of Employee Classification and Authorized Compensation to reclassify the vacant Accounting Technician I position (Salary Grade 610, $33,957 - $52,295) to the newly created Safety and Risk Manager position (Salary Grade 619, $58,417 - $89,961).

Safety and Risk Manager

FLSA Status: Exempt
Pay Grade 619: $58,417 - $89,961

BRIEF DESCRIPTION:

Is directly responsible for the overall management and administration of OWASA's safety and risk management program. Provides leadership and accountability throughout the organization that safety is OWASA's number one priority. Performs professional work developing and administering various safety and risk management programs to include compliance with local, state and federal regulations. Work includes managing worker's compensation programs, drug and alcohol testing, DOT and safety sensitive physical examination procedures, hazard assessment audits, personal and vehicle accident investigations. Provides risk prevention audits and provides regular performance feedback. Oversee inspections performed by outside agencies. Conducts and administers safety training in all aspects of OWASA's operation. Examines, designs and implements alternative risk management and mitigation techniques, strategies and measures. Serves as leader for the Employee Safety Committee (ESC) and Senior Safety Committee (SSC) and provides direction and advice to staff on various safety topics. Coordinates with internal and external partners to develop and implement emergency response, crisis management preparedness and disaster recovery planning. Directs and participates in the development of new programs, initiatives and incentives to improve workplace safety. Develops and analyzes comprehensive reports related to the safety and risk management programs. Work is generally performed in an office environment with some time spent at facilities and in the field. Fieldwork may require visiting a variety of locations and exposure to seasonal weather conditions, noisy and hazardous traffic situations, moving equipment, chemicals, etc.

ESSENTIAL FUNCTIONS:

Note: This information is intended to be descriptive of the key responsibilities of the position. The list of essential functions below does not identify all duties performed by any single incumbent in this position. Additionally, please be aware of the legend below when referring to the physical demands of each essential function.

(S) Sedentary	(L) Light	(M) Medium	(H) Heavy	(V) Very Heavy
Exerting up to 10 lbs. occasionally or negligible weights frequently; sitting most of the time.	Exerting up to 20 lbs. occasionally; 10 lbs. frequently; or negligible amounts constantly; OR requires walking or standing to a significant degree.	Exerting 20-50 lbs. occasionally; 10-25 lbs. frequently; or up to 10 lbs. constantly.	Exerting 50-100 lbs. occasionally; 10-25 lbs. frequently; or up to 10-20 lbs. constantly.	Exerting over 100 lbs. occasionally; 50-100 lbs. frequently; or up to 20-50 lbs. constantly.

#	Code	Essential Functions	% of Time
1	L	Schedule, maintain and review reports regarding workers compensation, employee physicals, drug and alcohol tests, hearing tests and inoculations, etc.	15
2	S	Conduct research in order to review, prepare, audit and update safety policies and manuals to maintain compliance with local, state and federal regulations.	15
3	M	Plan, coordinate and/or conduct training sessions for employees.	20
4	L	Conduct risk assessments, physical job site audits and prepare mitigation techniques for all locations and facilities and conduct accident investigations	20
	S	Assist in the development and implementation of emergency preparedness and crisis response planning to include drills.	15
5	L	Conduct ESC and SSC meetings to include agenda, meeting minutes and follow up on action items. Conduct After Action Reviews for organizational incidents. Organize and implement annual safety meeting for all employees	15

JOB REQUIREMENTS:

-Description of Minimum Job Requirements-	
Formal Education	Work requires broad knowledge in a general professional or technical field. Knowledge is normally acquired through four years of college resulting in a Bachelors Degree or equivalent.
Experience	Over three years up to and including five years.
Supervision	Work requires functioning as a lead worker performing essentially the same work as those directed, and includes overseeing work quality, training, instructing, and scheduling work.
Human Collaboration Skills	Interactions result in decisions regarding implementation of policies may be made. Contact may involve support of controversial positions or the negotiation of sensitive issues or important presentations. Contacts may involve stressful, negative interactions with the public requiring high levels of tact and the ability to respond to aggressive interpersonal interactions.
Freedom to Act	Receives Limited Direction: The employee normally performs the duty assignment according to his or her own judgement, requesting supervisory assistance only when necessary. Special projects are managed with little oversight and assignments may be reviewed upon completion. Performance reviewed periodically.
Technical Skills	Skilled: Work requires a comprehensive, practical knowledge of a technical field with use of analytical judgment and decision-making abilities appropriate to the work environment of the organization. Considerable knowledge of farm management, agriculture and soils science is essential.
Fiscal Responsibility	This job title does research for documents, compiles data for computer entry and/or enters or oversees data entry. Has responsibility for monitoring fiscal expeditures for a work unit of less than a department size (programs, activities, projects or small organizational units) or responsible for fiscal management of capital projects.
Working Conditions	Occasional exposure to unpleasant environmental conditions and/or hazards. Occasional outside work.
Reading	Intermediate - Ability to read papers, periodicals, journals, manuals, dictionaries, thesauruses, and encyclopedias. Ordinarily, such education is obtained in high school up to college. However, it may be obtained from experience and self-study.
Math	Advanced - Ability to apply fundamental concepts of theories, work with advanced mathematical operations methods, and functions of real and complex variables. Ordinarily, such education is obtained in at the college level or above. However, it may be obtained from experience and self-study.
Writing	Basic - Ability to write simple sentences containing subject, verb, and object, and/or series of numbers, names, and addresses. Ordinarily, such education is obtained in elementary school up to high school. However, it

	may be obtained from experience and self-study.
Certification & Other Requirements	Required: NC Driver's License Preferred: Advanced Safety Certificate (ASC), Certified Safety Professional (CSP), Manager of Environmental Safety and Health Certificate (MESH)

OVERALL PHYSICAL STRENGTH DEMANDS:

-Physical strength for this position is indicated below with "X"-				
Sedentary	Light **X**	Medium	Heavy	Very Heavy
Exerting up to 10 lbs. occasionally or negligible weights frequently; sitting most of the time.	Exerting up to 20 lbs. occasionally, 10 lbs. frequently, or negligible amounts constantly OR requires walking or standing to a significant degree.	Exerting 20-50 lbs. occasionally, 10-25 lbs. frequently, or up to 10 lbs. constantly.	Exerting 50-100 lbs. occasionally, 10-25 lbs. frequently, or up to 10-20 lbs. constantly.	Exerting over 100 lbs. occasionally, 50-100 lbs. frequently, or up to 20-50 lbs. constantly.

PHYSICAL DEMANDS:

C	F	O	R	N
Constantly	Frequently	Occasionally	Rarely	Never
2/3 or more of the time.	From 1/3 to 2/3 of the time.	Up to 1/3 of the time.	Less than 1 hour per week.	Never occurs.

Note: This is intended as a description of the way the job is currently performed. It does not address the potential for accommodation.

-Physical Demand-	-Frequency-	-Brief Description-
Standing	F	communicating with co-workers, observing work duties, observing work site
Sitting	F	driving
Walking	F	around work site, to other departments/offices/office equipment
Lifting	F	equipment, supplies
Carrying	O	equipment, supplies
Pushing/Pulling	F	equipment, hose
Reaching	F	for supplies
Handling	F	paperwork
Fine Dexterity	F	calculator, computer keyboard
Kneeling	R	
Crouching	R	
Crawling	O	under equipment
Bending	R	
Twisting	F	getting inside vehicle
Climbing	R	onto equipment
Balancing	R	on equipment
Vision	C	computer screen, driving, observing work site, reading
Hearing	C	communicating with co-workers and public and on telephone, listening to equipment
Talking	C	communicating with co-workers and public and on telephone
Foot Controls	R	driving, operating heavy equipment
Other (specified if applicable)		

MACHINES, TOOLS, EQUIPMENT, SOFTWARE, AND HARDWARE:

ENVIRONMENTAL FACTORS:

C	F	O	R	N
Continuously	Frequently	Occasionally	Rarely	Never

D	W	M	S	N
Daily	Several Times Per Week	Several Times Per Month	Seasonally	Never

-Health and Safety Factors-	
Mechanical Hazards	R
Chemical Hazards	R
Electrical Hazards	R
Fire Hazards	R
Explosives	R
Communicable Diseases	R
Physical Danger or Abuse	R
Other	

-Environmental Factors-	
Respiratory Hazards	S
Extreme Temperatures	S
Noise and Vibration	S
Wetness/Humidity	S
Physical Hazards	S

PROTECTIVE EQUIPMENT REQUIRED:

Hearing, Eye, Foot protection, Air Monitor, Fall protection, etc.

NON-PHYSICAL DEMANDS:

F	O	R	N
Frequently	Occasionally	Rarely	Never
From 1/3 to 2/3 of the time	Up to 1/3 of the time	Less than 1 hour per week	Never occurs

-Description of Non-Physical Demands-	-Frequency-
Time Pressure	F
Emergency Situation	R
Frequent Change of Tasks	O
Irregular Work Schedule/Overtime	O
Performing Multiple Tasks Simultaneously	O
Working Closely with Others as Part of a Team	F
Tedious or Exacting Work	O
Noisy/Distracting Environment	O
Other (see 2 below)	

PRIMARY WORK LOCATION:

Office Environment	X	Vehicle	X
Warehouse		Outdoors	X
Shop		Other (see 3 below)	
Recreation/Neighborhood Center			

RESOLUTION TO AMEND THE SCHEDULE OF EMPLOYEE CLASSIFICATION AND AUTHORIZED COMPENSATION TO RECLASSIFY AN ACCOUNTING TECHNICIAN I POSITION TO A SAFETY AND RISK MANAGER POSITION

WHEREAS, the Executive Director has reviewed the duties, functions and responsibilities for the Finance and Human Resources department; and

WHEREAS, the Executive Director has determined that OWASA would be better served by reclassifying the Accounting Technician I (Grade 610) position to a Safety and Risk Manager (Grade 619) position.

NOW THEREFORE, BE IT RESOLVED:

1. That the Accounting Technician I (Grade 610) position is hereby reclassified to a Safety and Risk Manager (Grade 619) position, and that the Plan for Classification and Authorized Compensation shall be amended to reflect this change effective upon adoption of this Resolution.

Adopted this 9th day of November 2017.

_____
Robert Morgan, Chair

ATTEST:

_____
Yinka Ayankoya, Secretary

Agenda Item 2:

Financial Report for the three month period ended September 30, 2017

Purpose:

The financial report for the three month period ended September 30, 2017 is presented to inform the Board of Directors of OWASA's financial position and financial performance in relation to budget.

Contents:

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

Fiscal Performance:

- As shown on page 10 of the financial report, all financial performance measurement targets were met for the period.
- Average drinking water sales for the period was 6.43 million gallons per day (MGD), 6.73 was projected. Combined drinking and reclaimed water sales for the period averaged 7.62 MGD versus a projection of 8.07.
- Total Operating Revenue was 2.7% or about $276,000 under budget.
- Revenue from new system connections was about equal to budget.
- Total Operating Expenses for the period were 9.2% or about $491,000 under budget.
    - General and Administrative expenses were under budget by about $266,000 due primarily to not incurring consulting fees when expected and vacancies in the Engineering and Planning and Finance departments.
    - The Water Supply and Treatment department was under budget by about $33,000 primarily due to lower than expected maintenance costs.
    - Water Distribution expenses were under budget by about $33,000 due primarily to position vacancies.
    - Wastewater Treatment expenses were under budget by about $117,000. Maintenance costs were about $36,000 less than projected for the period. Position vacancies also contributed.
    - Wastewater Collection expenses were under budget by about $43,000. Personnel and energy costs were lower than budgeted.
- Net Income less Debt Service for the period was approximately $211,000 or 5.8% more than budget.

- Capital Improvements Program (CIP) expenses of $2.6 million included significant construction activity on the Hillsborough Street Water Main Replacement, Rogerson Drive Force Main Rehabilitation, and Gravity Sewer Rehabilitation projects. Other notable projects in construction included Water Treatment Plant Filter Media and Backwash Improvements, Eastowne, Eubanks, Meadowmont 1 Pump Station Rehabilitation, Rogerson Drive Pump Station Rehabilitation (Phase 1), and Water Treatment Plant Fluoride System Improvements. In addition, construction on the Historic Rogers Road Area Sewer Extension project began in September; staff is providing project management services for this $4.7 million construction project which is being funded by Orange County.

  At the close of the first quarter, we are projecting to spend $15.9 million in FY 2018 for the CIP, equating to about 105% of budget. In addition to the projects referenced above, the projection accounts for significant construction expenses on Little Creek Interceptor Replacement, Brandywine Road Water Main Replacement, Administration Building HVAC Improvements, Advanced Meter Infrastructure System implementation, as well as reimbursement to UNC for construction of the Kenan Stadium Interceptor Replacement.

  Staff expects to present several construction contracts for Board approval over the next two quarters, including Rogerson Drive Pump Station Rehabilitation (Phase 2), Galvanized Water Main Replacement, and Wastewater Treatment Plant Intermediate Pump Station Rehabilitation.

Information:

- Financial Report for the three month period ended September 30, 2017

Orange Water and Sewer Authority

Financial Report
For the Three Month Period Ended
September 30, 2017

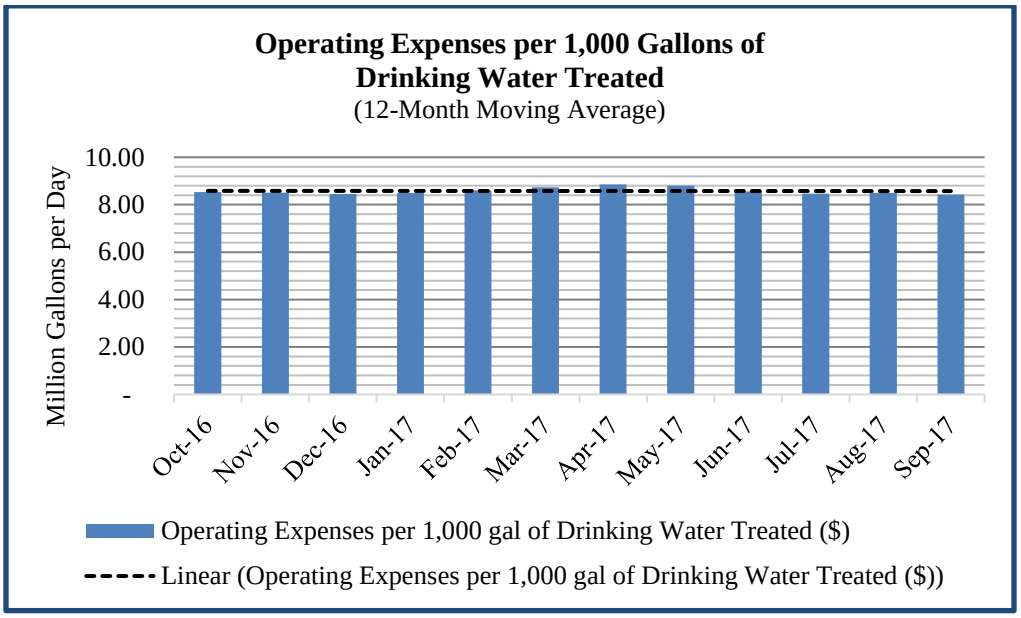
Orange Water and Sewer Authority
Statement of Net Position
September 30, 2017
(unaudited)

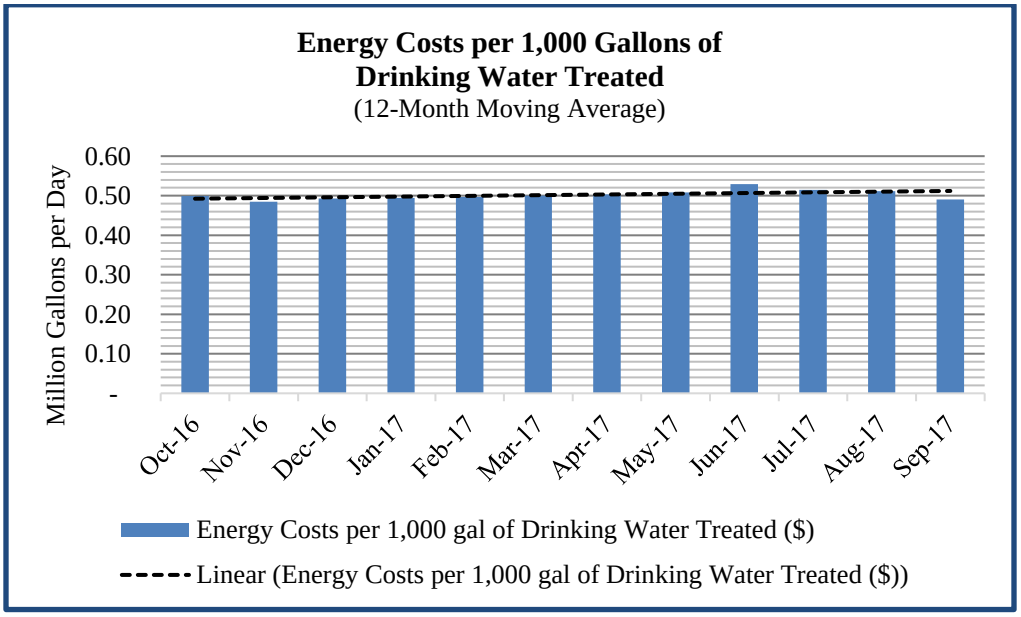
Assets	
Current Assets	
Cash	$25,106,707
Receivables	5,748,113
Inventory	1,010,659
Prepaid expenses	286,786
Restricted cash	1,821,288
Total Current Assets	33,973,553
Noncurrent Assets	
Capital assets (net of depreciation)	276,926,964
Other noncurrent assets	29,633,194
Total Noncurrent Assets	306,560,158
Total Assets	$340,533,711
Liabilities and Net Position	
Current Liabilities	
Accounts payable and accrued expenses	$1,003,998
Unearned income	184,230
Customer deposits	1,270,012
Total Current Liabilities	2,458,240
Noncurrent Liabilities	
Bonds payable	62,626,000
Other noncurrent liabilities	7,769,058
Total Noncurrent Liabilities	70,395,058
Net Position	
Contributed capital	114,653,604
Net position at the beginning of the year	149,425,983
Year-to-date accrual basis net income	3,600,826
Total Liabilities and Net Position	$340,533,711
Net income reconciliation:	
Accrual basis net income	$3,600,826
Depreciation, other post-employment benefits, and interest expense	1,878,758
Modified accrual basis net income	$5,479,584

Orange Water and Sewer Authority
Income Statement
For the Three Month Period Ended September 30, 2017
(unaudited)

	Actual through September 30, 2017	Budget through September 30, 2017	Variance (effect on net change in Fund Balance)	Percent Variance
Operating Revenue:				
Water	$5,201,050	$5,614,613	($413,563)	(7.4%)
Sewer	4,351,532	4,250,505	101,027	2.4
Reclaimed Water	139,260	145,504	(6,244)	(4.3)
Service Initiation Fees	60,205	41,412	18,793	45.4
Other	257,730	249,096	8,634	3.5
Refunds and Allowances	(46,415)	(61,521)	15,106	24.6
Total Operating Revenue	9,963,362	10,239,609	(276,247)	(2.7)
Non-Operating Income:				
Customer Fees	351,339	354,165	(2,826)	(0.8)
Interest	7,449	9,609	(2,160)	(22.5)
Total Non-Operating Income	358,788	363,774	(4,986)	(1.4)
Total Income	10,322,150	10,603,383	(281,233)	(2.7)
Operating Expense:				
General and Administrative	1,428,466	1,694,481	266,015	15.7
Water Supply and Treatment	1,433,668	1,466,579	32,911	2.2
Water Distribution	733,876	767,125	33,249	4.3
Wastewater Treatment	1,009,924	1,126,436	116,512	10.3
Wastewater Collection	236,632	279,141	42,509	15.2
Total Operating Expense	4,842,566	5,333,762	491,196	9.2
Net Income (modified accrual)	5,479,584	5,269,621	209,963	4.0
Debt Service	1,654,450	1,655,384	934	0.1
Net Income less Debt Service	3,825,134	3,614,237	210,897	5.8
Less: CIP Expenditures	2,606,000	2,894,000	288,000	10.0
Capital Equipment Expenditures	287,555	1,231,100	943,545	76.6
Net Change in Fund Balance	$931,579	($510,863)	$1,442,442	-

Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2017





Orange Water and Sewer Authority
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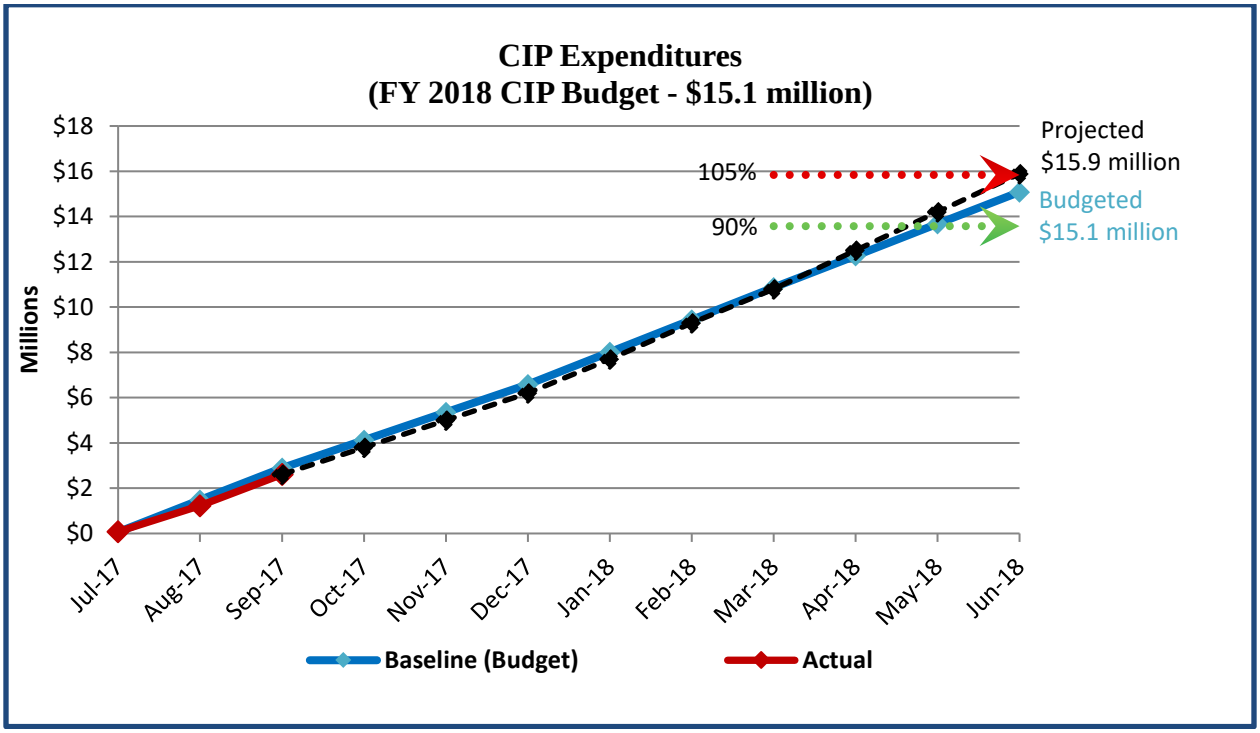
For the Three Month Period Ended September 30, 2017

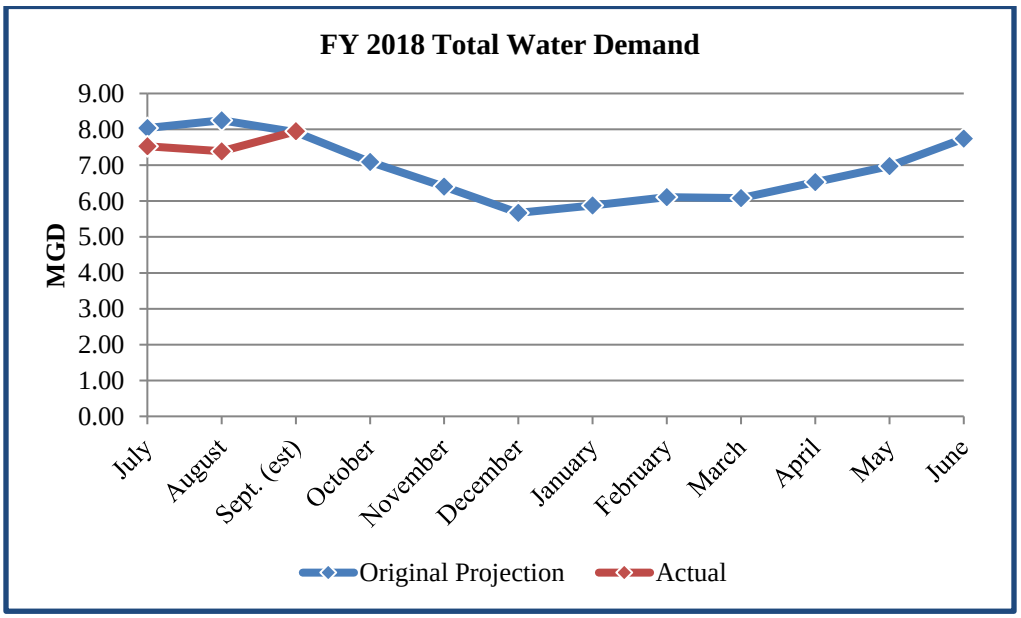


Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2017

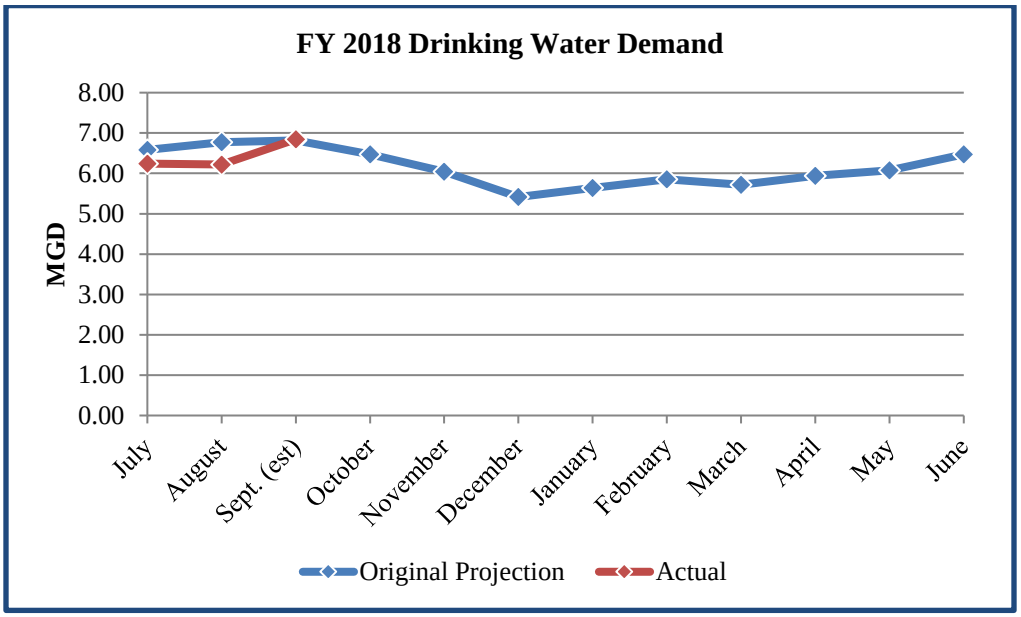
FY 2018 Water Sales Projection (Average Day)

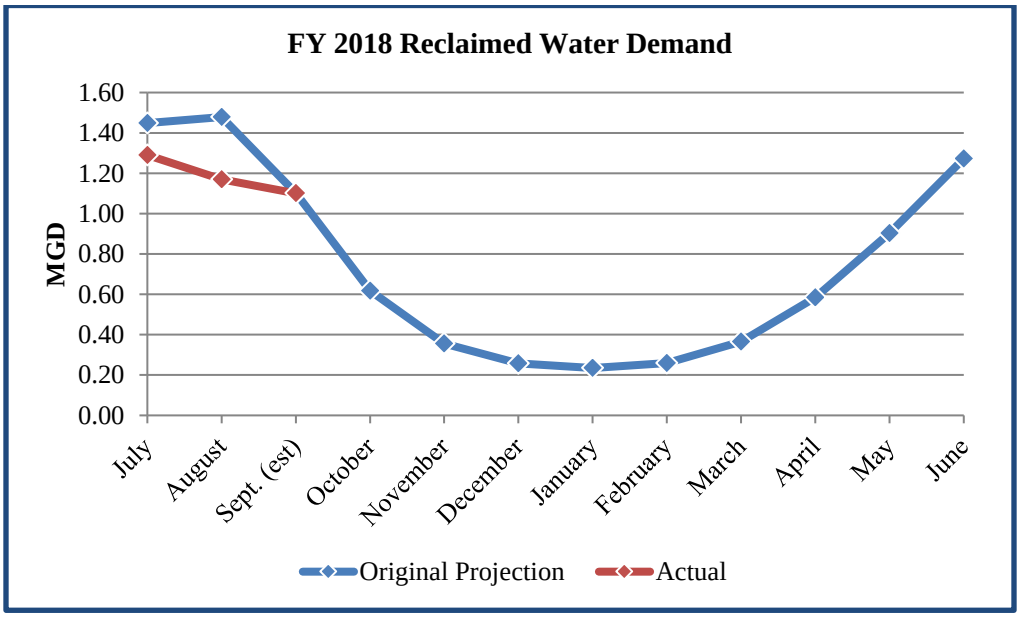
	Original FY 2018 Sales Projections		Actual FY 2018 Water Sales		Revised FY 2018 Sales Projections	
	DW	RCW	DW	RCW	DW	RCW
July	6.59	1.45	6.24	1.29	6.24	1.29
August	6.77	1.48	6.22	1.17	6.22	1.17
September	6.82	1.10	6.84	1.10	6.82	1.10
October	6.47	0.62			6.47	0.62
November	6.05	0.36			6.04	0.36
December	5.41	0.26			5.41	0.26
January	5.64	0.23			5.64	0.23
February	5.85	0.26			5.85	0.26
March	5.72	0.37			5.72	0.37
April	5.94	0.58			5.95	0.58
May	6.07	0.90			6.07	0.90
June	6.47	1.27			6.47	1.27
Average	6.15	0.74	6.43	1.19	6.08	0.70

Estimates shown in red



Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2017





Orange Water and Sewer Authority
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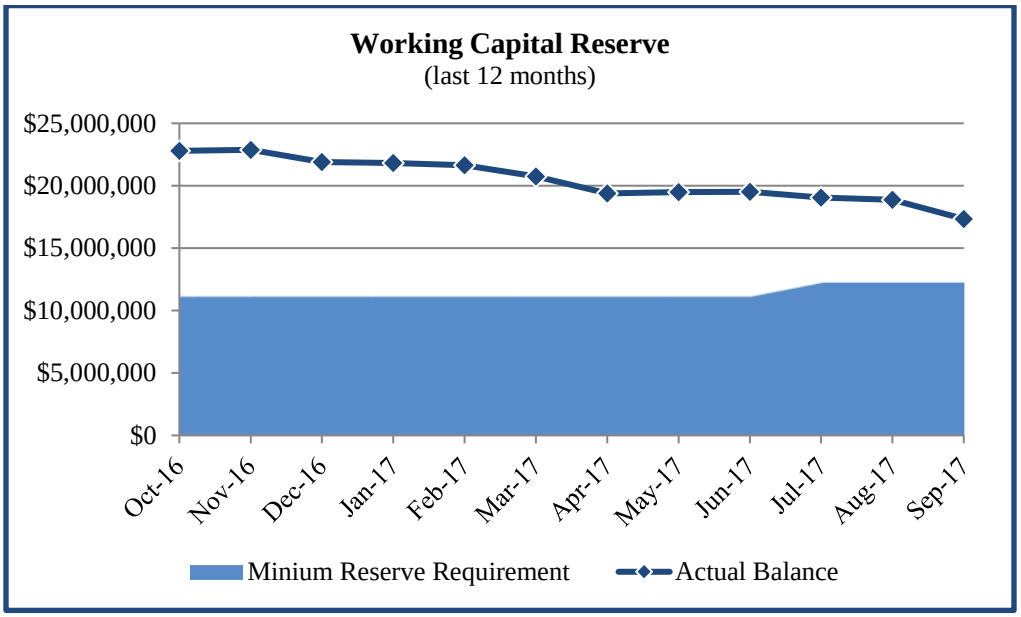
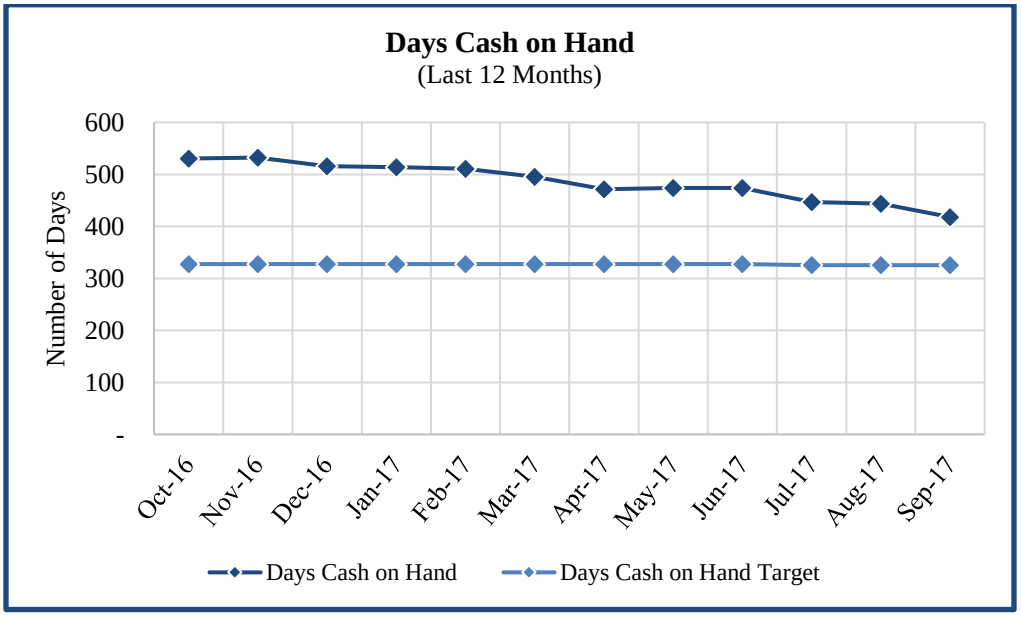
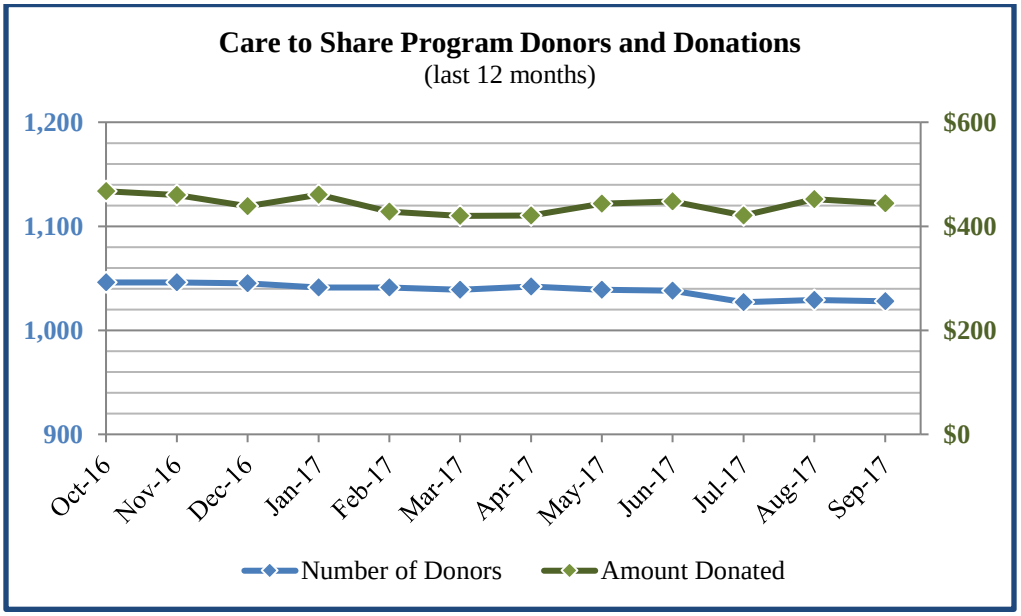
For the Three Month Period Ended September 30, 2017





Orange Water and Sewer Authority
Select Financial Data
For the Three Month Period Ended September 30, 2017



Orange Water and Sewer Authority
Financial Management Policy Report Card
For the Three Month Period Ended September 30, 2017

Measurement	Objective	FY17 Results	FY18 Goal	YTD FY18 Results
Working Capital Reserves	Greater of four months Operating expenses or 20% of succeeding three years CIP	$19.5M	$12.2M	$17.3M
Capital Improvements Reserve	2% of Net Capital Assets (Funding $400,000 per year until reach goal of approximately $6M)	$3.2M	$3.6M	$3.6M
Rate/Revenue Stabilization Reserve	5% of annual Water and Sewer Revenue	$1.7M	$1.7M	$1.7M
Debt Burden to Asset Value	Total Debt not more than 50% of Total Assets	23%	≤ 50%	21%
Sufficiency of Revenues above Debt Requirements [1]	Annual Debt Service no more than 35% of Gross Revenue	18%	≤ 35%	19%
Cash Financing of Capital [2]	Annual revenues and reserves provide at least 30% of CIP funding	50%	≥ 30%	49%
Debt Service Coverage Ratio [1]	Annual Net Income not less than two times Annual Debt Service	2.4	2.0	2.2
Service Affordability Ratio [3]	Average annual OWASA bill not more than 1.5% of area median household income	1.35%	1.5%	1.35%

M = million

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[1] Calculation based on the FY 2018 Annual Budget until full-year results are available.
[2] Cash Financing of Capital based on 5-Year CIP Budget and potential borrowing during the same period.
[3] FY 2018 Calculation based on median household income of $62,620 (per 2015 U.S. Census Bureau, American Community Survey, 5-Year Estimates) and average monthly household water use of 4,000 gallons.

Agenda Item 3:

Annual Review and Update of Strategic Trends and Utility Planning Issues and Strategic Plan Progress Report

Purpose:

To provide information about long-term trends and utility planning issues and progress on the Strategic Plan initiatives.

Background:

Attached for your review and discussion is the 2017 edition of the "Annual Review and Update of Strategic Trends and Utility Planning Issues" (Attachment A). This annual report to the Board of Directors summarizes observed trends in the water, wastewater, and reclaimed water systems, environmental regulations, and technology to ensure that OWASA continues to provide high quality and reliable services. This report serves as a companion document to the June 9, 2016 Strategic Plan.

Modifications to the report format this year include:

- Information was added to the Technology and Research section of the introductory "OWASA's Planning Environment" to include an overview of some of the reports published by national water and wastewater organizations.
- A new trend on our annual Water Audit was added.

A few main points from the report are:

- Our customers have reduced peak day drinking water demands by 36 percent since FY 1999 despite a 30 percent increase in customer accounts over that same period. Similarly, demands on our raw water supply have decreased substantially. These reduced demands result from:
    - Increased water use efficiency and conservation by our customers
    - Conservation pricing and conservation ordinances including year-round water restrictions
    - Implementation of the reclaimed water system in partnership with the University of North Carolina at Chapel Hill in 2009, which now meets approximately ten percent of the community's water needs.
- These reductions in drinking water demand – and the associated reductions in wastewater flows – help defer the need for costly expansion of the capacities of our raw water supplies,

water treatment plant, and wastewater treatment plant. More efficient use of water also helps reduce costs for energy and chemicals for water and wastewater treatment.

- Based on current demands, we believe we have sufficient raw water supply for the next few decades under most conditions, but the community will become increasingly vulnerable to drought before the expanded Quarry Reservoir is available in about 2035. Our allocation of Jordan Lake water supply serves as an insurance policy to meet demands during extended droughts or operational emergencies. We will update projected water supply demands in calendar year 2017 as part of the update to the Long-Range Water Supply Plan.

- Based on current demands, we anticipate no need to expand the hydraulic capacity of the water or wastewater plant for at least the next 20 years. We will update treatment capacity demands as part of the update to the LRWSP.

At the November 9, 2017 work session, the Board will receive a brief presentation highlighting some of the trends included in this report. Staff looks forward to your questions and comments, as well as your feedback regarding the content of the report and we will incorporate feedback into future annual trends reports for the Board.

Information:

- Annual Review and Update of Strategic Trends and Utility Planning Issues
- Strategic Plan Progress Report

Annual Review and Update of Strategic Trends and Utility Planning Issues

OCTOBER 2017

Orange Water and Sewer Authority

Carrboro, North Carolina

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

Table of Contents

Purpose and Summary

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

- Our customers have reduced peak day drinking water demands by 36 percent since Fiscal Year (FY) 1999 despite a 30 percent increase in customer accounts over that same period. Similarly, demands on our raw water supply have decreased substantially. These reduced demands result from:
    - Increased water use efficiency and conservation by our customers;
    - Conservation pricing and conservation ordinances including year-round water restrictions; and
    - Implementation of the reclaimed water system in partnership with the University of North Carolina at Chapel Hill (UNC) in 2009, which now meets approximately 10 percent of the community's water needs.
- These reductions in drinking water demand – and the associated reductions in wastewater flows – help defer the need for costly expansion of the capacities of our raw water supplies, water treatment plant, and wastewater treatment plant. More efficient use of water also helps reduce costs for energy and chemicals for water supply, drinking water treatment and water distribution, and wastewater collection and treatment.
- Based on current demands, we believe we have sufficient raw water supply for the next few decades under most conditions, but the community will become increasingly vulnerable to drought before the expanded Quarry Reservoir is available around 2035. Our allocation of Jordan Lake water supply, which we can access through our mutual aid agreements with the City of Durham and Town of Cary, serves as an insurance policy to meet demands during extended droughts or operational emergencies. We will update projected water supply demands in 4th quarter calendar year (CY) 2017 as part of the update to the Long-Range Water Supply Plan (LRWSP).
- Based on current demands, we anticipate no need to expand the hydraulic capacity of the water or wastewater plant for at least the next 20 years. We will update treatment capacity demands as part of the update to the LRWSP.
- OWASA is committed to providing high quality and reliable services to our customers. We have an asset management program to evaluate our infrastructure and risks and guide our investments ongoing maintenance programs. The trends listed in this report are one mechanism to evaluate how well we meet our core mission.

Acronyms

AMI	advanced metering infrastructure
AMWA	Association of Metropolitan Water Agencies
AWWA	American Water Works Association
BG	billion gallons
CIP	Capital Improvements Program
CY	calendar year
DEQ	NC Department of Environmental Quality
EMC	NC Environmental Management Commission
EPA	US Environmental Protection Agency
FY	fiscal year (July – June)
JLP	Jordan Lake Partnership
kWh	kilowatt-hour
KWh/MG	kilowatt-hour per million gallons
lb/yr	pounds per year
LRWSP	Long-Range Water Supply Plan
LT2	Long-Term 2 Enhanced Surface Water Treatment Rule
MCL	maximum contaminant level
ME	meter equivalent
MG	million gallons
mgd	million gallons per day
NCSU	North Carolina State University
OWASA	Orange Water and Sewer Authority
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonic Acid
RCW	reclaimed water
TN	total nitrogen
TP	total phosphorus
µg/l	micrograms per liter
UCMR3	Unregulated Contaminant Monitoring Rule 3
UCMR4	Unregulated Contaminant Monitoring Rule 4

UNC	University of North Carolina at Chapel Hill
WHO	World Health Organization
WSMPBA	Water and Sewer Management, Planning and Boundary Agreement
WTP	water treatment plant
WWTP	wastewater treatment plant

Background

Orange Water and Sewer Authority (OWASA) publishes this annual report to evaluate how well we are meeting our mission of providing our customers with high quality water, wastewater, and reclaimed water services through responsible and creative stewardship of the resources we manage.

This report summarizes observed trends for several indicators – such as customer growth and demands, water supply and drinking water treatment, wastewater treatment, use of reclaimed water, and environmental regulations – which are important factors that influence the need for, timing, and scope of our facilities planning and investment decisions. Thus, the information in this document is one item that shapes our Capital Improvements Program (CIP). Through the process of regularly reviewing, updating, and publishing this report, we strive to anticipate and proactively prepare for change so that we are better positioned to engage the community as we consider and decide on how best to meet service requirements for the foreseeable future.

The OWASA Board of Directors adopted a Strategic Plan in March 2014 and an update to the Strategic Plan in June 2016. The Strategic Plan identifies the key initiatives and corresponding actions OWASA will take to address the issues we believe are most important for the customers and community we serve. The June 2016 Strategic Plan stated that this Annual Review and Update of Strategic Trends and Utility Planning Issues (Strategic Trends report) would be modified to serve as a companion document to the Strategic Plan. The information provided in this report may be used to update or add initiatives to future updates of the Strategic Plan.

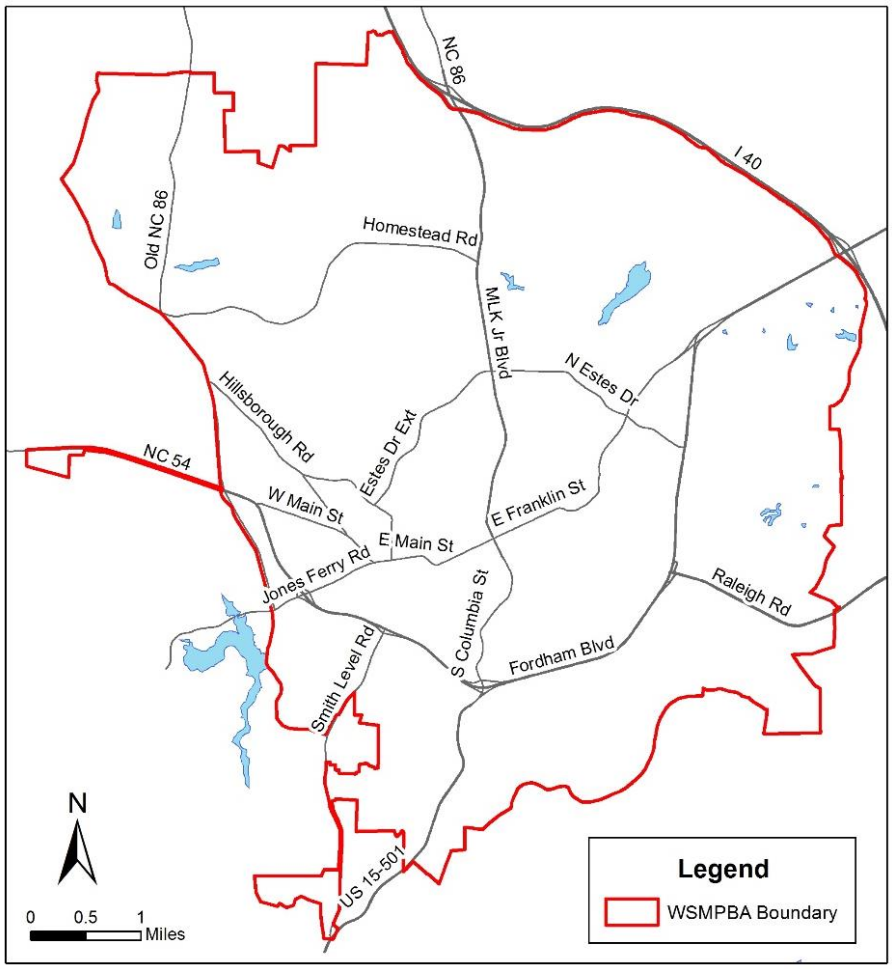
This Strategic Trends report begins with an overview of OWASA's planning environment which includes a description of those items which may impact the timing and scope of our facilities planning and investment decisions. It then includes a description of OWASA's main management areas beginning with source water protection; then raw water supply and treatment; distribution of drinking water to our customers; wastewater collection, treatment, and disposal or reuse. Each topic includes information on regulations, technology and research, energy management, links to the Strategic Plan, and follow-up actions.

OWASA's Planning Environment

This section describes the items in OWASA's planning environment that would impact the timing and scope of our facilities planning and investment decisions. Understanding these items ensures that we provide our customers with high quality and reliable water, wastewater, and reclaimed water services through responsible and creative stewardship of the resources we manage.

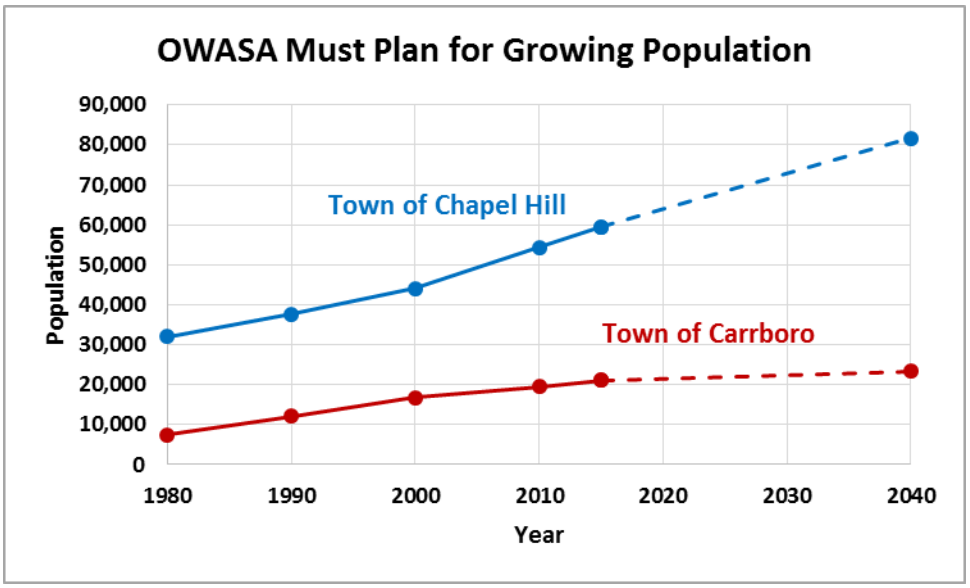
Service Area

The local governments in Orange County have developed several agreements to determine who has jurisdiction over certain areas and what areas are to be served by municipal water and sewer. These agreements help concentrate growth in compact municipal areas, preserve the rural character of the County, and limit urban sprawl. The area that OWASA can provide service to is shown in the map below and is from the Water and Sewer Management, Planning and Boundary Agreement (WSMPBA) which was adopted in 2001 and amended in 2010 and 2017. The 2017 amendments included minor changes to the boundary along Smith Level Road. If changes are made to OWASA's service area, OWASA will need to ensure its resources and infrastructure will reliably meet the demands of those new areas along with the projected development within our current service area.



Growth and Development

It is important to project when, where, and how much growth will occur, and what the subsequent demands will be on our water, wastewater, and reclaimed water services to ensure we have adequate capacity to meet the community's future needs. The graphic below illustrates past population numbers for the Towns of Carrboro and Chapel Hill as well as the 2040 projected population based on regional transportation planning completed in 2013. The Towns and Orange County, along with other communities in the Triangle area, are working together to update the projected population and job growth through 2045, and new numbers will be available for the next annual update of this Strategic Trends report.



UNC is included in Town of Chapel Hill population projections

We anticipate that growth will continue to be higher density, with redevelopment and infill projects such as the Blue Hill District (formerly Ephesus Fordham), Carolina Square, and Shelton Station, and with new development projects such as Carraway Village (formerly The Edge) and South Creek (formerly Obey Creek). Higher density development tends to result in lower per capita demands and may make better use of existing water and wastewater infrastructure. OWASA will use local government future growth information to ensure that the capacity of our water distribution system and wastewater collection system is sized appropriately.

Climate Change

While experts believe the southeastern United States will receive about the same amount of rainfall on average in the future, that rainfall will likely be provided in more severe storms and flooding events with more severe and prolonged droughts in between. This new pattern of rainfall will impact the yield of OWASA's and the region's reservoirs and the patterns of water demand including the water used for irrigation and cooling. As a result, OWASA and our utility neighbors must address the resiliency of water supply and storage, especially for periods of severe and extended droughts as well as the capacity of our reclaimed water system, which may face higher peak demands.

OWASA worked with our utility neighbors through the Jordan Lake Partnership (JLP) to develop the Triangle Regional Water Supply Plan to ensure all Partners have sufficient and reliable water supply through 2060. The JLP also contracted a regional interconnection study to evaluate the interconnection capacity of our drinking water systems and to identify needed infrastructure improvements to meet future needs. The JLP is planning to use this model to run planning scenarios to identify strategies to improve the region's resiliency to planned and unplanned water supply challenges. OWASA is updating its Long-Range Water Supply Plan (LRWSP) to ensure we have water to meet our needs through 2065.

Our climate change planning to date has focused on drought management planning and natural disaster emergency preparedness. However, high rain events could result in greater flooding of our infrastructure. While our infrastructure has been designed to meet certain flood events, the frequency of those events could increase in the future. In addition, hurricanes and other storms could damage critical infrastructure. OWASA plans for forecasted events, and coordinates emergency planning with our neighboring communities and other utility partners in North Carolina.

Climate change also has potential implications on the quality of the water in our reservoirs. With temperature change and impacts on rainfall, we could experience more frequent algal blooms in our reservoirs and potential increases in taste and odor events and cyanotoxin concentrations. (Cyanotoxins are toxins produced by blue-green algae and were responsible for the City of Toledo's "Do Not Use" warning in 2014.)

OWASA continues to monitor climate change science, and we participate in applied research projects with universities, other utilities, and other agencies where applicable, to proactively plan to meet the community's water and wastewater needs in the face of increasing climate variability.

Regulations

OWASA monitors the regulatory arena closely so that we proactively ensure we can meet all legal requirements applicable to the provision of water, wastewater, and reclaimed water services to our customers. Many of these potential regulations would impact our drinking water supplies and treatment facilities. Potential regulations are included for trends where they are applicable in this Strategic Trends report.

Technology and Research

OWASA strives to stay informed about advancements in technology and research, their capital and operating costs, and ability to better position us to provide services to our customers in a more sustainable manner. OWASA often partners with local university researchers, professional associations, and our consultants to obtain information on how emerging technologies may apply specifically to OWASA. Technologies that OWASA is monitoring are described in applicable sections with this Strategic Trends report. General information on our use of university research, professional associations, and consultants is provided below.

University Partnerships

OWASA often partners with our local universities to evaluate emerging technologies. We have provided water and wastewater samples to local universities to test emerging technologies. We have supported university classes by providing data. One effective use of university research is through our membership in the Urban Water Consortium, a group of twelve of the largest water utilities in the state. Together these twelve utilities pool their funds to bridge our research needs with university expertise. Some of the current research funded through this consortium is included in applicable sections of this report.

Professional Associations

OWASA is a member of various water and wastewater organizations, and our employees review their publications and attend their conferences. Staff regularly meet with other utility staff locally and throughout the southeast region through these memberships; these contacts with other utility staff enable us to stay abreast of the latest technologies that work in our region to better meet our water, wastewater, and reclaimed water needs. Some of the industry trends noted by attending these conferences and interacting with staff from other utilities are:

- Renewal and replacement of aging infrastructure
- Conservation and reclaimed water to meet the needs of growing populations with existing water resources
- Public understanding of the value of water
- The need to attract, train, and retain staff
- Excellence in customer service and public awareness of water issues

Several of the national organizations develop annual reports that often reiterate these industry trends and that we use to evaluate OWASA's practices:

- AWWA's State of the Industry Report – this report is based on an annual survey of utilities to identify and track challenges facing the water industry, provide data and analysis to support water professionals, and inform decision makers and the public of challenges facing the water industry
- Association of Metropolitan Water Agencies (AMWA) Annual Report - this report is focused on regulatory and security issues, but AMWA also supports scientific research, collaboration, and sustainable utility practices
- The National Association of Clean Water Agencies, Water Environment Federation and Water Environment Research Foundation Water Resources Utility of the Future – this report was first developed in 2013 to recognize that water and wastewater utilities were recognizing themselves as resource managers rather than waste managers. One trend that the latest Utility of the Future recognizes is that utilities in the United States are beginning to expand their use of technologies used in other countries. The latest report also notes how partnerships between utilities, consulting engineers, government, and finance are used to move utilities forward

The Water Research Foundation also maintains a website that summarizes current research on topics important to water utilities including cyanotoxins, fluoride, and taste and odor.

The U.S. Environmental Protection Agency (EPA) and six major water and wastewater associations developed a Primer on Effective Utility Management which was written to guide utility managers to make effective changes to achieve excellence in meeting their core missions.

Engineering Consultants

OWASA hires engineering firms to plan, design, and construct our infrastructure. These engineering firms design and construct similar infrastructure throughout the region and nation. We hire them for their expertise; based on our specific requirements and circumstances and their experiences with different technologies, they recommend technologies that will best meet our needs.

Other Important Utility Planning Issues

This section includes a brief overview of other utility planning issues in which OWASA is currently engaged which support our mission and the values included in the Strategic Plan. This section is not intended to be a comprehensive overview of utility planning issues.

Energy Management

Strategic Initiative Number 4 in OWASA's Strategic Plan is to implement an Energy Management Program. Our use of energy to treat and deliver drinking water, wastewater, and reclaimed water services not only has an impact on our costs and the environment, but on the resiliency of our operations. The OWASA Board of Directors has set the following goals and objectives for energy management:

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

This Strategic Trends report includes information on electricity and natural gas use for OWASA's operations for trends where it is appropriate. We are not tracking vehicle fuel use by functional area and are not reporting that energy use in this Strategic Trends report. For further information on OWASA's Energy Management Program, please see our website.

OWASA staff is staying abreast of changes in the marketplace and regulations that impact the financial viability of certain energy management strategies. For example, a recent bill passed in North Carolina (Session Law 2017-192) that changes how solar projects will be developed in the State.

Safety

Safety of our staff, our customers, and the environment is important to the OWASA Board of Directors, staff leadership, and individual staff members. Much of the information contained in this Strategic

Trends report helps us make sure that we are providing the community with safe drinking water and protecting both public health and the environment through proper conveyance, treatment, and disposal of wastewater.

Staff continually evaluate methods to improve our processes. We routinely perform after action reviews following small and large events that did not go as planned. The after action review process identifies what happened, what we set out to accomplish, what worked well, and where we can improve. As an example of this process, OWASA recently hired a consultant to perform a reliability and risk assessment on our water and wastewater treatment plants. This risk assessment is the result of the internal after action reviews that OWASA conducted following the February 2017 water emergency.

Safety is the number one priority of every member of the OWASA team. We are dedicated to reducing injuries, accidents and ensuring compliance. We achieve this by fostering a culture focused on awareness and safe work methods and by providing high-quality training, comprehensive workplace evaluation and emergency response.

Source Water Protection

Description

Our community has a long history of taking progressive actions to ensure the health and safety of our drinking water supplies. Since it began operations in 1977, OWASA has understood that to protect the water source, you must protect the watershed, and we have been actively involved in a wide range of watershed protection efforts, such as:

- Limits on the extension of water/sewer service into the Cane Creek and University Lake watersheds;
- Support for stringent zoning and land use controls;
- Restrictions on in-lake recreational activities;
- Financial support for agricultural Best Management Practices;
- Special technical studies and educational activities; and
- **Land acquisition through the strategic purchase of property or conservation easements in areas determined to be critical for water quality protection**.

It is the later of these efforts which is the focus of this section of the report.

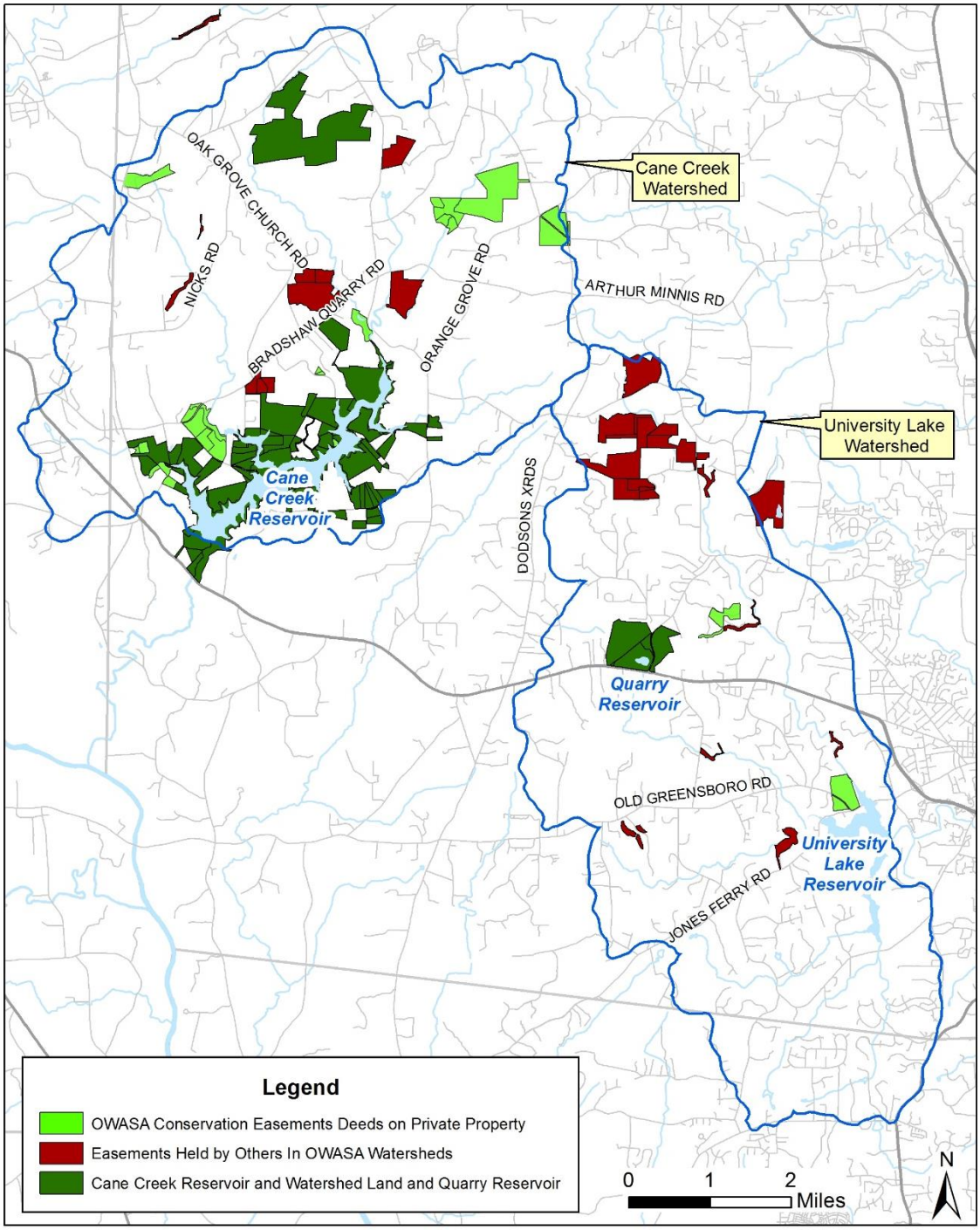
Land acquisition was among the options evaluated in the University Lake watershed management study and plan commissioned in the late 1980s. Water quality modeling indicated that permanently protecting 2,900 acres (approximately 15 percent) of the watershed would have only slight water quality benefits and not justify the multi-million-dollar cost, but that selected land acquisition in critical areas of the watershed may be appropriate. This recommendation was later confirmed in a follow-up analysis, which found that land acquisition would probably not be effective, but a possible exception may apply to undeveloped land very near the lake, and that conservation easements along stream buffers would be particularly valuable near the downstream ends of tributaries as they approach University Lake.

Based on these technical recommendations, OWASA elected not to pursue a program of land or easement acquisition in the University Lake watershed, but to consider land preservation opportunities on a case-by-case basis. In 2006, OWASA purchased a 73-acre property along Morgan Creek immediately upstream of University Lake (with the help of a $1.2 million NC Clean Water Management Trust Fund grant). This property was placed under a permanent restrictive conservation easement that protects all riparian areas and severely restricts future development; subdivided into two large tracts; and re-sold on the open market in 2011 – with all restrictions in place.

The primary recommendations in a 1996 study of the Cane Creek Reservoir watershed included large lot (5 acres or greater) residential re-zoning and the permanent protection of 1,265 additional acres of watershed land either through fee simple purchase or conservation easements. OWASA adopted those recommendations as goals for the protection of Cane Creek Reservoir and subsequently protected an estimated 1,075 acres of additional Cane Creek watershed land through purchase or conservation easements. Since 1997, Orange County's Land Legacy Program also acquired protective conservation

easements on an additional 678 acres in the Cane Creek watershed. Together, OWASA and Orange County's land protection efforts have exceeded OWASA's original goal. OWASA and Orange County staff continue to work closely in coordinating the needs of our respective programs as the County protects additional land in the watershed and elsewhere.

Protected Land in OWASA's Watersheds



Regulations

- In accordance with direction from EPA, the North Carolina Department of Environmental Quality (DEQ) is developing draft nutrient criteria for surface waters in the state. If nutrient levels in one or more of our water supply reservoirs, Morgan Creek, and/or other surface waters in our area exceed future nutrient-related water quality limits, we and/or other parties could be required to take action to reduce the discharge of nutrients into those water bodies. The technical, economic, and environmental feasibility of complying with such requirements can only be determined once proposed criteria are issued.
- The North Carolina General Assembly ratified House Bill 894 to improve Source Water Protection in August 2014 in response to the accidental release of 4-methylcyclohexanemethanol in West Virginia and the coal ash spills in North Carolina. Under this bill, the North Carolina Environmental Management Commission (EMC) must adopt rules that will require all public water supplies which use surface water to develop a source water protection plan. OWASA is participating in this rule-making process, and we are well positioned to develop the plan.

Technology and Research

- The City of High Point employs artificial mixing in its two water supply reservoirs City Lake and Oak Hollow Lake to improve treatability of their drinking water. The Town of Cary recently began mixing Jordan Lake water near its intake. Current research suggests this technology may work well for some smaller reservoirs and lake areas near intake structure. Researchers at North Carolina State University (NCSU) are evaluating the effectiveness of artificial mixing in Piedmont reservoirs accounting for factors such as depth, temperature, wind, and nutrient concentrations. OWASA supports this research and is providing data from University Lake as a control (do not employ artificial mixing) for the study. This study will help staff evaluate whether in-lake mixing may reduce algal blooms and the resulting increases in taste and odor events and cyanotoxin concentrations.
- The 2016 General Assembly directed the UNC Collaboratory to evaluate water quality and nutrient management strategies in the Jordan and Falls Lake watersheds. These studies could result in new management strategies in the Jordan Lake watershed which could impact OWASA operations. Staff stay updated on the work of the Collaboratory and have provided data to some of the researchers.

Energy Management

Energy use to manage OWASA's lands is minimal and consists of fuel needed for travel and equipment to manage the land.

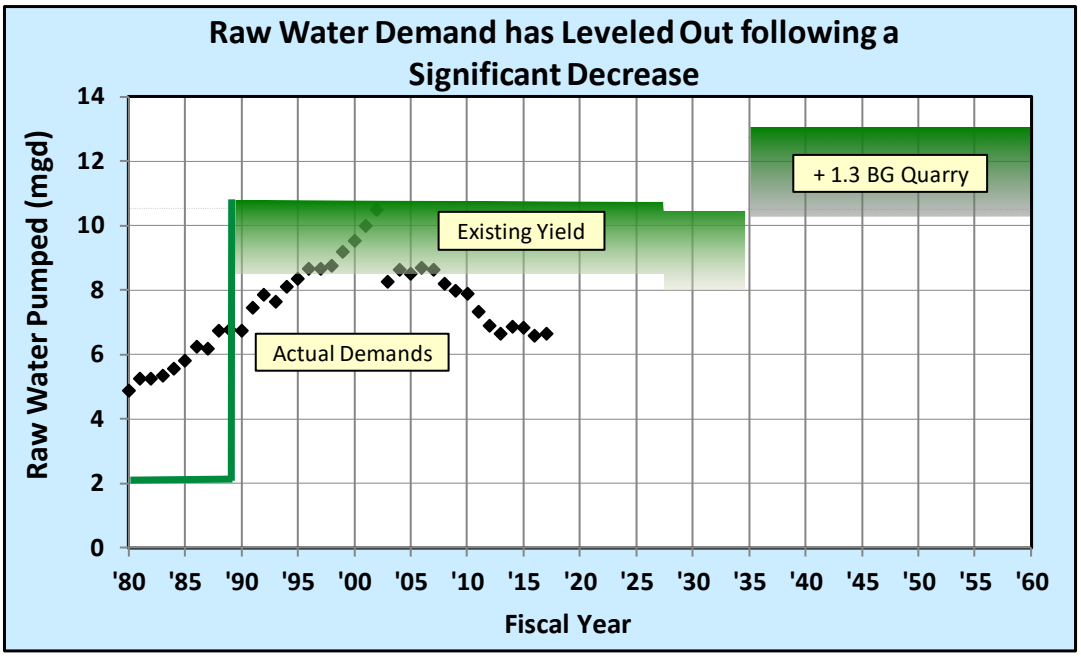
Strategic Plan Elements

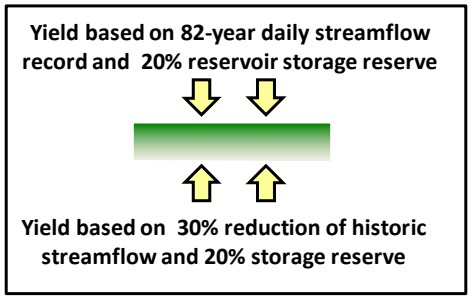
Strategic Initiative 6 includes a goal that states "Land assets provide the expected value to fulfill OWASA's mission and the assets are effectively managed". Forest lands owned by OWASA in our water supply watersheds could be managed in the future to protect water quality and meet other objectives.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Since OWASA met its watershed protection goals, it will not seek additional land conservation. However, it will continue to evaluate cost-effective land acquisition opportunities through conservation easements or purchase when available.	Ongoing	X	
2. Inspect conservation easements on private land to make sure owners are following the terms of the easement	Annually		X
3. Develop Source Water Protection Plan when required	Currently due 1/1/2020	X	
4. Evaluate data from NCSU studies when completed and identify any follow up steps or recommendations for future.	CY 2018		X

Raw Water Supply and Long-Range Water Supply Plan





Future demands are shown per LRWSP Appendix II, Attachment 4, rev 8/30/2011; these demands are being reassessed as part of the ongoing LRWSP update.

Description: This trend evaluates the supply (reliable yield) of our locally-owned upland water sources – Cane Creek Reservoir, University Lake, and the Quarry Reservoir – and historic raw water demands. (Since we do not have permanent facilities and/or agreements in place to access Jordan Lake, the above graph does not include our Level I Jordan Lake water storage allocation of about 5 million gallons per day (mgd). We can access this allocation through Town of Cary and City of Durham on a limited, emergency basis.

Key Observations:

- The annual average-day amount of water we pumped from reservoirs has declined substantially since peaking in FY 2002.
- Annual average-day raw water demands are now at the same level they were in the early-1990s, shortly after Cane Creek Reservoir was placed into service. This has occurred despite over a 60 percent increase in the number of customer accounts during that period.

- Key factors in the reduction in water withdrawal rates include:
  - Increased water use efficiency and conservation by our customers;
  - Conservation pricing and conservation ordinances, including year-round restrictions;
  - Implementation of a process water recycling system at the drinking water treatment plant (2002), which reduced annual average-day raw water withdrawals by about seven percent;
  - Implementation of the reclaimed water system in partnership with UNC (2009), which now meets about ten percent of the community's annual average-day water needs.
- OWASA is beginning the process to update the LRWSP. One of the first tasks will be to develop future raw water demand projections. We anticipate that OWASA's current and planned locally-controlled water supply sources will meet most customer demands through the next thirty to forty years. However, we will face an increasing risk of shortfall, particularly during extended droughts, between now and the time the expanded Quarry Reservoir is online around 2035.
- We anticipate that Jordan Lake, an alternative source, and/or additional demand management measures are expected to be needed to reduce risk to acceptable levels, particularly between now and the time the expanded Quarry Reservoir is placed into service.

Regulations

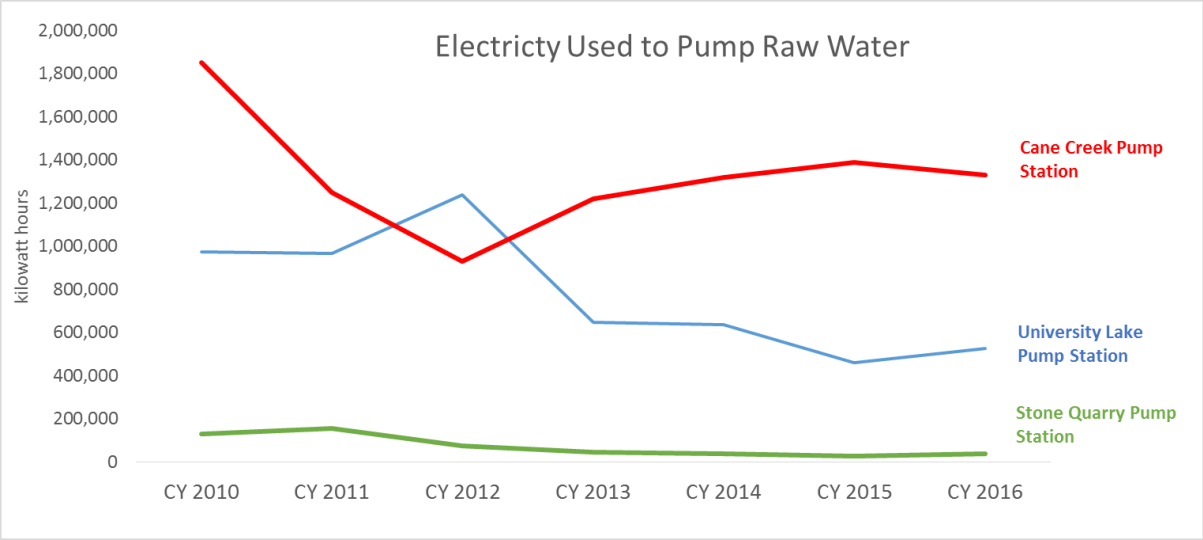
- The Long Term 2 Enhanced Surface Water Treatment Rule (LT2) builds upon the 1996 amendment to the federal Safe Drinking Water Act to strengthen protection against microbial contaminants, especially *Cryptosporidium*. OWASA completed the first round of monitoring for *Cryptosporidium* and *E. coli* in our source waters in 2009. As a result of this monitoring, OWASA was placed in the lowest treatment category, which requires no additional treatment. Staff completed the second round of two years of monthly monitoring in August 2017. Based on the round 2 results, OWASA remains in the lowest treatment category and will not be required to provide additional filtration treatment.
- OWASA follows developments regarding pharmaceuticals and personal care products in drinking water, wastewater, and reclaimed water. These products enter wastewater systems through excretion, disposal of unused medicine in sinks or toilets, and personal care products washed from skin and hair. They can also be present in runoff from livestock operations. Cane Creek Reservoir and University Lake watersheds are highly protected, and no treated municipal or industrial wastewater is discharged within our local water supply watersheds. However, there are livestock operations and private septic systems in both watersheds. A 2007 study by the U.S. Geological Survey of local untreated (or raw) water sources including Cane Creek Reservoir and University Lake tested for pharmaceuticals. In this study, one pharmaceutical (acetaminophen) was detected in one sample from Cane Creek Reservoir; all other results were below the detectable levels. OWASA does participate in EPA monitoring efforts of unregulated contaminants. This tool is used to improve drinking water quality standards by collecting data on compounds that are suspected to be present in drinking water, but do not have health-based standards set under the Safe Drinking Water Act. Pharmaceuticals and personal care products have not been included in this program to date, and there are no federal requirements for them.

Technology and Research

OWASA is working with researchers at NCSU to monitor cyanotoxin trends in both reservoirs using a method that integrates cyantoxin levels over two to four week periods of time. This method allows for constant monitoring of cyantoxin trends at the intake structures and will provide valuable baseline data on the cyanotoxin concentrations coming into the plant. This work is being coordinated with the work described in the Source Water Protection technology section above. Together these efforts will provide OWASA with valuable information about the frequency and concentration of cyanotoxins and potentially the conditions in our lake where they may be a concern. Occurrence and abundance data for algae and cyanobacteria, paired with grab sample data for cyanotoxins and removal through the treatment process will inform future treatment technology enhancements.

Energy Use

As shown in the graphic below, total kilowatt-hours (kWh) of electricity used to pump our raw water to the treatment plant has decreased by 36 percent since 2010. As shown in the graphic at the beginning of this section, the community's raw water demand has decreased which impacts the amount of pumping and electricity required to meet water supply needs. In addition, we installed a new, low-flow pump and variable speed drive pump at the University Lake Pump Station which enables us to better optimize system-wide pumping across a wide range of demand conditions.



Strategic Plan Elements

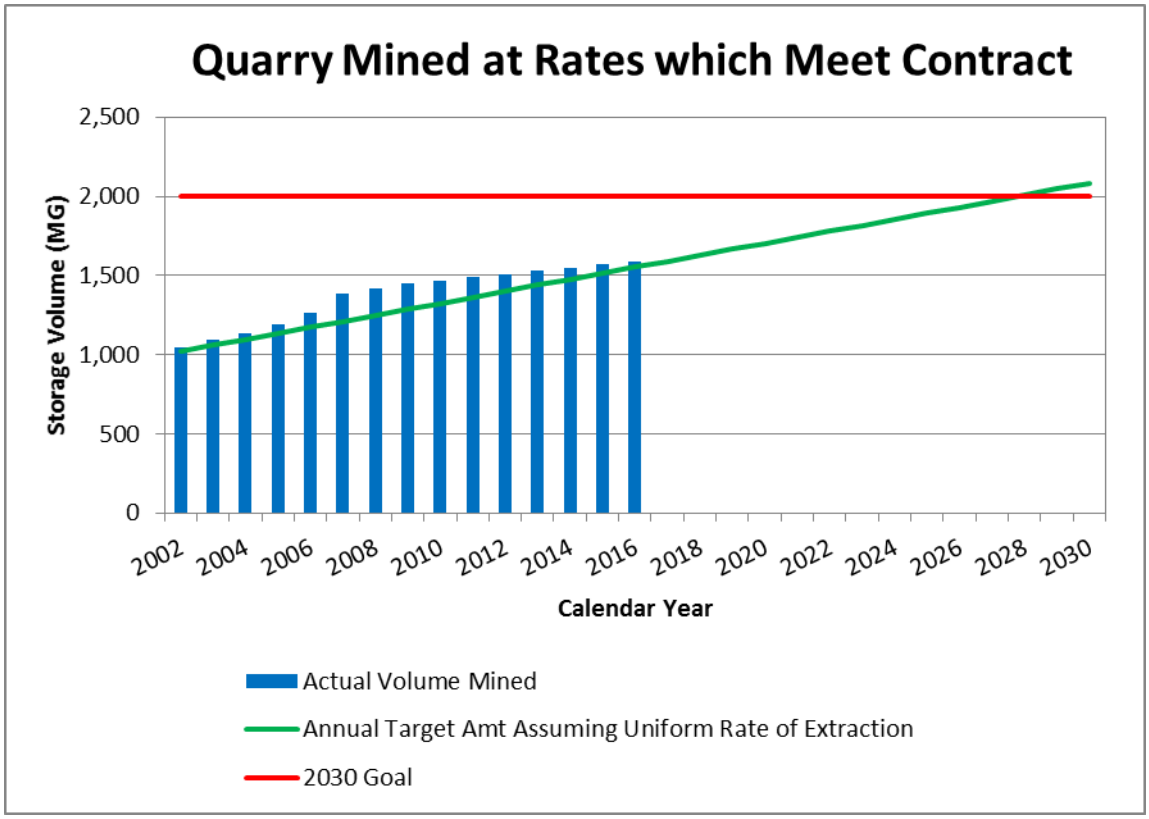
This trend is directly related to updating the LRWSP, Strategic Initiative 1. One of the first steps to update the LRWSP will be to project future water demands. The projected future demands will be compared to OWASA's estimated reliable yield to determine if any new sources of water are required for our long term needs. Updating the LRWSP will also engage the community (Strategic Initiative 2), and the technology of advanced metering infrastructure (AMI, Strategic Initiative 5) may help detect and address leaks sooner which would reduce raw water demand. It also is related to Strategic Initiative 3 in

that we want to invest in any new water supply at the right time to sustain the community's drinking water supply.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Evaluate assumptions used to estimate reservoir yield and projected demands during the planned update of the LRWSP, which is scheduled to be completed in CY 2019. In future years, update calculations when warranted (e.g., when new drought of record occurs [impacts yield], service area boundaries change, local governments or UNC revise growth projections).	4th Qtr. CY 2017 and review when warranted thereafter	X (as part of LRWSP update)	
2. Continue to proactively plan and account for uncertainty, including increasing climate variability, through a diversified water supply and demand management portfolio.	Ongoing (Climate change assessment for OWASA now underway by U. of South Carolina PhD student and advisor)	X (as part of LRWSP update)	
3. Continue to pursue cost-effective ways to access OWASA's Jordan Lake allocation in partnership with neighboring utilities.	Ongoing (Participated in Jordan Lake West Facilities Feasibility Study in 2015)	X	
4. Once we have a better understanding of the potential cost to ensure access to our Jordan Lake water allocation, review and reconsider the advantages and disadvantages of other feasible supply and demand management alternatives as part of update of the LRWSP.	CY 2018	X (as part of LRWSP update)	
5. Evaluate data from NCSU studies when completed and identify any follow up steps or recommendations.	CY 2018		X
6. Identify potential energy savings opportunities for raw water pumping in Energy Management Program.	Ongoing	X (as part of Energy Mgmt Plan)	

Quarry Reservoir Storage Volume



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

Key Observations:

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

Regulations

There are no regulations to report for the quarry. However, OWASA will perform microbial monitoring on the expanded Quarry Reservoir as soon as it is put into service, and DEQ may need to approve it as a water supply source.

Technology and Research

There are no updates in technology to report for the quarry.

Energy Management

The existing Quarry Reservoir is used only during extreme droughts or other emergencies. We periodically test the pumps to ensure they are ready in time of need. As a result, our energy use at the Quarry Reservoir is negligible (see Raw Water Supply and Long-Range Water Supply Plan trend).

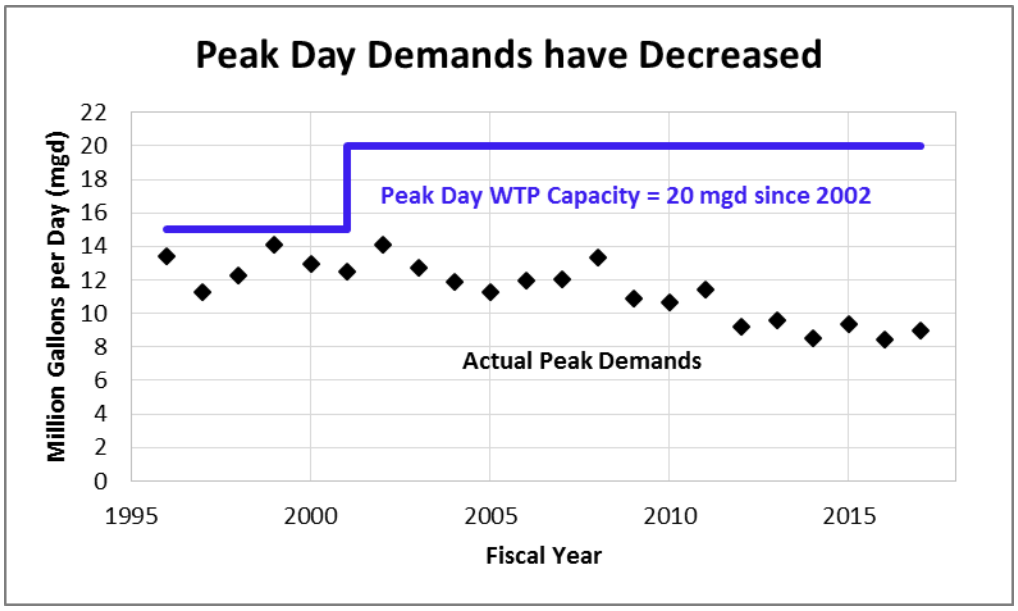
Strategic Plan Elements

The Quarry Reservoir is an essential part of OWASA's water supply portfolio and is tied to Strategic Initiative 1, "Provide reliable and high quality supply of water for the next 50 years".

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor the annual rate of rock excavation at the quarry to ensure contractual requirements are met.	Annual		X
2. Maintain and follow the Quarry Reservoir implementation checklist in order to ensure timely implementation of the Quarry Reservoir water storage project once mining ceases in 2030.	Ongoing		X
3. As part of LRWSP update, evaluate the benefits and costs of various Quarry Reservoir alternatives (e.g., developing permanent pump station to withdraw deeper water).	CY 2018	X (as part of LRWSP update)	

Water Treatment Plant: Peak-Day Drinking Water Demands and LRWSP



Description: This trend evaluates peak-day drinking water demands and compares those demands to the 20 mgd rated capacity of the Jones Ferry Road Water Treatment Plant (WTP).

Key Observations:

- Since FY 1999, the year with the highest peak-day demand, peak-day drinking water demands have declined by 36 percent despite a 30 percent increase in customer accounts over that same period.
- This decline has resulted from the following primary factors: (1) our customers are using water more efficiently, (2) we have adopted conservation pricing and conservation ordinances including year-round water use restrictions, and (3) since March 2009, reclaimed water has been used instead of drinking water to meet certain non-drinking water needs at several UNC facilities that have high summer season demands (cooling towers and irrigation).
- OWASA is beginning the process to update the LRWSP. One of the first tasks will be to develop future raw water demand projections which will be used to estimate future drinking water demands and treatment capacity requirements. We anticipate that the Jones Ferry Road WTP has adequate capacity to meet projected peak-day drinking water demands for at least the next 20 years.

(NOTE: The observations presented above assume that the reclaimed water system is in service throughout the peak-day demand season. Peak-day drinking water demands would be considerably greater if the reclaimed water system is out-of-service.)

Regulations

- The 1996 amendments to the federal Safe Drinking Water Act require that monitoring be completed for a list of unregulated contaminants every five years. EPA will use the data collected to determine if any of these contaminants should be regulated. In May 2012, EPA published the rule to complete the third round of this monitoring (UCMR3); monitoring was staggered among facilities and all monitoring was completed by December 2015 with all results reported to EPA by summer 2016. OWASA participated in the Assessment Monitoring of 21 contaminants under the UCMR3 and completed monitoring in August 2014. Some larger utilities also monitored other emerging contaminants such as human and veterinary hormones. OWASA UCMR3 monitoring consistently detected the following three unregulated contaminants: Chromium-6, Strontium, and Chlorate (see next bullets). In December, 2016 the EPA published the rule for the 4th round of this monitoring (UCMR4) and will require monitoring for 30 parameters including cyanotoxins, pesticides, and disinfection by-products. UCMR4 monitoring will occur between 2018 and 2020. OWASA will begin monitoring in August 2019.
- EPA has set the maximum contaminant level (MCL) of total chromium (i.e., all forms of chromium) at 100 µg/L but has not yet published a drinking water standard for Chromium-6. The State of California adopted a Chromium-6 MCL of 10 µg/L, which became effective on July 1, 2014; but on May 31, 2017 the Superior Court of Sacramento County issued a judgment invalidating the MCL and ordering the State to adopt a new MCL. During the UCMR3, OWASA's monitoring for Chromium-6 detected levels between < 0.03 - 0.06 µg/L, which are well below the now invalid California standard.
- EPA has not yet published a drinking water standard for Strontium, but has established a health advisory level of 1,500 µg/L. A health advisory is a non-enforceable, non-regulatory federal guidance which describes the concentration which can be consumed with little or no risk to health. OWASA's monitoring for Strontium detected levels between 53 - 75 µg/L, well under the health advisory level.
- EPA has not yet published a drinking water standard for Chlorate. The health advisory for Chlorate is 210 µg/L. OWASA's monitoring for Chlorate during UCMR3 detected levels between 160 – 650 µg/L. The State of California has not set an MCL for Chlorate but has set a notification level of 800 µg/L. The World Health Organization (WHO) guideline for Chlorate is 700 µg/L. Chlorate is known to occur in drinking water as a result of the disinfection process and as a result of sodium hypochlorite (bleach) degradation. Concentration, long storage times, and temperature all contribute to the degradation of sodium hypochlorite. Following UCMR3, OWASA changed the concentration and reduced storage times of our bulk sodium hypochlorite. OWASA completed a two-year study to test the Chlorate levels of our treated drinking water leaving the WTP and in the distribution system quarterly since implementing these changes and Chlorate levels have decreased by an average of 64 percent compared to levels measured as part of UCMR3. OWASA will continue to follow this issue to ensure its drinking water continues to be safe for its customers.
- EPA has not yet published a drinking water standard for Perchlorate, but published a notice of a draft approach document to establish a standard in September 2017; based on litigation involving the Natural Resources Defense Council, there is a court-ordered deadline to have a standard by

December 2019. The EPA health advisory for Perchlorate is 15 µg/L, effective October 2008, and California adopted a standard of 6 µg/L, effective October 2007. Massachusetts adopted a drinking water standard of 2 µg/L. OWASA's monitoring detected Perchlorate at a concentration of 0.33 µg/L in the finished water, well below the advisory level and California and Massachusetts standards.

- In 2016, EPA published new health advisories for Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) of 0.07 µg/L as a lifetime concentration for a combined concentration of PFOA and PFOS. This level of 0.07 µg/L was set to protect the most sensitive populations over a life time of exposure to the two contaminants. OWASA monitored for these substances as part of UCMR3; PFOA concentrations ranged from <0.02 µg/L to 0.03 µg/L, and PFOS was not detected.
- OWASA has historically met all disinfection by-product criteria applicable to finished drinking water provided to our customers. Monitoring data indicates that we should continue to meet any criteria developed for disinfection by-products. Additionally, currently unregulated disinfection by-products will be included in UCMR4.
- Cyanotoxins are toxins produced by blue-green algae (i.e., cyanobacteria) under certain conditions. These toxins can be harmful to the environment, animals, and human health; one was responsible for the City of Toledo's "Do Not Use" warning in summer 2014. In June 2015, EPA issued health advisories for two cyanotoxins: microcystin (1.6 micrograms per liter [µg/L] for children 6 and up and adults and 0.3 µg/L for children less than 6 years old) and cylindrospermopsin (3.0 µg/L for children 6 and up and adults and 0.7 µg/L for children less than 6 years old). Establishing a monitoring program and benchmarks for when source and/or finished water should be analyzed for toxins provides a solid foundation for a cyanotoxin management approach. OWASA has proactively been monitoring algal cyanotoxins since 2007 in our finished drinking water using a contract laboratory when our blue-green algal counts rise above 100,000 units/mL in University Lake or Cane Creek Reservoir. Additionally, beginning in the summer of 2016 staff began monitoring cyanotoxin levels at the intakes and through the treatment process on a weekly basis to gather baseline data on occurrence and removal. To date, OWASA has not exceeded the health advisory levels in our finished drinking water. OWASA has never detected cylindrospermopsin; microcystin was detected at a level of 0.2 µg/L on one occasion. In addition, OWASA also monitors for anatoxin-a (detected on two occasions) and saxitoxin (never detected). Staff will continue to evaluate algal toxins (additional information provided in Treatment Technology section).

Technology and Research

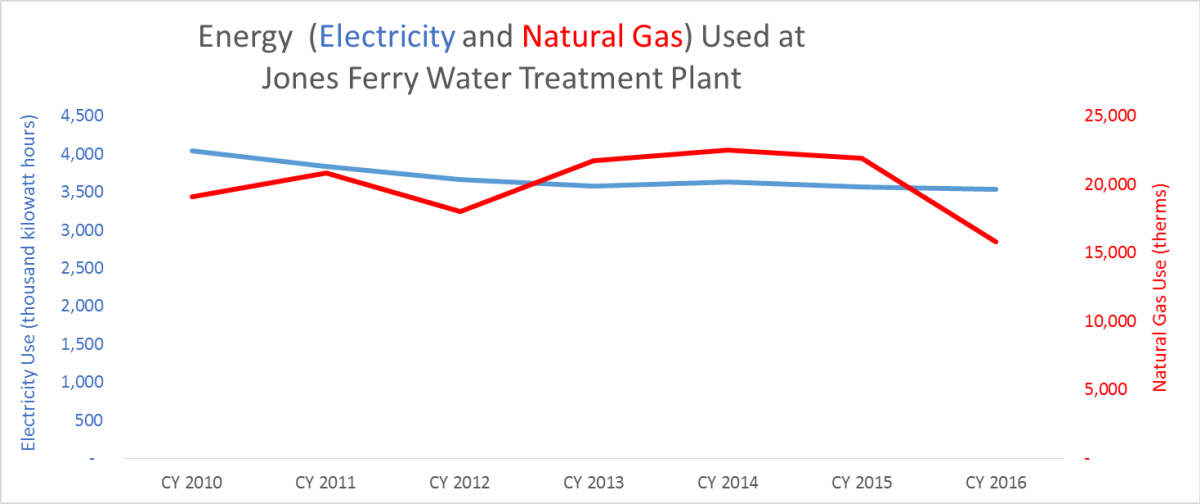
- OWASA evaluates the treatment technologies we have at our water plant to ensure we can meet any potential upcoming standards with current treatment technologies. OWASA can meet most of the potential standards discussed in the Regulations section above. Activated carbon, ozone, and membrane technologies have been found effective at removing cyanotoxins, and we currently use activated carbon in our treatment process, which is currently effective at removing our cyanotoxins. Since summer 2016, staff has been performing in-house monitoring for cyanotoxin levels in the raw water and throughout the treatment process; eliminating the 1-week lag between collection and

results when using a contract laboratory. Staff continues to follow on-going research on this topic to ensure safe drinking water for our customers.

- Staff at the WTP periodically evaluate the chemicals we use at the plant to ensure we are using the best available in terms of meeting our treatment goals in the most sustainable manner as well as to ensure that we do not foresee shortages in chemicals we use which could impact treatment or their price. At this time, staff believe we are using the correct blend of chemicals and no shortages are foreseen in their supply.

Energy Management

Since 2010, our electricity use at the Jones Ferry Water Treatment Plant (WTP) has decreased by about 13 percent. This is in large part thanks to the conservation and efficiency of our customers, as well as UNC's use of reclaimed water. Natural gas is used at the WTP to heat buildings, and our use of natural gas is largely driven by weather. The use of natural gas (therms) was about 17 percent lower in 2016 than it was in 2010, largely attributable to weather and operational changes.



OWASA recently installed power monitors at several locations within the WTP to learn which processes use the most energy and identify areas where we may be able to reduce our energy use. We have just begun to collect this data.

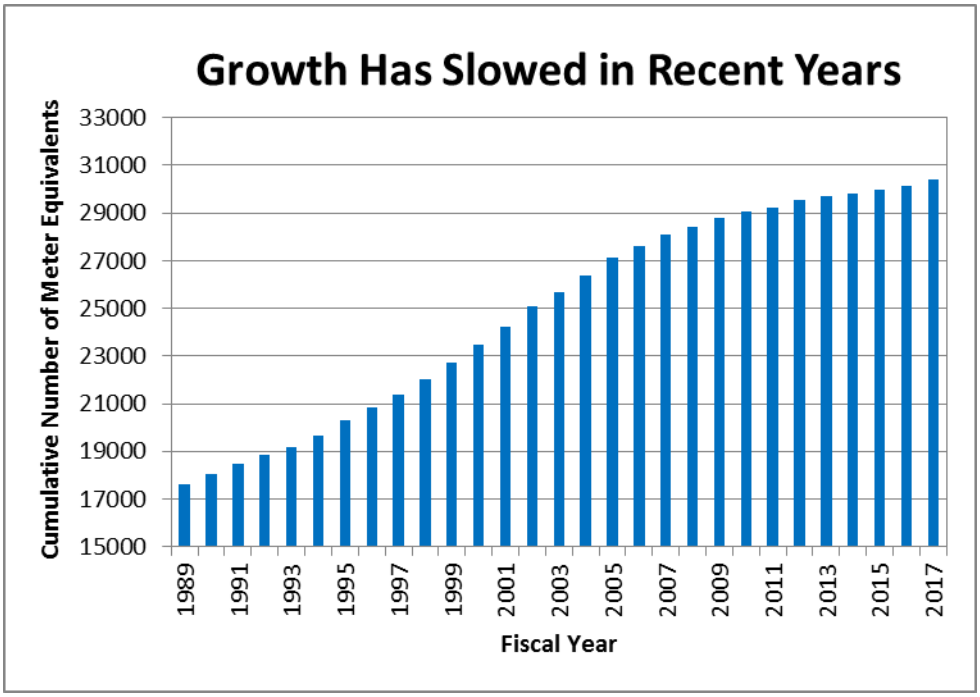
Strategic Plan Elements

Strategic Initiative 1 includes preparing a Water Conservation Plan. Conserving water will help reduce peak day and average day demands. In addition, Strategic Initiative 3 includes a goal to invest at the right time in our community's water assets. Understanding the capacity of our WTP, the demands placed on it, and the potential implications of future treatment requirements will inform our CIP.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor peak-day demands at the Jones Ferry Road WTP and identify cost-effective practices that could be implemented to further reduce peak-day demands.	Ongoing		X
2. Continue to identify and pursue cost-effective opportunities for additional conservation or reclaimed water use, which help reduce peak demands.	Ongoing		X
3. Continue to monitor potential growth in our service area by working closely with Carrboro, Chapel Hill, and UNC to ensure we have sufficient drinking water treatment, pumping and storage capacity.	Ongoing		X
4. Continue to monitor our water and stay current with the potential new drinking water standards to ensure we can meet future requirements. Identify any studies or technologies needed to ensure we provide safe, high quality drinking water to our customers.	Ongoing		X
5. Continue to monitor treatment technologies and chemical use for potential to improve our level of service.	Ongoing		X
6. Identify potential energy savings opportunities for water treatment and pumping in Energy Management Program.	Ongoing	X (as part of Energy Mgmt Plan)	

Cumulative Number of Water Meter Equivalents (MEs)



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

Key Observations

- Growth in the service area is slower in recent years than in past.
- The number of meter equivalents has grown 34 percent since FY 1999, the year with our highest peak-day drinking water demands (see Peak-Day Drinking Water Demands Trend).

Regulations

There are no regulations to report for meter equivalents.

Technology and Research

There are no updates in technology to report for meter equivalents.

Energy Management

There is no energy use to report for meter equivalents.

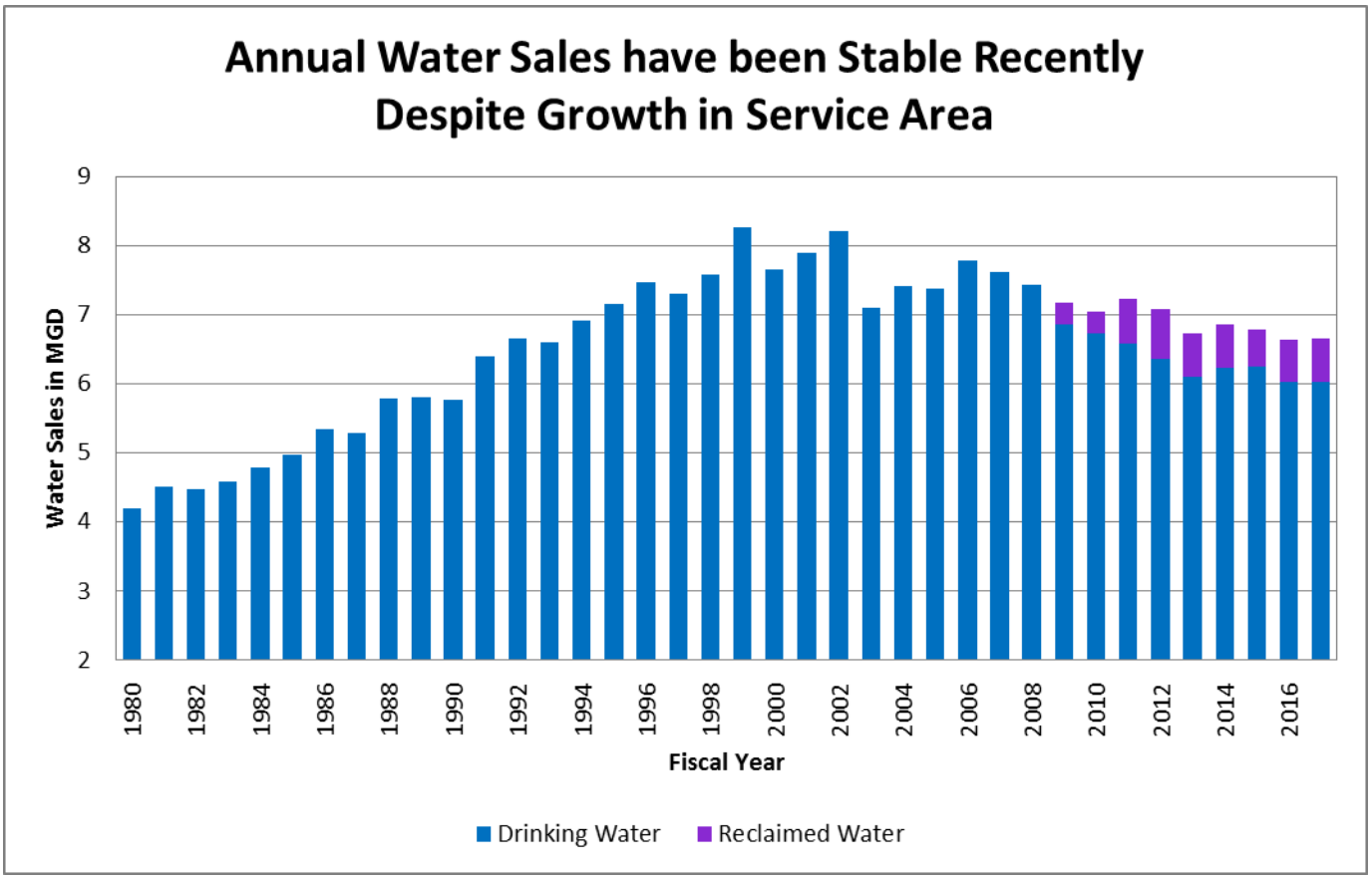
Strategic Plan Elements

Understanding how growth is occurring in our service area allows us to plan for our water supply needs and treatment and conveyance capacity needs (as well as our wastewater collection and treatment capacity needs). These are related to Strategic Initiatives 1 (provide reliable and high quality supply of water for next 50 years) and 3 (adopt budget decision processes to ensure affordable services).

Actions Needed

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

Drinking Water and Reclaimed Water Sales



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

Key Observations:

- OWASA's annual average drinking water sales have declined despite growth in the service area as shown in the Meter Equivalents trend. Drinking water sales are currently at about the same level they were 25 years ago.
- Total annual water sales (including reclaimed water) are 20 percent less from when they peaked in FY 1999, despite a 30 percent increase in customer accounts during that same time period. Drinking water sales declined 27 percent over that same period.
- Reclaimed water sales meet almost 10 percent of the community's water needs.

Regulations

There are no regulations to report for drinking water sales. For regulations on reclaimed water, see Reclaimed Water section.

Technology and Research

In accordance with Strategic Initiative 5, OWASA will be installing advanced metering infrastructure (AMI) over the next couple of years. AMI will allow OWASA and our customers to detect leaks earlier and may result in further reduced water sales.

Energy Management

Energy used to pump drinking water is shown in the Peak-Day Drinking Water Demands section.

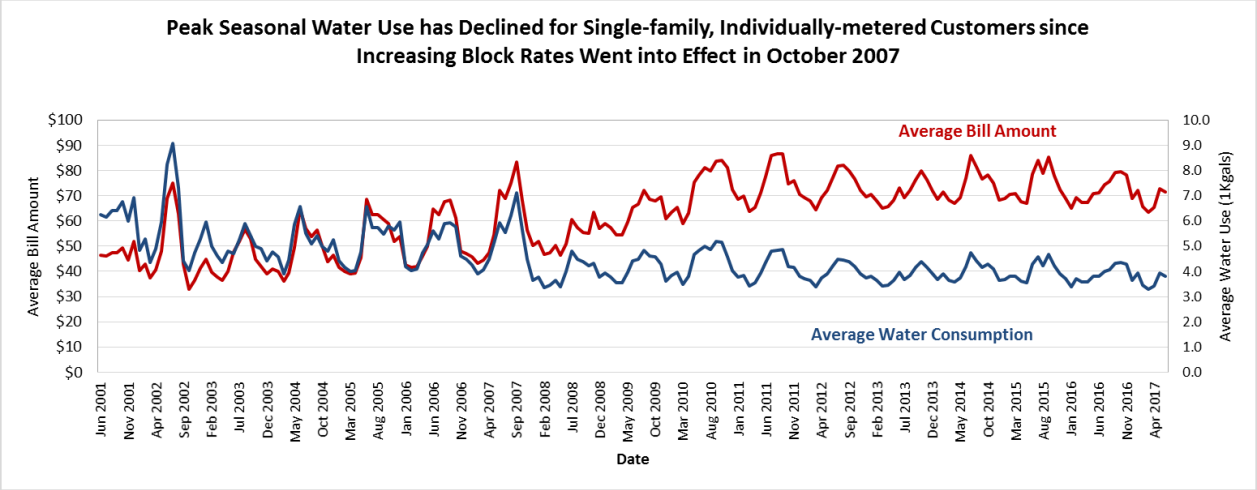
Strategic Plan Elements

The Water Conservation Plan included in Strategic Initiative 1 may result in reduced drinking water sales. This in turn would impact revenue, which would be addressed through the financial management policies included in Strategic Initiative 3. Financial reserves help OWASA meet its financial obligations during times of reduced water sales such as may occur during drought conditions.

Actions Needed

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

Average Monthly Water Use and Billed Amount



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

Key Observations:

- Peak seasonal water use by this group of customers has declined, particularly after OWASA's increasing block rates went into effect in October 2007. This indicates that outdoor water use for single-family, individually-metered residential customers has diminished and implies a relationship with the change in our water rate structure.

Regulations

There are no regulations to report for water use.

Technology and Research

In accordance with Strategic Initiative 5, OWASA will be installing advanced metering infrastructure (AMI) in the next couple of years. AMI will allow OWASA and our customers to detect leaks earlier and may result in further reduced water use.

Energy Management

Energy used to pump drinking water is shown in the Peak-Day Drinking Water Demands section.

Strategic Plan Elements

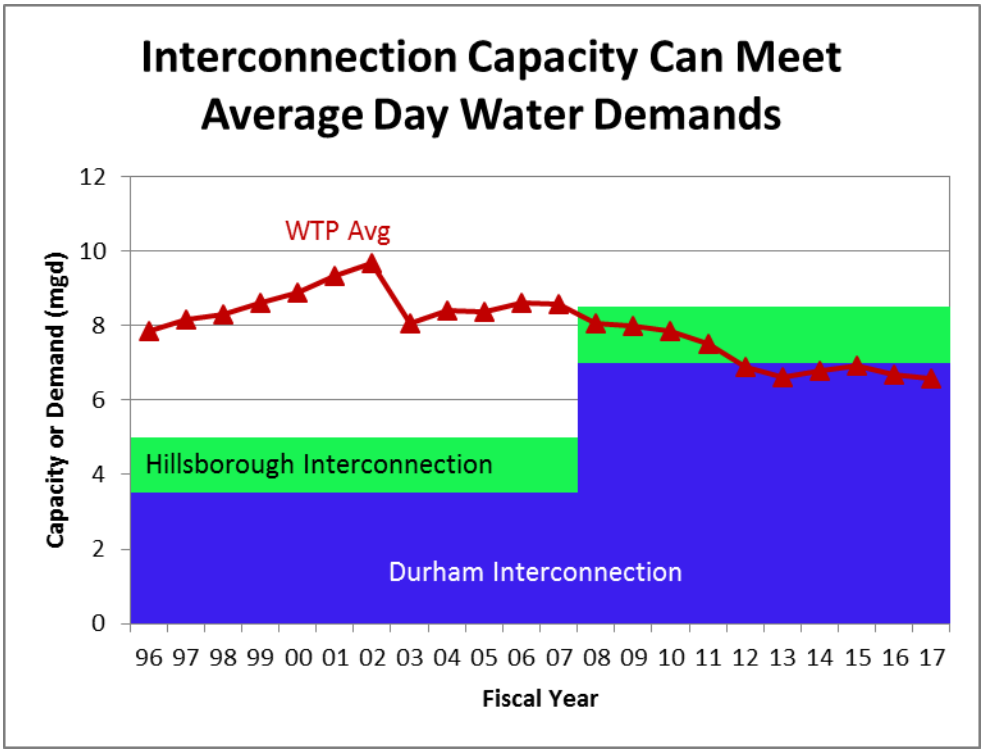
The Water Conservation Plan included in Strategic Initiative 1 may result in reduced drinking water sales. This in turn would impact revenue, which would be addressed through the financial management

policies included in Strategic Initiative 3. Financial reserves help OWASA meet its obligations during times of reduced water sales such as may occur during drought conditions.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to track this trend to determine whether water use is increasing.	Annual		X

Physical Interconnection Capacity and Average Annual WTP Demands



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

Key Observations:

- OWASA's existing physical interconnections are of sufficient capacity to meet average-day drinking water demands in an emergency.
- Our drinking water system interconnections with the City of Durham have a combined capacity of about 7 mgd.
- We can receive about 1.5 mgd through our interconnection with the Town of Hillsborough.
- The combined capacity of our interconnections is about 8.5 mgd, which is over 140 percent of our FY 2017 average-day drinking water demands and over 125 percent of our FY 2017 water demands including reclaimed water.
- OWASA also has an interconnection with Chatham County that is not shown on graph. OWASA could potentially receive 1 mgd through this connection based on modeling analyses, and the interconnection was turned on during the February 2017 water emergency.

Regulations

There are no regulations to report for interconnections.

Technology and Research

There are no updates in technology to report for interconnections.

Energy Management

Energy used to pump water at our interconnections is negligible under most conditions; however, it would increase considerably if, when, and in what amounts we are obtaining drinking water from (or supplying water to) a neighboring utility.

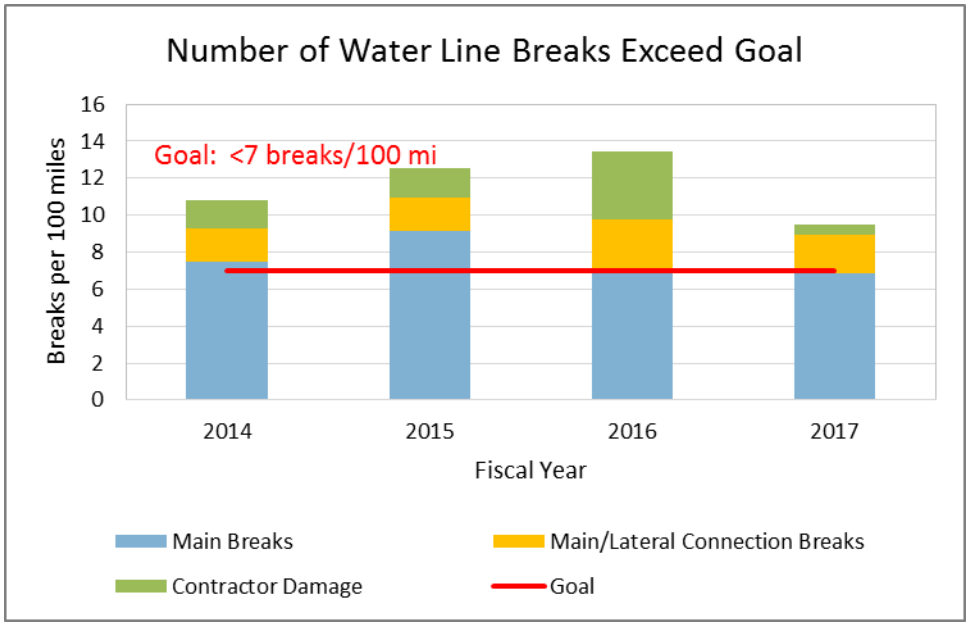
Strategic Plan Elements

While Strategic Initiative 1 does not directly include operational emergencies, our interconnections help us meet our water supply needs for short periods if something happened to our raw water supply, treatment plant or distribution system.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. OWASA should continue to monitor this trend to ensure that average-day drinking water demands could be met through water system interconnections with our neighboring utilities.	Annual		X
2. Re-evaluate the capacity of system interconnections to ensure changes in system facilities and demands have not adversely affected our ability to import an adequate supply of drinking water to meet average-day demands during an emergency.	Periodically as needed		X
3. Perform field tests on all interconnections to ensure proper operation, train staff, and confirm capacity.	Annual		X
4. Continue to work with Jordan Lake Partnership to use regional interconnections model for planning purposes to improve regional reliability and resiliency.	Ongoing		X

Drinking Water Distribution System Integrity



Description: This trend evaluates the number of water main breaks per 100 miles of water mains and connections with service lateral lines. These are important indicators of the integrity of our drinking water distribution system. It also includes information on lines damaged by contractors; while that metric does not impact the integrity of our water distribution system, there is an impact on our customers and thus we include contractor damage in this trend.

Key Observations:

- We have had more water main breaks than our goal of 7 main breaks or less per 100 miles of pipeline, which is based on median of value included in the most recent American Water Works Association (2016) Benchmarking report. (Note: In prior report we used a goal of 11 main breaks or less per 100 miles of pipeline based on the 2012 Benchmarking report).

Regulations

Federal and State testing requirements require public water systems such as OWASA to test for lead in drinking water collected from customers' homes as part of the Lead and Copper Rule. Samples must be collected from homes that meet criteria set by the EPA; these criteria identify "high priority" homes that are most likely to have elevated lead levels. OWASA tests for lead in drinking water in 30 homes built from 1983 to 1985 that have copper pipes with lead solder every three years. In the previous four rounds of monitoring, we have had only one sample with a measurable level of lead and the result was below the regulatory limit. The most recent round of monitoring for lead and copper in the distribution system was completed September 30, 2017; only one sample had a measurable level of lead and the

result was below the regulatory limit. OWASA also provides testing of our drinking water for lead at no charge when requested by a customer.

Technology and Research

There are emerging technologies to monitor the condition of our water lines and detect leaks, but these are not cost-effective to implement throughout our distribution system at this time. Acoustic leak detection finds leaks through estimating the speed of sound in water pipes. Acoustic leak detection can be integrated with AMI technology, and staff will evaluate the cost-feasibility of this technology when the AMI project is nearing completion if they believe it will add value to our ongoing maintenance program.

Cameras can also be used to monitor the condition of pipes in our distribution system. Camera-based inspections do not detect all potential risks, and they are not cost-effective at this time. However, it may be appropriate to consider this type of technology on some of our large, critical pipes. We will consider this type of technology as we work with our engineering contractors on our capital improvements program.

Energy Management

Much of the energy used at the WTP is actually for pumping drinking water into the distribution system and for maintaining system storage levels to maintain pressure and meet peak demands. The energy meters installed at the WTP will help us evaluate the energy used in the distribution system. Other energy is fuel for vehicles and equipment used to maintain our drinking water distribution system.

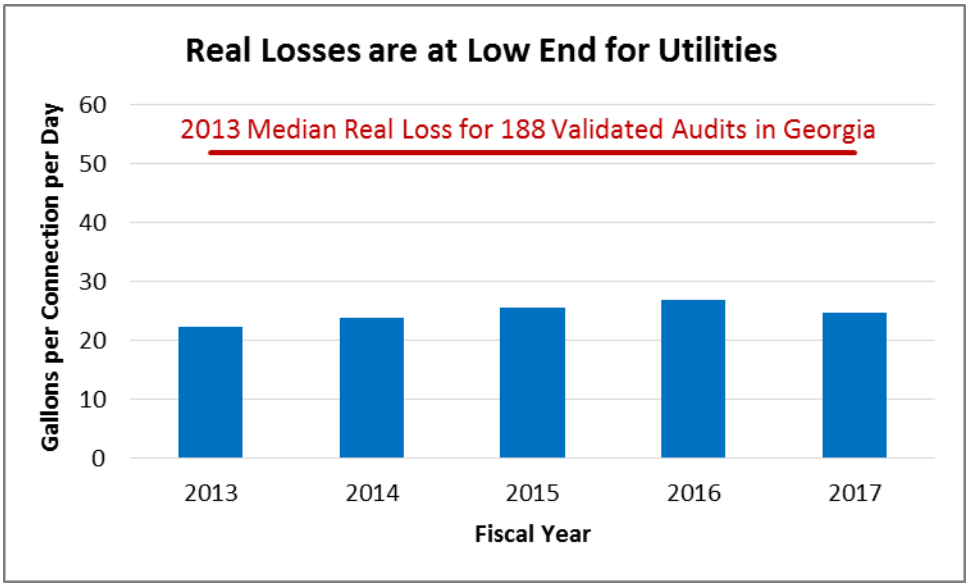
Strategic Plan Elements

Strategic Initiative 3 includes a goal to make the right investments at the right time, and to base this information on our asset management program. Maintaining and replacing our infrastructure when needed enables us to maintain high levels of service to our customers over the long-term.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to use OWASA's water main prioritization model to inform decisions and investments for the rehabilitation and replacement of the drinking water distribution system.	Annual		X
2. Continue the programmatic replacement of aging galvanized water mains throughout the distribution system.	Through FY 2020		X
3. Update the prioritization model to reflect field condition assessment and break history.	Every 3-5 years		X
4. Integrate the results of the water main prioritization model into the comprehensive asset management program framework so that the trade-offs of different capital improvements investment decisions can be consistently evaluated and prioritized to ensure cost-effectiveness.	Annual		X
5. Continue to fund our water main renewal/replacement program to ensure system sustainability.	Annual	X	

Water System Audit



Description: This trend evaluates the annual volume of water lost through leaks in the distribution system. Real loss is the difference between water supplied and authorized consumption; utilities also subtract out apparent losses associated with inaccuracies in metering, data errors, and estimated water theft.

Key Observations:

- OWASA has lower real losses than a study of 188 validated water audits in Georgia (52 gallons per connection per day). Cavanaugh and Associates presented a typical range of real loss of up to 200 gallons per connection per day at AWWA's Annual Conference and Exposition in June 2016.

Regulations

There are no regulations to report for real water loss.

Technology and Research

The Drinking Water Distribution System Integrity trend includes information on acoustic leak detection.

Energy Management

Energy used to pump drinking water is shown in the Peak-Day Drinking Water Demands section.

Strategic Plan Elements

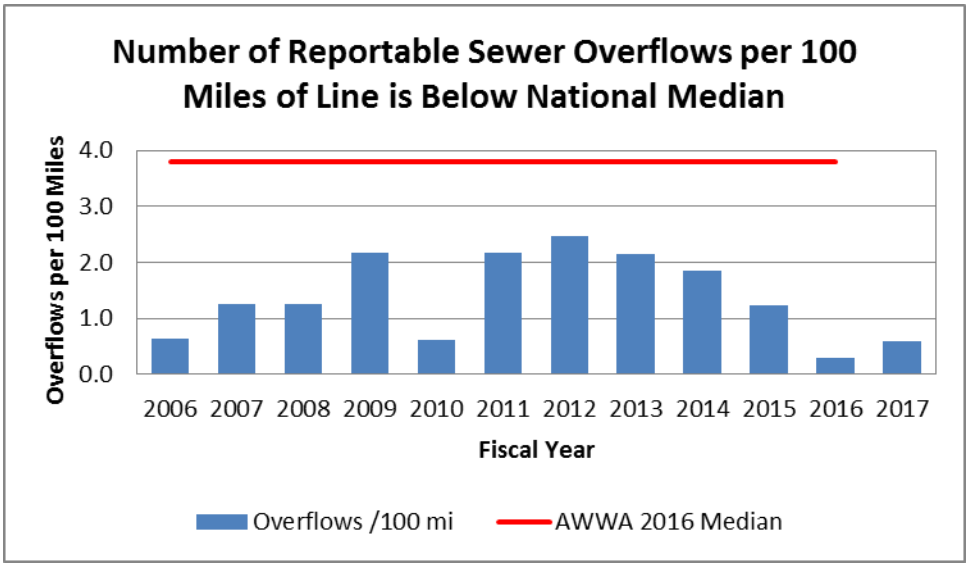
Strategic Initiative 1 includes the development of a Water Conservation Plan, an important element of our updated Long-Range Water Supply Plan. Strategic Initiative 3 includes a goal to make the right

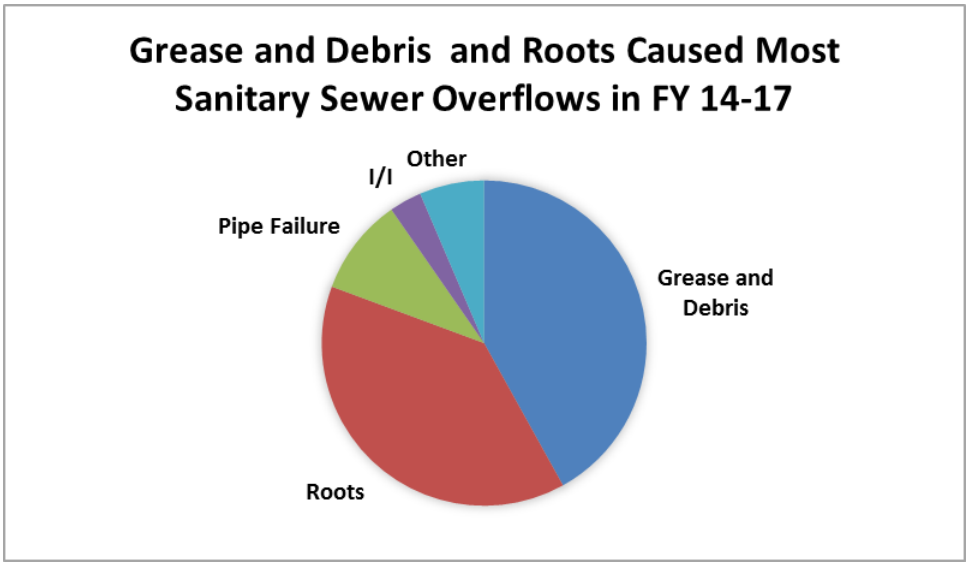
investments at the right time, and to base this information on our asset management program. Understanding the amount of water loss in our system helps make investment decisions. Maintaining and replacing our infrastructure when needed enables us to maintain high levels of service to our customers over the long-term.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Update water audit information	Annual		X

Wastewater Collection System Integrity





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

Key Observations:

- The number of overflows is consistently less than 3.8 per 100 miles of pipeline, which is the national median per the American Water Works Association 2016 Benchmarking report. The 25th percentile in that report was 1.1 overflows per 100 miles of pipeline. Per DEQ guidance, OWASA strives to have no overflows. (Note: We used the median value of 2.7 per 100 miles of pipeline from the 2012 Benchmarking report in prior Strategic Trends reports).
- The cause of overflows has been tracked electronically for four full fiscal years.

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

Regulations

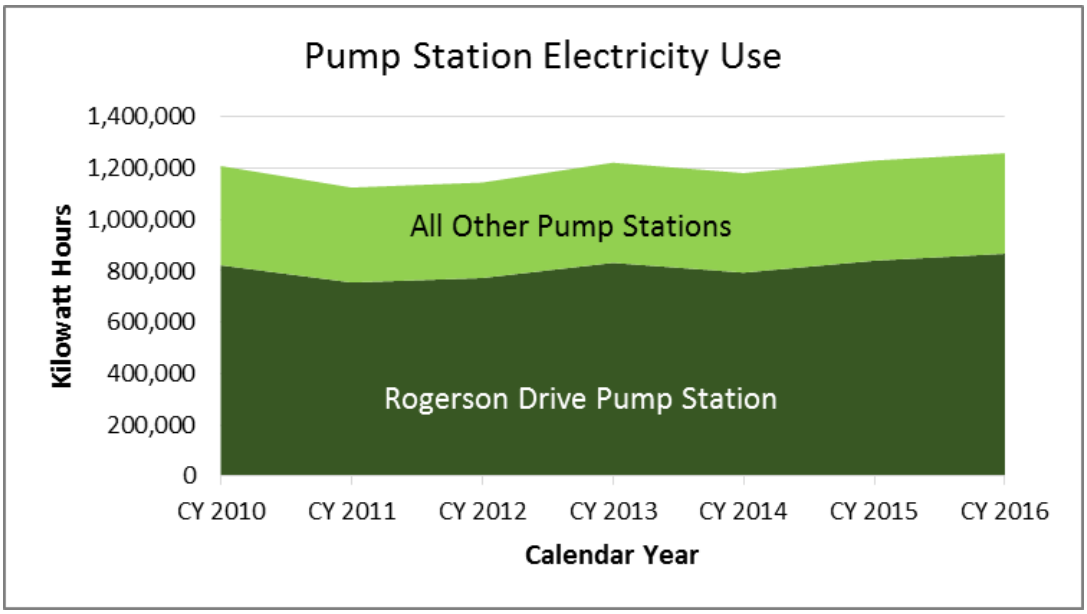
There are no upcoming regulations to report for our wastewater collection system.

Technology and Research

- Advanced, automated flow measurement technologies are available for real-time monitoring and control of wastewater collection systems. Permanent flow monitors may be connected to SCADA; smart manhole covers can also be moved around in the system. OWASA evaluates these technologies periodically and we have done some pilot tests with manufacturers. When monitors indicate that water levels have increased over time, it may be an indication that the line is blocked downstream. OWASA tested this technology using smart manhole covers in two locations near restaurants to determine if we could reduce the frequency of maintenance on lines; the controller and antenna failed so staff have continued with our scheduled maintenance of the lines. We are continuing to evaluate this technology.
- Smart manhole covers measure the water levels within sewer lines. If the level gets to a pre-set level, an alarm sounds. These smart manhole covers can also be linked to rain gages set in the service area. The combined rain gage and smart manhole cover can help find areas where infiltration and inflow may be a problem. OWASA tested this technology near our Rogerson Drive Pump Station; we are currently evaluating the data and plan to move the smart manhole covers to determine if the technology will help us identify areas with higher levels of infiltration and inflow.
- Acoustic monitoring to detect sewer line blockages is available. A device sends a sound down a line to help find obstructions. A pilot test of this type of technology indicated that it was not yet reliable and cost-effective.

Energy Management

Wastewater is primarily conveyed through the force of gravity; however, wastewater pumping stations are necessary to transport wastewater when gravity flow is not possible. All of our wastewater pumping stations are powered by electricity, with diesel fuel or natural gas being used to power emergency standby generators when electrical service is unavailable. Electricity use by OWASA's wastewater pumping stations has been relatively consistent over the last six years, with the Rogerson Drive Pump Station accounting for about 65 to 70 percent of the electricity used for collection system pumping.



Strategic Plan Elements

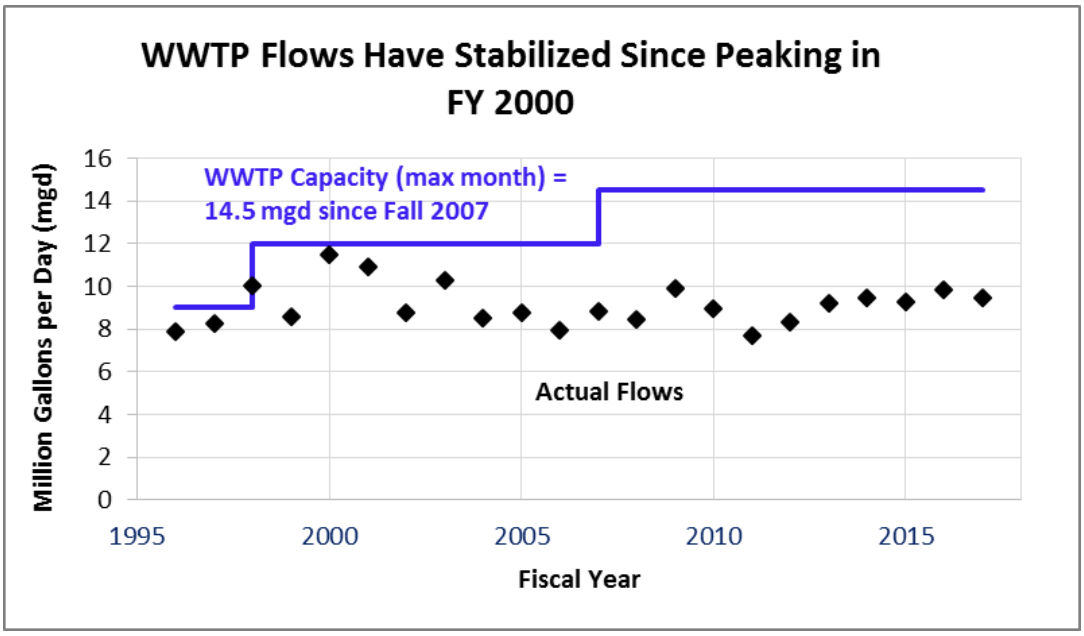
Strategic Initiative 3 includes a goal to make the right investments at the right time, and to base this information on our asset management program. Maintaining and replacing our infrastructure when needed helps us meet the community's wastewater needs.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to use the findings and recommendations from the 2011 Sewer System Master Plan and subsequent Sewer Evaluation Reports as a guide for prioritizing funding for sewer system evaluation, rehabilitation and replacement. Update the Master Plan's modeling efforts periodically as flow demand patterns change.	Ongoing		X
2. Integrate the results of the sewer system modeling and field condition assessment work into the comprehensive asset management program so that the trade-offs of different capital improvements investment decisions can be consistently evaluated and prioritized.	Annual		X
3. Continue to inspect, clean, and rehabilitate our sewer lines and wastewater pumping stations as needed to prevent overflows, reduce infiltration and inflow, and ensure adequate capacity.	Ongoing		X
4. Continue to monitor and maintain sewer easements to ensure our equipment and personnel can access the sewer system for maintenance and repair work, and to ensure tree root intrusion into sewers is minimized and corrected.	Ongoing		X

5.	Continue to educate the public on the importance of not pouring fats, oils and grease, medications, etc. down the drain and not flushing items other than toilet paper.	Ongoing		X
6.	Continue to fund the sewer system renewal/replacement program to ensure system sustainability.	Annual	X	
7.	Identify potential energy savings opportunities for wastewater collection in Energy Management Program	Ongoing	X (as part of Energy Mgmt Plan)	

Mason Farm Wastewater Treatment Plant Maximum Month Flow Projections



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

Key Observations:

- OWASA's maximum month wastewater flows have declined from a peak of 11.5 mgd in FY 2000. This corresponds to reduced drinking water demands by our customers, as well as our continuing investments in the rehabilitation and replacement of sewer lines and manholes.
- In FY 2017, the maximum month flow was 9.4 mgd, which is 65 percent of the WWTP's permitted flow capacity.
- OWASA is beginning the process to update the LRWSP. One of the first tasks will be to develop future raw water demand projections which will be used to estimate future wastewater treatment needs. We anticipate that the WWTP has adequate capacity to meet projected wastewater demands for at least the next 20 years. Although the WWTP's hydraulic capacity may be adequate, imposition of more stringent nutrient limits or other treatment requirements could require process modifications and related capital improvements. Other non-capacity improvements may include renewal and replacement in accordance with our comprehensive asset management plan and efficiency and optimization improvements.

Regulations

Important regulations pertaining to wastewater treatment are related to nutrient removal at the WWTP, which is described in the Mason Farm WWTP Nutrient Capacity section of this report.

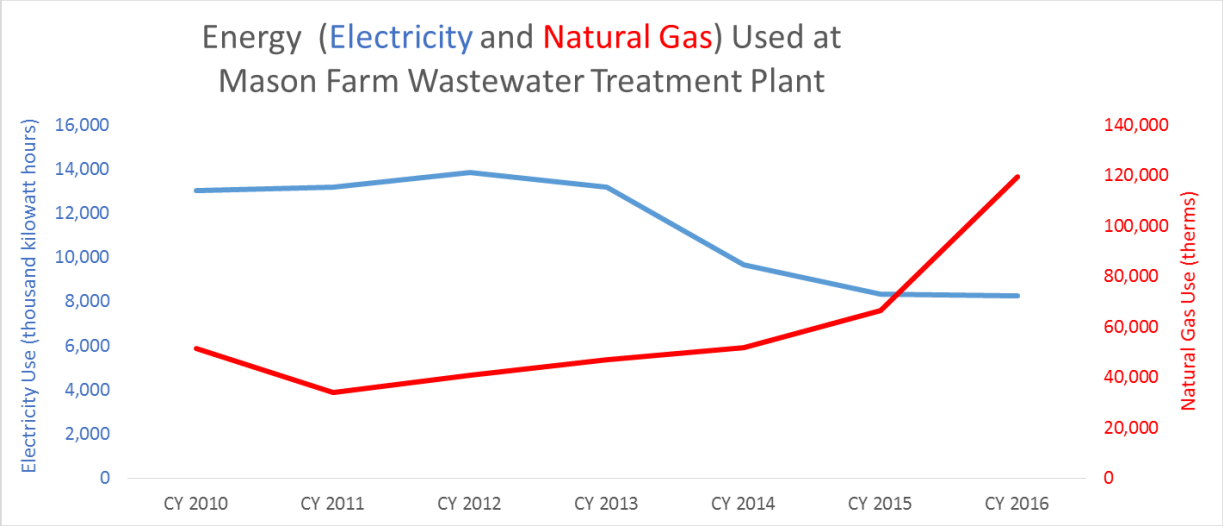
Technology and Research

- Staff at the WWTP periodically evaluate the chemicals used at the plant to ensure we are using the best available in terms of meeting our treatment goals in the most sustainable manner as well as to ensure that we do not foresee shortages in chemicals we use which could impact treatment or their price. At this time, staff believe we are using the correct blend of chemicals and no shortages are foreseen in their supply.
- Staff is closely following advancements in technology and actual industry experience for resource recovery at the wastewater treatment plant. This includes energy generation such as the biogas to energy alternatives currently being evaluated as part of the Energy Management Program, nutrient and metal mining[1], and direct and indirect potable reuse. Biogas recovery strategies are being evaluated as part of the Energy Management Plan, and opportunities for greater reuse will be evaluated as part of the Long-Range Water Supply Plan. Nutrient recovery strategies are discussed in the following section.

Energy Management

The Mason Farm WWTP is our largest energy-using facility. Since 2010, our electricity use at the WWTP has decreased by about 37 percent. This is largely attributable to a $10.4 million capital improvement project that reduced electricity use, further reduced off-site odor releases, improved plant performance, and prepared us to meet future standards for treated wastewater quality. In 2016, our use of natural gas was 177 percent higher than it was in 2010, primarily as a result of our biogas storage and use system being out-of-service since mid-2015 due to the ongoing renovation of two of our digesters. We normally use biogas as fuel for our boilers that provide heat for the anaerobic digestion process. When biogas is unavailable, we must use natural gas.

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



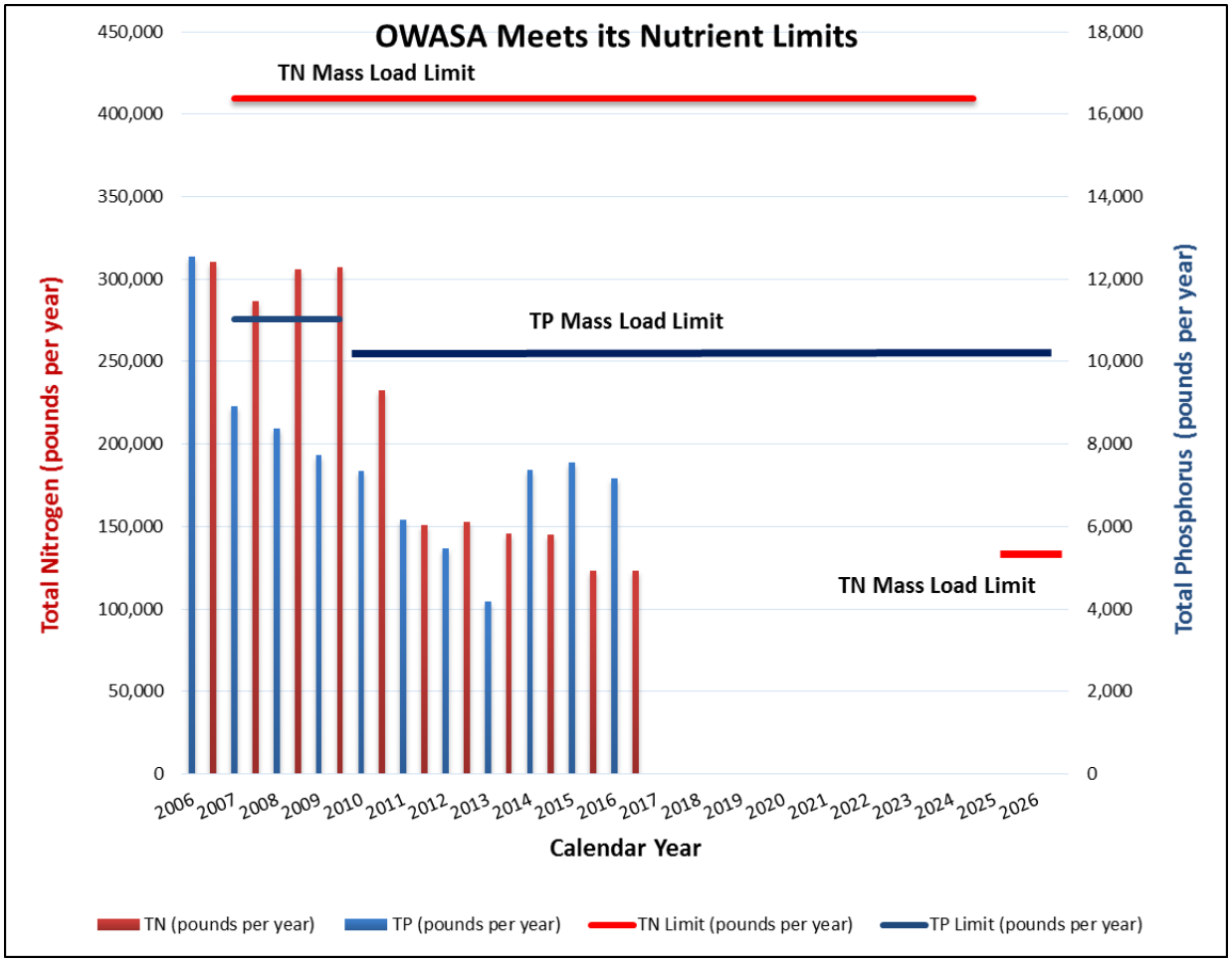
Strategic Plan Elements

Biogas recovery strategies are being evaluated as part of the Energy Management Plan, which is Strategic Initiative 4. Strategic Initiative 3 includes a goal to make the right investments at the right time, and to base this information on our asset management program. Ensuring that our wastewater treatment capacity is adequate, and timing expansions properly, helps us meet the community's wastewater needs.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Continue to monitor growth and development activity and projections in our service area by working closely with the Towns of Carrboro, Chapel Hill, and UNC to ensure we have adequate wastewater treatment capacity for the future.	Annually with ongoing communication		X
2. Revisit the peaking factors used to estimate maximum month flow as part of the LRWSP update.	CY 2018	X (as part of LRWSP update)	
3. Continue to inspect, rehabilitate, and replace our sewer lines when necessary to reduce infiltration and inflow.	Ongoing		X
4. Identify potential energy savings opportunities for wastewater treatment and pumping in Energy Management Program.	Ongoing	X (as part of Energy Mgmt Plan)	

Mason Farm WWTP Nutrient Capacity



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

Key Observations:

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

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

Regulations

As noted previously, the NC General Assembly has enacted legislation (House Bill 97) that defers the effective date for implementation of more stringent TN mass load limits for WWTPs in the Jordan Lake watershed to at least 2024. Staff will continue to closely follow this issue, and we will inform the Board if any changes are needed in the timing or scope of major anticipated capital or operational improvements required to ensure compliance with the new limit.

Technology and Research

- OWASA evaluates the treatment technologies we have at our wastewater plant to ensure we can meet upcoming standards with current treatment technologies. OWASA can meet all applicable permit limits, but we will need to operate our filters in denitrification mode to remove nitrogen when revised limits become effective. (Based on 2015 action by the NC General Assembly, the new expected date for a much more stringent TN limit is 2024). Carbon must be added to achieve denitrification in the WWTP filters, and there are different operational, safety, financial, and environmental considerations associated with different carbon sources We will evaluate the advantages and disadvantages of alternative carbon sources, and conduct pilot and plant-scale testing as needed, to inform our decisions regarding the preferred source.
- Sidestream treatment for greater nutrient removal is a process that may be considered for the Mason Farm WWTP if we decide to dewater a greater portion of our biosolids. Sidestream treatment would help to reduce nitrogen loading in the liquid treatment process. Modeling studies indicate that if we dewater all of our biosolids, sidestream treatment could provide annual chemical and energy cost savings of approximately $200,000 and have a payback of less than ten years. Sidestream treatment could also provide additional process flexibility in meeting TN limits; it may also allow a rerating of the plant to a higher treatment capacity, thereby providing substantial cost savings for our customers. The City of Durham uses side stream treatment at one of its WWTPs.

Energy Management

See the section titled Mason Farm Wastewater Treatment Plant Maximum Month Flow Projections for energy use information at the WWTP. As noted above, certain advanced nutrient recovery technologies may have the potential to further reduce energy use for the liquid wastewater treatment process.

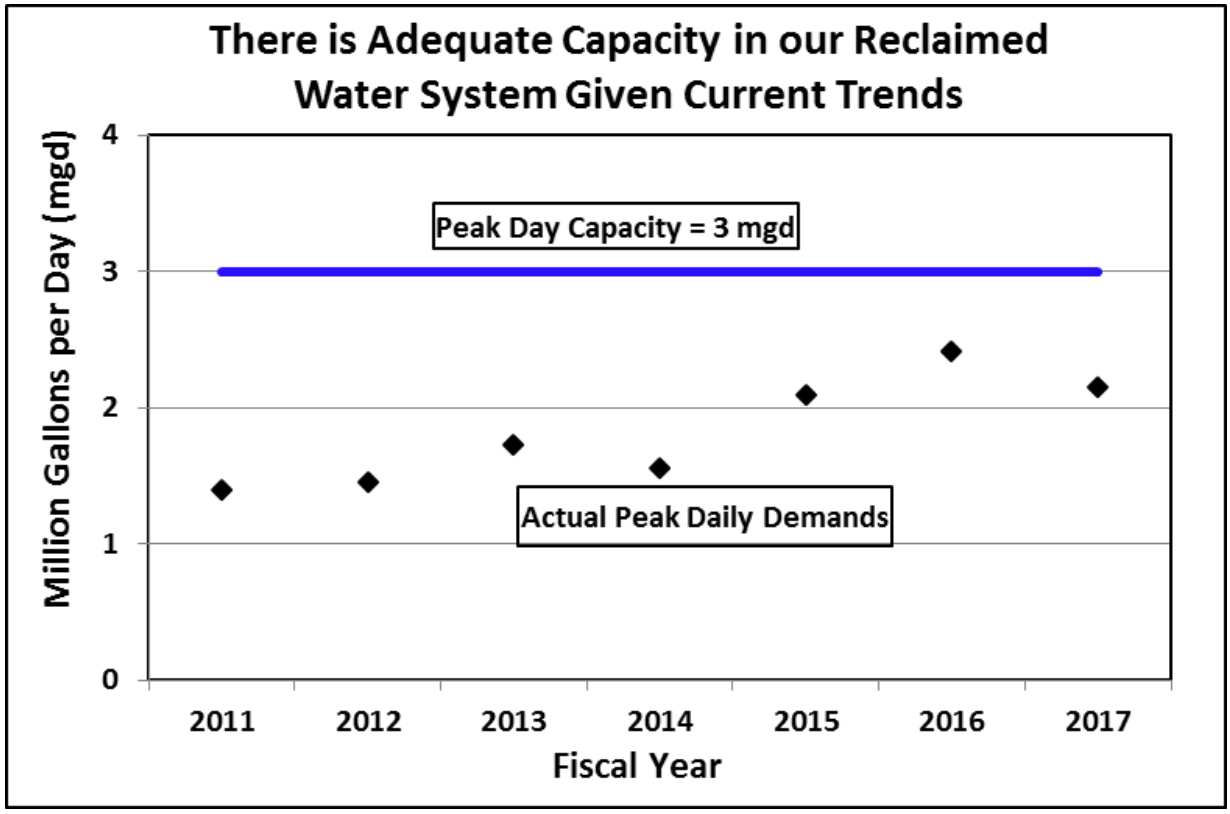
Strategic Plan Elements

Strategic Initiative 3 includes a goal to make the right investments at the right time, and to base this information on our asset management program. Ensuring that our wastewater treatment technology can meet permit requirements, and incorporating changes in operations to meet limits, helps us meet the community's wastewater needs.

Actions Needed

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

Reclaimed Water



Description: This trend tracks historical annual peak-day reclaimed water (RCW) demands and compares those against the peak day capacity of the Mason Farm WWTP's RCW system.

Key Observations:

- The majority of RCW is used for chilled water and irrigation of landscaping and athletic fields and these demands peak during warm months (April-October). Demands are typically lower during cold months (November-March).
- Peak daily demand of 2.4 mgd occurred in August 2016 when it was very hot and humid. The RCW system is currently configured to meet a total peak day demand of 3 mgd (average daily demand of 1.2 mgd); however, the system is designed and constructed to allow cost-effective expansion to 5.2 mgd by adding only an additional transfer pump and additional chemical feed system capacity (if that feed system is deemed necessary).
- There is no anticipated significant change in demand for the next 15 years, and therefore the RCW system can meet projected RCW demand for the foreseeable future.

Regulations

In 2014, the NC General Assembly ratified Senate Bill 163 (Session Law 2014-113) to allow for indirect potable reuse, provided that a pretreatment mixing basin is created and used to mix raw source water

and reclaimed water, and that reclaimed water does not comprise more than 20% of the total combined supply. OWASA will evaluate the costs and benefits of this potential water supply source as one of the options considered during the update of our Long-Range Water Supply Plan. More information on RCW and reuse is provided in the Technology and Research section below.

Technology and Research

One aspect of reuse is recycling water within a building, which has been done in other parts of the country. One example (Solaire) is a high rise building in New York City which uses various filtration (membranes) and disinfection (ultraviolet light) technologies to produce reclaimed water that is beneficially recycled within the building and used for flushing toilets, cooling tower make-up water, and irrigating the green roof. The WaterHub at Emory University is an onsite wastewater reclamation system which uses ecological processes and stormwater capture to meet the campus's nonpotable water demands. A similar stormwater capture and treatment system is being planned for Chatham Park in Chatham County.

Energy Management

In February 2015, we began sub-metering and monitoring the energy uses of a few specific processes at the WWTP, including the RCW system. The RCW system is not just important for its impact on our use of raw water resources, but it is a more energy-efficient way to meet demands. The energy required to treat and deliver reclaimed water is less than that is required to treat and deliver raw water to the community. In 2016, on average, we used 2.33 kWh to treat and deliver 1,000 gallons of raw water. Since January 2016, on average, we used 1.98 kWh to treat and deliver 1,000 gallons of reclaimed water, a savings of over 15 percent.

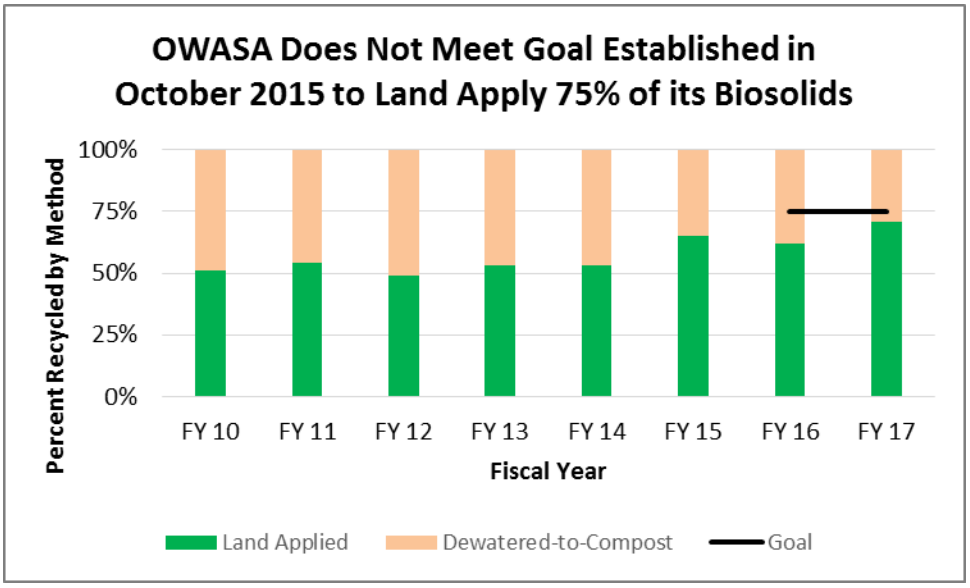
Strategic Plan Elements

Strategic Initiative 3 includes a goal to make the right investments at the right time, and to base this information on our asset management program. Ensuring that our RCW system capacity is adequate will help meet the community's water needs. This also ties to Strategic Initiative 1; the use of RCW reduces the demand on our drinking water supplies which will help meet our community's long-term water supply needs. Finally, the use of RCW uses less energy than treating and delivering raw water, which ties to Energy Management Program in Strategic Initiative 4.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Verify RCW meters are properly calibrated and recording flows accurately.	Annual		X
2. Closely monitor RCW demands in order to ensure RCW system capacity expansion is planned, designed, and funded in time to meet future demands.	Ongoing		X
3. Pursue cost-effective opportunities to expand the RCW system to serve non-drinking water demands of non-UNC customers as new growth and development/redevelopment occurs.	Ongoing	X	

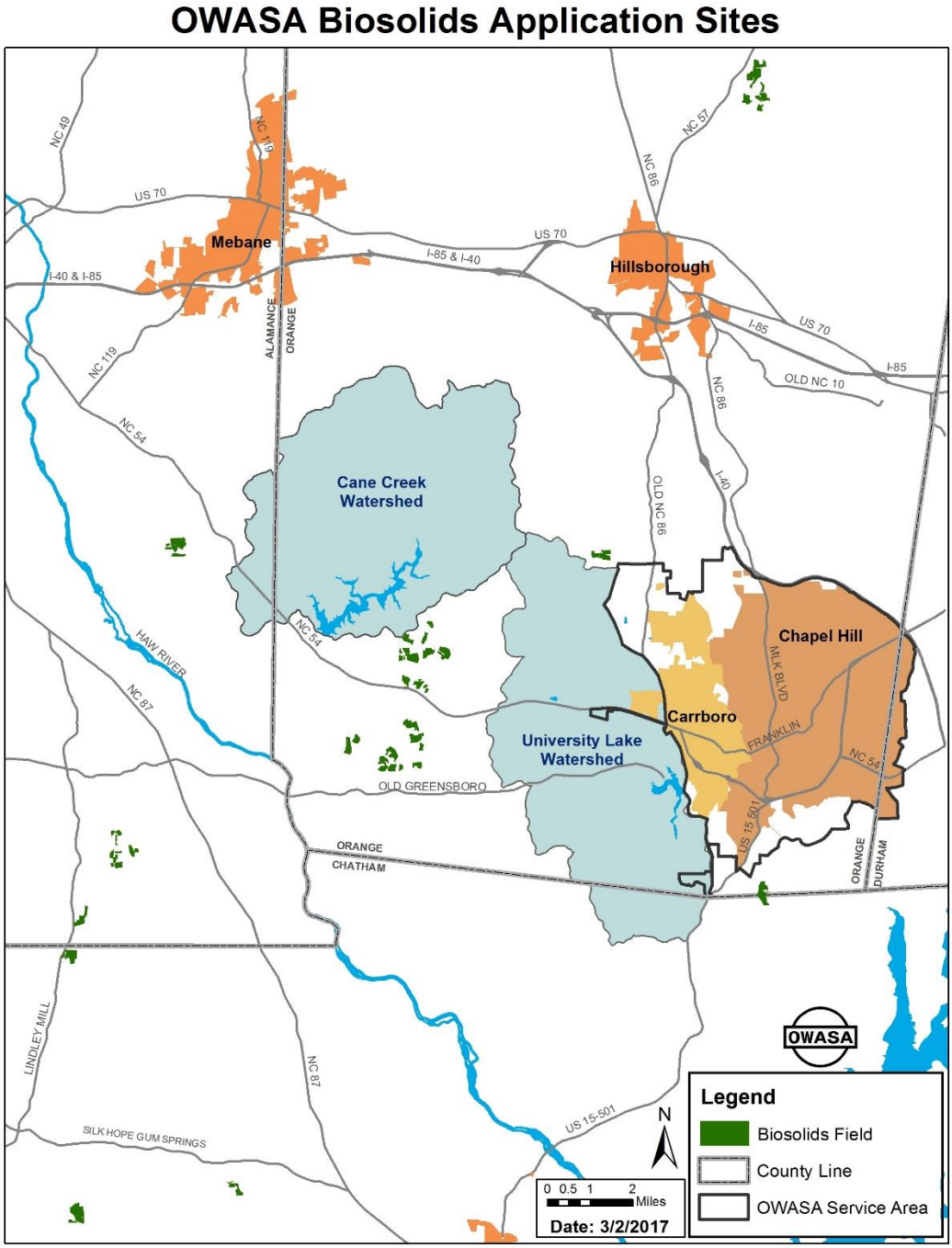
Biosolids



Description: This trend evaluates the amount of biosolids which OWASA applies to land and the amount it dewaters for composting. The WWTP produces about four dry tons of biosolids each day. Most of this is applied in liquid form to agricultural land and a portion is dewatered to the texture and consistency of moist soil and transported to a private composting facility in Chatham County. For the liquid form, OWASA has 910 acres of farm land in Orange, Chatham and Alamance counties available for its Class A land application program (see map below). 83 percent (756 acres) is privately owned. The remaining 154 acres are owned by OWASA as part of a 700-acre tract west of Orange Grove Road in Orange County. At its October 8, 2015 work session, the Board of Directors agreed that OWASA's goal is to apply 75 percent of our biosolids in liquid form, and to dewater 25 percent of our biosolids. The Board of Directors understands that there are factors including weather conditions which may keep staff from meeting the goal.

Key Observations:

- Prior to FY 2015, OWASA consistently land applied about half of its biosolids and dewatered and composted the remaining half.
- In FY 2017, OWASA land applied 71 percent of its biosolids. While this has not met the goal, it should be noted that this was accomplished during a wet year when we had staff shortages in the biosolids management team. In addition, our biosolids tanks are empty moving into the colder, wetter winter months when there are limited opportunities to apply liquid biosolids. Thus, OWASA is well positioned to handle its solids over the next twelve months to meet the goal. It should be noted that if 2018 is wet and our opportunities to apply liquid biosolids are limited, OWASA can dewater higher amounts of biosolids while meeting all applicable regulatory requirements for our biosolids treatment and recycling program.



Regulations

Federal and state regulations specify the agronomic rates at which biosolids may be land applied for designated crops (the maximum amount of biosolids that can be applied to a given field is currently determined by the nitrogen content of the biosolids and is limited to the nitrogen requirements of the particular crop to which it is being applied). OWASA closely monitors the application rates on each individual field and historically has applied at rates well below the maximum allowed by regulation. Some states also limit land application of biosolids based on the phosphorus content of the biosolids

and the soil; however, North Carolina does not have such a loading limit. If North Carolina adopts this approach, the amount of land needed to support our land application program would increase considerably.

Technology and Research

As described in the Mason Farm WWTP Nutrient Capacity section, sidestream treatment for greater nutrient removal is a process that may be considered for the Mason Farm WWTP if we decide to dewater a greater portion of our biosolids. To the extent that the nutrient content of our biosolids is lower, we would need less land area for our land application program.

Energy Management

The primary energy uses of OWASA's biosolids management program are for vehicle fuel, biosolids loading, running the rotary press for dewatering, treating the nutrient-rich dewatering filtrate loads returned to the aeration process, and mixing the biosolids holding tanks.

Strategic Plan Elements

Strategic Initiative 3 includes a goal to make the right investments at the right time, and to base this information on our asset management program. Ensuring that our biosolids program meets federal and state requirements and protects public health, helps us meet the community's wastewater needs.

Actions Needed

Action Items	Timing	Board Action?	
		Yes	No
1. Evaluate the 75 percent liquid land application goal and report our performance to the Board	Annually		X
2. If Board decides that we should dewater a higher percentage, evaluate the advantages and disadvantages of sidestream treatment to ensure permit compliance	As needed	X	
3. Evaluate the amount of land in our biosolids program to ensure it is adequate to meet liquid land application goal	As needed (if farmers drop out of program)		X

Strategic Plan Progress Report

We identified six strategic initiatives with accompanying goals, actions, and measures of success. We believe that these initiatives and actions address each of our strategic themes and will result in positive change.

Strategic Initiative 1

Provide reliable and high quality supply of water for the next 50 years

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
Optimum mix of technically, environmentally, economically, and socially feasible water supply and demand management alternatives that meet projected demands and level-of-service objectives under a range of future conditions and uncertainties.	Update Long-Range Water Supply Plan to include: > desired level of service and water supply resiliency. > supply and demand projections to incorporate best information from land use /growth management plans, University plans, climate change impact information, etc. > evaluation of potential supply and demand management alternatives, including but not limited to: Jordan Lake as emergency supply; conservation and water use efficiency; expanded use of reclaimed water (including direct and indirect); quarry reservoir; etc. > preferred mix of supply and demand management alternatives required to meet level-of-service objectives.	Updated plan provides a clear and responsible path forward to ensure a reliable and high quality supply of water for the next 50 years that is supported by stakeholders.	***The Board agreed to goals and objectives to evaluate supply and demand management alternatives against on November 10, 2016. Staff will use growth projections currently being finalized for regional transportation planning as the basis for our future demand projections (growth projections anticipated by end of December 2017). Staff is working with a graduate student at the University of South Carolina who is evaluating the dependability of our estimated yield under different climate change assumptions.***
	Adopt Long-Range Water Supply Plan and begin implementation.	Adequate supply of high-quality water which meets customer needs for next 50 years across the range of assumptions and scenarios included in the Plan.	
Enhanced water supply reliability, reduced energy use, and reduced long-term life-cycle costs of water and sewer service through cost-effective water use efficiency (WUE), conservation, and RCW strategies.	Prepare Water Conservation Plan that includes a program to educate customers on the value and importance of water, best practices for reducing water use and monthly bills through conservation, WUE practices, and collaboration with Towns, County and others on conservation and WUE standards.	Reduce residential water use by X% (currently 4,000 gallons/month for individually-metered single-family residential accounts). (Target to be established) Establish targets for other customer classes.	***The Water Conservation Plan will be prepared as part of the Long-Range Water Supply Plan.***

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
Maintain our Jordan Lake water supply allocation.	Application for Jordan Lake water supply allocation (Round 4) was submitted in November 2014.	Allocation request granted to OWASA by Environmental Management Commission (EMC). (*Note*: Latest information from NC Division of Water Resources indicates the EMC may make decisions in January 2017.)	***Complete. OWASA's Round 4 Jordan Lake water supply allocation was granted by the EMC on March 9, 2017.***
New or amended water transfer agreements with Town of Cary and City of Durham for OWASA to access our Jordan Lake water supply allocation through those entities when needed.	Coordinate with staff from the Town of Cary and City of Durham to determine terms and conditions for ensuring cost-effective access to our Jordan Lake allocation.	Successful adoption of new or amended water transfer agreements for OWASA to reliably and cost-effectively access our Jordan Lake water supply allocation when needed.	***As part of the update to the LRWSP, staff will evaluate the amount of water we need from Jordan Lake and the best way to cost-effectively access the allocation when needed. Staff continues to work with the City of Durham, Chatham County, and Town of Pittsboro to evaluate the feasibility and cost of constructing a new intake and water treatment plant on the west side of Jordan Lake. This information will be used as we evaluate different alternatives to access our Jordan Lake allocation.***

Strategic Initiative 2

Engage the Community

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
Engage stakeholders to understand their perceptions and expectations so that we make well-informed decisions about our services and so that we maintain their trust; and empower stakeholders with information so they use water wisely and protect water quality through proper use of our wastewater system; and provide stakeholders with timely information about projects, programs, and policies that are important to them and offer them meaningful opportunities to give their feedback so that we can continue to improve.	Prepare and implement Community Engagement Plans (CEPs) for all capital improvement projects and key initiatives.	Stakeholders trust OWASA to make informed decisions about our services. Positive feedback from customers and stakeholders about effectiveness of engagement work. Stakeholders have the information they need regarding projects, programs and policies and they have opportunities to provide feedback on matters of importance to them.	***The Board accepted criteria for when they will review Community Engagement Plans (CEPs) at the February 25, 2016 Board meeting. CEPs for key initiatives have been approved by the Board including the Advanced Metering Infrastructure project (December 8, 2016), Long-Range Water Supply Plan Update (February 12, 2015 and updated in November 2016 based on Board feedback at its November 10, 2016 work session), and Energy Management Plan (September 8, 2016). A CEP will be developed for Forest Management in late spring 2018. CEPs are prepared for all capital improvement projects.***

Strategic Initiative 3

Adopt financial management policies and budget decision processes to ensure affordable services and fiscal sustainability

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
Financial reserve funds set at appropriate level.	Review reserve policies during the annual budget development process to determine the desired level of reserve funds.	New or revised policies adopted, if appropriate.	***The Board reviewed reserves policies and projections for future reserve balances at its meeting on April 21, 2017 as part of the process of developing the FY 2018 budget. The Board took no action regarding OWASA's reserve policies but agreed to discuss the subject again in November of 2017.***
Efficient process which provides opportunities for stakeholder input and allows the Board of Directors to make well-informed budget and rate decisions.	During the annual budget development process, review Capital Improvement Program (CIP) investment practices.	New or revised CIP investment practices are adopted, if appropriate.	***In September 2016, the Board reviewed OWASA's process for developing its annual operating budget and capital improvements program. The Board expressed satisfaction with the processes used. A Finance Committee meeting will be scheduled to discuss the budget process for next fiscal year.***
The right investments at the right time to sustain the community's essential water, wastewater and reclaimed water assets.	Comprehensive asset management report was completed in March 2016.	Service levels are part of the asset management program report.	***Complete. The Asset Management Program report was updated and posted to the OWASA website in July 2017.***
Rates, fees and charges that meet objectives.	Evaluate possible rate structure changes for customer classes to include possible update to Service Availability Fees.	A rate structure that fairly and fully recovers revenues, promotes water conservation, promotes affordability, and is understood by customers.	***Based on results of a rate study, the Board changed the water commodity rate for the multi-family master-metered customer class from seasonal rates which are higher in the warmer months from May to September and lower the rest of the year to a year-round rate. Additionally, the Board approved adjusting Service Availability Fees; the adjustments were mostly reductions in amounts charged for new service connections. Several alternative rate structures were considered and the Board agreed to reconsider alternatives once the AMI project is near completion.***

Strategic Initiative 4

Implement an Energy Management Program

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
Cost-effective measures to reduce our use of energy, related energy costs, and associated greenhouse gas (GHG) emissions.	Develop an Energy Management Program that includes: > Goals for energy reduction by 2030 against a 2010 baseline. > Ongoing assessment of energy use, costs, and GHGs. > Assessment of the energy performance of our equipment, operations, and buildings and identification of opportunities for energy savings and the associated return on investment. > Prioritized energy savings opportunities. > Implementation of selected energy management and energy efficiency projects as part of CIP and annual budget. > Evaluation and prioritization of potential renewable energy strategies. > Feedback from community stakeholders.	Program provides a clear and responsible path forward for effective energy management. Energy cost savings (costs avoided) achieved from energy management, energy efficiency measures and renewable energy measures. Amount of grants, rebates, incentives, etc. received to fund energy management efforts. Percent reduction in our GHGs compared to baseline year.	***On September 8, 2016, the Board approved OWASA's Energy Management Program and associated Stakeholder Engagement Plan. In addition, the Board approved using a separate social cost of carbon in the business case evaluation of clean energy projects at OWASA. OWASA's Energy Management Program, as explained in the 2017 Energy Management Plan, is an iterative process of system and strategy evaluation.*** ***In Fiscal Year 2017, OWASA spent about $90,000 less on electricity and natural gas than in Fiscal Year 2010.***
	Adopt Energy Management Plan and begin implementation of Energy Management Program.	Continued reduction in electricity use (kilowatt-hours) and natural gas use (therms).	***Complete. On April 13, 2017, the Board approved the Energy Management Plan that identifies strategies to meet the energy management goals and objectives set by the Board. The Plan is an output of OWASA's Energy Management Program which was established to identify cost-effective measures to reduce our use of energy, related energy costs, and associated greenhouse gas (GHG) emissions.*** ***Since 2010, OWASA has reduced its use of purchased electricity by 27% by implementing cost-effective energy efficiency projects and conservation measures. Although our natural gas use in 2016 was 79% higher than in 2010, we anticipate that in bringing the biogas-to-boiler system back on-line in the coming months and in implementing strategies identified in the Energy Management Plan, we will reduce our natural gas use below 2010 levels.***

Strategic Initiative 5

Implement Advanced Metering Infrastructure

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
Cost-effective, accurate, reliable and timely water metering information for enhanced customer service.	System procurement and implementation planning. Develop and implement Community Engagement Plan.	Procure a system within budget constraints that meets OWASA's needs. Develop implementation plans that will effectively mitigate risks identified in the AMI Feasibility Study and will fully inform and engage customers.	***Complete. The Board awarded the contract to Mueller Systems in May 2017 following extensive procurement and contract negotiation processes conducted by OWASA staff and our consultants. The total capital outlay per this contract is $4,903,304, which is 4.6% less than the $5,140,000 estimated in the 2015 Feasibility Study. Annual operation and maintenance costs are $106,500, which is 29% below the $150,000 per year projected in the Study. The project will be financed with low-interest loans from the State of North Carolina.*** ***A comprehensive set of implementation performance standards were included in the contract documents to mitigate risks. Subsequent implementation planning has used these standards as the foundation and guidance for document development.*** ***A robust Community Engagement Plan has been developed and approved by the Board in December 2016. The initial communications with customers began in October 2017 with the mailing of a "welcome flyer" to all accountholders. Customers will also receive a notice about 30 days prior to the upgrade of their meter.***
	System deployment.	Ensure the system delivers accurate, reliable and timely water use information for billing purposes. Processes are in place to ensure customers are provided accurate and timely information about their water use and prompt notifications about potential leaks.	***Software integration and testing to ensure that customers receive accurate billing is nearly complete. Process mapping and reconfiguring to ensure that we receive the full benefits of the system for our customers is underway. In November 2017, we will be releasing approximately 200 meters to the installation contractor to test the deployment procedures and revise as needed. In January 2018, we intend to begin full-scale deployment in the service area which should take 15-16 months to complete. Customers will have***

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
		Reduce energy use and carbon footprint associated with meter reading and field service functions. Customer feedback on their experiences with the system installation, process changes and use of the portal is mostly positive.	***access to the web portal once we are about 75% complete with the deployment.***

Strategic Initiative 6

Develop a plan and policy framework for long-term management and disposition of OWASA lands

GOALS	ACTIONS	MEASURES OF SUCCESS	*PROGRESS*
Land assets provide the expected value to fulfill OWASA's mission and the assets are effectively managed.	Develop a long-term plan for sustainable management of OWASA forest lands (not including Cane Creek Mitigation Tract, which is already being managed). Management options range from "no active management" to comprehensive management that includes a variety of activities such as thinning, small seed tree cuts, small area clear-cuts, etc.	Forest lands are effectively managed to meet the goals provided in the Forest Stewardship Plan.	***Staff provided an overview of OWASA's land assets and why we own them to the Board on May 25, 2017. At that meeting, the Board directed staff to develop a Community Engagement Plan for forest management by late spring 2018.***
	Evaluate land assets to determine if the asset is needed, what degree of ownership is needed, and if the asset should be sold.	Land assets provide expected value to meet OWASA's current and future needs.	***At a meeting on September 26, 2017, the Natural Resources and Technical Services Committee reviewed several options to evaluate OWASA land to determine if any should be sold. The Committee unanimously agreed that the Board should wait to decide whether to do an analysis after we work through the forest management process and shared that recommendation with the Board on September 28, 2017.***

Administering Our Strategic Plan

We will provide regular updates on our progress towards achieving our Strategic Plan goals, including measures of success, which can be found on our website. We welcome your questions or comments about our Strategic Plan or any of our services and programs. You may contact us by:

- Phone: 919-968-4421
- E-mail: info@owasa.org
- Fax: 919-968-4464
- Address: 400 Jones Ferry, Carrboro, NC 27510

There are other high priority tasks that we will address over the next couple of years that are not included in our Strategic Plan because they do not require strategic action at this time. However, these tasks may require action by the Board in the future.

1. Continue to increase community awareness of options to manage and reduce OWASA bills and empower low-income customers and the local agencies that serve them with information and tools to manage and reduce OWASA bills through the Affordability Outreach Program.

   On December 8, 2016, the Board approved Year 2 of the Affordability Outreach Plan and has been receiving periodic updates on the plan throughout 2017.

2. Evaluate alternative employee compensation strategies to encourage and reward high performance as part of a Total Compensation Study.

   On September 14, 2017, the OWASA Board discussed employee compensation and requested the Human Resources (HR) Committee to develop a recommendation. The HR Committee met on October 18, 2017 and will meet again on November 16, 2017, to develop a recommendation.

3. Develop and implement an Inclusion and Diversity Plan for the organization.

   Implementation of our Diversity and Inclusion plan is well underway. Our consultant, VISIONS, Inc. has provided training to three groups of OWASA employees. Our next steps include an organizational assessment which will be pertinent to the planning of future strategies.

We provide an Annual Review and Update of Strategic Trends and Utility Planning Issues to the Board each October. This report will be modified as a companion document to this Strategic Plan for the Board's consideration in October 2017.

We will routinely update and amend our Strategic Plan as necessary, and we will keep our customers and stakeholders informed of significant changes.

Summary

As your community-owned water utility, we are committed to providing reliable, high quality water, wastewater and reclaimed water services for our customers, now and into the future. Our Strategic Plan is one of many tools we use to effectively manage our essential responsibilities to the Carrboro-Chapel Hill community. We will continue to work hard to provide excellent service so that if our customers could choose their water utility, they would always select OWASA.

Agenda Item 4:

Discuss Revisions to Maternity/Paternity Leave

Purpose:

Provide information and options to the Board for discussion.

Background:

The current policy supports employees and their families by offering full time, regular employees who have completed one year of continuous service six weeks paid leave to mothers (females) and three weeks paid leave for fathers (males) for the birth or adoption of a new born age 12 months or younger.

The Human Resources Committee and staff believe this policy should be updated to remain fair and unbiased in the application of parental leave (same benefit for males/females) and to remain competitive in our local market.

Information:

The Human Resources Committee met on October 18, 2017 to review options and provide the full Board a recommendation to update the Maternity/Paternity Leave policy.

Options Considered

- Option #1 – Make no changes to the current Maternity/Paternity policy providing six weeks paid leave to females and three weeks paid leave to males for the birth or adoption of a newborn child.

- Option #2 – Provide six weeks paid parental leave to eligible employees (male and female) for the birth, adoption, foster care or guardianship of a child below the age of 18.

- Option #3 - Provide eight weeks (or other time period) paid parental leave to eligible employees (male and female) for the birth, adoption, foster care or guardianship of a child below the age of 18.

The table below shows Parental Leave policies for area organizations:

Entity	Parental Leave Weeks of Paid Leave per Year	Eligibility
City of Durham	Pregnancy – Paid Temporary Disability– 6 weeks paid leave Maternity/Paternity allows employees mothers and fathers to take up to 1 year's leave using accrued leaves such as vacation/sick/comp or use Leave without pay Pending approval of 12 weeks Parental Leave	Birth and adoption are covered by the Maternity/Paternity leave Parental leave (pending approval)
City of Mebane	None	n/a
Entity	**Parental Leave Weeks of Paid Leave per Year**	**Eligibility**
City of Raleigh	8 weeks	17 years or younger; birth, foster care, placement and/or in loco parentis
Durham County	12 weeks	Unknown
Greenville Utilities Commission	None	n/a
Orange County	6 weeks	Birth and/or legal placement of a child (adoption, foster care or legal guardianship)
Town of Carrboro	6 weeks Parental Leave pending approval (Dec. 2017)	Pending
Town of Cary	6 weeks	Leave must be taken within 12 months of birth or placement of a child
Town of Chapel Hill	6 weeks	Leave is granted following the birth of an employee's child or the placement of a child with an employee in connection with adoption or foster care. Adoption of stepchildren or a partner's children is excluded
Town of Hillsborough	6 weeks	A biological, adopted or foster child, stepchild, legal ward or a child of a person standing in loco parentis, who is under age 18
Cape Fear Public Utility Authority	None	n/a

Human Resources Committee Recommendation:

The Human Resources Committee and staff recommends approval of the resolution which changes the Maternity/Paternity Leave policy to a Parental Leave policy and provides employees (male and female) with 6 weeks of paid leave for the birth, adoption, foster care or guardianship of a child, under the age of 18, once in any rolling twelve month period.

Information:

- Resolution Updating the Human Resources Policy; Updating the Maternity/Paternity Leave to Parental Leave

RESOLUTION UPDATING THE HUMAN RESOURCES POLICY; UPDATING MATERNITY/PATERNITY LEAVE TO PARENTAL LEAVE

WHEREAS, current Orange Water and Sewer Authority Human Resources Policy provides for Maternity/Paternity leave for fulltime, regular employees who have completed one year or more of service; and

WHEREAS, under current Policy eligible mothers are allowed six weeks of paid leave, and eligible fathers are allowed three weeks paid leave after the birth or adoption of a new born age 12 months or younger; and

WHEREAS, the Board of Directors has determined to revise the Human Resources Policy so that it applies equally, without gender distinction, so that an eligible parent shall be entitled to elect up to six weeks paid parental leave after the birth, adoption, foster care or commencement of guardianship of the person of a child below the age of 18.

NOW THEREFORE, BE IT RESOLVED:

1. The Board of Directors hereby amends the Human Resources Policy to reflect the change to Parental Leave.

2. That the Human Resources Policy, Section 14.J, is amended as provided below, and this amendment shall be effective upon adoption:

Section J. Parental Leave

OWASA supports our employees and their families by offering up to six weeks of paid parental leave to eligible employee's ~~mothers (females)~~ ~~six weeks of paid Leave at~~ after the birth, ~~or~~ adoption, or upon commencement of foster care or guardianship of a child under the age of 18. ~~and three weeks of paid Leave to employee fathers (males) at the birth or adoption of a child. The policy applies to newborn children only. For the purpose of this policy, newborn is defined as a child 12 months of age or younger.~~

Parental leave must be requested and used within 12 months of the date of the qualifying event and can be used intermittently. Parental leave for an eligible employee may not exceed six weeks in a rolling 12-month period.

To be eligible, employees must be ~~This policy is for~~ full-time, regular employees who have completed at least one year of continuous, uninterrupted service with OWASA. Leave is granted based on the employee's intent and agreement ~~plan~~ to return and continue to work at OWASA for at least one year from the date the ~~Maternity/Paternity~~ parental leave ends. Employees who do not plan to return to work after the birth, ~~or~~ adoption, foster care or guardianship ~~of their child~~ are not eligible for this benefit.

An employee who fails to remain active for a minimum 12 months after returning from parental leave will be required to reimburse OWASA ~~Should an employee change his/her mind and decide not to return to work at OWASA after the birth or adoption of the child; or if the employee~~

~~returns for less than one year, the time used for the Maternity/Paternity Leave will be deducted from their Annual Leave and if necessary from their remaining pay check(s)~~ proportionate to the reduction in their one year post-leave work commitment for any paid parental leave received. The value of the paid parental leave received will be deducted from the employee's final paycheck, including any vacation leave to be paid out, in compliance with the Fair Labor Standards Act. ~~Should the employee be terminated for cause during the one year period after the Leave, he/she will be required to repay OWASA for the Maternity/Paternity Leave.~~

~~OWASA provides paid leave to an employee (mother or father) begin immediately at the birth, or adoption of a child.~~ This benefit may not be duplicated through the use of Long Term Disability benefits, Compassionate Leave or ~~Family Medical Leave~~ other benefits such that the employee receives more than 100% of their income during their Leave. At all times, the parental ~~Maternity/Paternity~~ leave ~~shall~~ runs concurrent with Family Medical Leave. ~~Long Term Disability benefits, Compassionate Leave and remaining Family Medical Leave may be used in addition to the Maternity/Paternity Leave if additional Leave is needed due to complications with the pregnancy. The Maternity/Paternity Leave may be taken only once each calendar year by an employee.~~ While receiving paid parental leave ~~using the Maternity/Paternity Leave~~ ~~benefit~~, the employee shall not work a second job during hours for which OWASA is paying the employee salary and benefits through ~~the~~ this ~~Maternity/Paternity Leave~~ benefit.

Adopted this 9th day of November 2017.

_____
Robert Morgan, Chair

ATTEST:

_____
Yinka Ayankoya, Secretary

Agenda Item 5:

Discuss Financial Reserves Policy

Background:

In OWASA's Strategic Plan, Initiative 4 is to "*adopt financial management policies and budget decision processes to ensure affordable services and fiscal sustainability."* One of the goals under this initiative is to "*set financial reserve funds at an appropriate level."*

The Board periodically reviews the reserve requirements of our Financial Management Policy to assess whether the level of reserves established by the policy is appropriate to sustain the organization financially.

The Board of Directors last discussed financial reserves during development of the Fiscal Year (FY) 2018 budget at the April 27, 2017 Board meeting. The Board decided not to change the reserve requirements but agreed to continue to evaluate reserve policies.

A Case for a Reserve Policy

The Government Finance Officers Association recommends reserve policies as part of an overall financial policy to define boundaries, support good bond ratings, and manage risks to financial condition, among other benefits.

Based on discussions with the UNC School of Government, as well as other utilities across the state and country, Board-adopted policies on reserves are rare in organizations similar to OWASA. In fact, on several occasions, we have been asked to contribute to articles and presentations about our Financial Management Policy. (Here is a YouTube video interview regarding OWASA's Financial Policy.) Bond rating agencies have given us feedback indicating that our policies regarding debt-service coverage and liquidity, and our adherences to them, have been instrumental in maintaining our "AA+" bond ratings and being considered sound financially.

OWASA's Current Reserve Policy

Our Financial Management Policy includes provisions for three reserve funds.

Reserve	Purpose (paraphrased)	Funding Strategy	Funding Target as of June 2018
Rate/Revenue Stabilization	Provide sufficient funding for operations during extended times when expenses are higher and/or revenues are lower than budgeted while offsetting the need for rate increases or spending changes during the fiscal year	5% of projected water and sewer revenue	$1,750,000
Capital Improvements	Ensure more sustainable CIP funding and cover major unplanned increases in CIP costs	2% of annual depreciated capital costs	$5,583,000
Working Capital	Provide sufficient cash flow for daily needs plus funds to counter revenue instability and unanticipated expenses	Greater of 4 months of Operating or 20% of the succeeding 3 years of CIP budget	$12,186,000
Total			$19,519,000

All of the funds are unrestricted – meaning that the Board can decide to expend the funds for any lawful purpose, not only the purposes specified in the fund definitions.

Days Cash On-Hand

One measure of the adequacy of reserves is the financial statistic, *days cash on hand*. At the fully-funded level of $19.5 million, OWASA's aggregated reserve balance equates to 325 days of operating expenses, or *days cash on hand*. For perspective, according to Fitch Ratings, municipal utilities could be considered strong if *days cash on hand* were 365 or more, whereas one with only 180 days cash on hand would be considered midrange. However, it is important to remember that *days cash on hand* is just one component of an entity's financial profile.

Sensitivity Analysis

The following list of scenario-based financial risks and vulnerabilities is provided to help assess whether our reserve requirements are appropriate for financial sustainability (e.g. neither too large nor too small). The table shows an estimate of the financial impact of various potential scenarios that could result in the need to utilize reserve funds.

Scenario	Estimated Financial Impact ($)
Loss of revenue due to a 10% reduction in water and sewer revenue [1]	(3,500,000) [2]
5% loss of water and sewer revenue	(1,750,000) [2]
Operating expenses are 10% over budget	(2,200,000) [2]
Electricity expense is 20% over budget	(230,000) [2]
Chemicals expense is 20% over budget	(420,000) [2]
Health insurance expense is 20% over budget	(425,000) [2]
Maintenance expense is 20% over budget	(620,000) [2]
Minimum cost of a catastrophic loss of an elevated water storage tank	(3,000,000)
Destruction of a large gravity sewer aerial creek crossing	(250,000)
Major issue with one of our dams (for example, in FY 2013 an unexpected gate repair was almost $1 million)	(1,000,000)
Loss of the ability to bill customers and receive payments for services for one month	(2,900,000) [2]
Construct temporary pipeline to Haw River in case of severe water shortage	(2,000,000) [3]

[1] The largest single-year-reduction in water and sewer revenue OWASA has experienced since inception was 11% which occurred from 2002 to 2003. This revenue reduction occurred despite a rate increase of 6.25%. However, drought surcharges were not yet implemented. On an average million gallons per day basis, water sales dropped by 7.5% from 2008 to 2009. But due to drought surcharges and a rate increase of 9.75%, revenue actually increased by $700,000.

[2] Calculations are based on FY 2018 budget information.

[3] When last contemplated during the drought of 2007-08, cost estimates for a temporary Haw River pipeline were between $1 and $8 million depending on the duration of the need and other factors.

Some of the scenarios listed above may be less likely to happen than others but each have the potential to occur. Obviously, one can identify many additional scenarios that could lead to a reduction in cash flowing into the organization or an increase in cash flowing out of the organization. However, the result of any of these types of scenarios is less cash on hand.

If one or more of the scenarios listed above occur at a time when we do not have adequate reserves, we would have to take steps to mitigate the related impact on cash available. Mitigating steps could include one or a combination of the following:

- Increase rates
- Reduce operating expenses
- Reduce capital improvement expenditures
- Increase borrowing

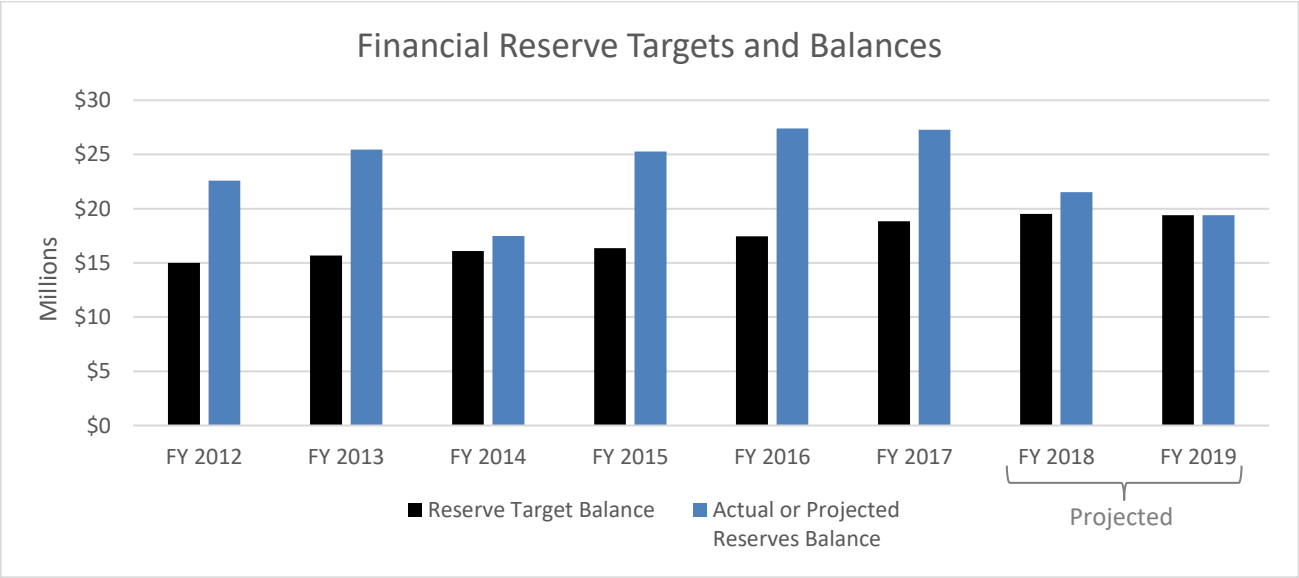
Taking these steps could have adverse impacts including:

- Customer affordability
- Our ability to properly maintain our assets which could affect the level of service we deliver
- Our ability to improve and rehabilitate system assets which could also affect level of service
- Borrowing costs
- Stakeholder confidence

The issue to address is whether our current reserve policy is sufficient to provide the resources needed to sustain the organization financially. Based on our research, there is no standard approach to setting reserve levels. Professional literature emphasizes the importance of adopting reserve policies that are specifically tailored to the utility.

Status of Reserves Compared to Funding Target

Each year in developing OWASA's annual budget and analyzing the need for a rate adjustment, we update our long-term financial plan. In the FY 2018 Budget, we project that the year-end reserves balance will be approximately $21.5 million: about $2 million above the target. At FY 2019 year-end, based on our long range financial planning, the balance is projected to be approximately equal to the reserve funding target. The following graph shows historical and projected reserve balances.



Staff Recommendation:

Staff believes that our reserve policy is appropriate to sustain the organization financially and recommends no modifications.

Action Requested:

Provide guidance to staff regarding the Board's position on OWASA's reserve policy. Alternatives could include:

- Identify additional information needed to continue to deliberate the appropriateness of the current reserve policy.
- Maintain the current reserve policy and ask staff to continue to monitor its appropriateness annually during budget development and to report to the Board as needed.

Agenda Item 6:

Review Board Work Schedule

Purpose:

a) Request(s) by Board Committees, Board Members and Staff
b) December 14, 2017 Work Session
c) January 11, 2018 Work Session
d) Review and update the 12 Month Board Meeting Schedule
e) Review Pending Key Staff Action Items

Information:

- Draft agenda for the December 14, 2017 meeting
- Draft agenda for the January 11, 2018 meeting
- 12 Month Board Meeting Schedule
- Pending Key Staff Action Items from Board Meetings

November 9, 2017

Agenda
Work Session of the OWASA Board of Directors
Thursday, December 14, 2017, 6:00 P.M.
OWASA Community Room

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

For items on the agenda, 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.

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

Announcements

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

b. Announcements by Board Members
   - Update on the November 16, 2017 Human Resources Committee Meeting (Barbara Foushee)
   - Update on the December 5, 2017 Natural Resources and Technical Services Committee Meeting (John Young)

c. Announcements by Staff

Consent Agenda
Action

1. Minutes of the October 26, 2017 Meeting of the Board of Directors (Andrea Orbich)
2. Minutes of the October 26, 2017 Closed Session of the Board of Directors for the Purpose of Discussing a Personnel Matter (Barbara Foushee)
3. Minutes of the November 9, 2017 Work Session of the Board of Directors (Andrea Orbich)
4. Minutes of the November 9, 2017 Closed Session of the Board of Directors for the Purpose of Discussing a Personnel Matter (Barbara Foushee)

Regular Agenda
Discussion and Action

5. Resolution Appointing Audit Firm (Stephen Winters)

Discussion

6. (Tentative) Discuss Employee Compensation (Stephanie Glasgow)
7. (Tentative) Discuss Service Availability Fees Regarding New State Law (Stephen Winters)
8. (Tentative) Status of Action Items on Communications During Emergencies (Ed Kerwin)
9. (Tentative) Discuss Executive Director Key Focus Areas (Ed Kerwin)

10. Review Board Work Schedule (Robert Morgan/Ed Kerwin)
    a. Request(s) by Board Committees, Board Members and Staff
    b. January 11, 2018 Work Session
    c. January 25, 2018 Board Meeting
    d. 12 Month Board Meeting Schedule
    e. Pending Key Staff Action Items

Summary of Work Session Items

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

Agenda
Work Session of the OWASA Board of Directors
Thursday, January 11, 2018, 6:00 P.M.
OWASA Community Room

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

For items on the agenda, 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.

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

Announcements

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

b. Announcements by Board Members

c. Announcements by Staff

Consent Agenda

Information and Reports

1. Calendar Year 2017 Biosolids Report (John Kiviniemi)

Action

2. Minutes of the December 14, 2017 Work Session of the Board of Directors (Andrea Orbich)

Regular Agenda

Discussion

3. Employee Health and Dental Insurance Update (Stephanie Glasgow/Ellen Tucker, Hill Chesson & Woody)
4. Fiscal Year 2019 Budget Calendar and Assumptions (Stephen Winters)
5. (Tentative) Discuss Revisions to Retiree Health Insurance for New Hires and 457 Deferred Compensation (Stephanie Glasgow)
6. (Tentative) Water and Wastewater Treatment Plant Reliability and Risk Assessment Project Overview and Update (Adam Haggerty)
7. Affordability Outreach Program Update (Mary Tiger)
8. Discuss Key Performance Indicators (Mary Tiger)
9. Review Board Work Schedule (Robert Morgan/Ed Kerwin)
   a. Request(s) by Board Committees, Board Members and Staff
   b. January 25, 2018 Board Meeting

c. February 8, 2018 Work Session
d. 12 Month Board Meeting Schedule
e. Pending Key Staff Action Items

Summary of Work Session Items

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

OWASA Board of Directors – 12 Month Board Meeting Schedule (November 3, 2017)

Month	Board Meetings		Committee & Other Meetings and Reports
	Work Session	**Business Meeting**	
November 2017	Review and Approve New Safety and Risk Manager Position Discuss and Consider Approval of Revisions to Maternal/Paternity Leave Policy Discuss Financial Reserves Policy Strategic Trends Report and Strategic Plan Update and Progress Report () Q1 Financial Report () CS – ED Review () 11/9/2017	*Holiday - no meeting*	*Open House at Jones Ferry Road Complex (11-4-2017)* *Human Resources Committee Meeting (11/16/17)* *Finance Committee Meeting (TBD)*
December 2017	Appoint Audit Firm () (Tentative) Discuss Employee Compensation for the period of October 2017 through November 2018 (Tentative) Status of Action Items on Communications during Emergencies (Tentative) Discuss Service Availability Fees regarding new State Law (Tentative) Discuss/Approve ED Key Focus Areas 12/14/2017	*Holiday - no meeting*	*NRTS Committee Meeting (12-5-2017)*
January 2018	CY 17 Biosolids Report () FY 19 Budget Calendar and Assumptions () Employee Health and Dental Insurance Update () (Tentative) Discuss revisions to Retiree Health Insurance for New Hires and 457 Deferred Compensation (Tentative) WTP & WWTP Reliability and Risk Assessment Project Overview and Update Discuss KPI Indicators Affordability Outreach Program Update 1/11/2018	Annual Lakes Recreation Report (regular agenda) () Q2 Financial Report () CIP Semiannual Report () Award the Rogerson Drive Pump Station Phase 2 Contract 1/25/2018	
February 2018	Energy Management Plan Update Diversity and Inclusion Progress Report Selection and Procurement of WWTP Solids Thickening Equipment Award the WWTP Intermediate Pump Station Rehabilitation Contract CS - General Counsel Interim Review () 2/8/2018	CS - General Counsel Interim Review () 2/22/2018	
March 2018	***Discuss LRWSP – Demands & Yield*** FY 19 Draft Budget & Rates () Set date for Public Hearings – FY 19 Budget & Rates () CS - ED Interim Review () 3/8/2018	FY 19 Draft Budget & Rates () CS – ED Interim Review () 3/22/2018	
April 2018	Review Employee Health and Dental Insurance Renewal () Award the Galvanized Water Main Replacement Contract FY 19 Draft Budget and Rates () Authorize staff to publish proposed rates () Appointment of the Nominating Committee () 4/12/2018	Q3 Financial Report () 4/26/2018	
May 2018	Discuss Employee Health and Dental Insurance Renewal ()	Public Hearings – FY 19 Budget and Rates () ()	

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

OWASA Board of Directors – 12 Month Board Meeting Schedule (November 3, 2017)

	Discuss Employee Merit Pay for FY 19 () ***Discuss Community Engagement Plan for Forestry Management*** 5/10/2018	Approve Employee Health and Dental Insurance Renewal 5/24/2018	
June 2018	Approve FY 19 Budget and Rates () Election of Officers () (Tentative) Review Draft Reliability and Risk Assessment Report 6/14/2018	TBD 6/28/2018	
July 2018	Discuss KPI Trends 7/12/2018	TBD 7/26/2018	
August 2018	(Tentative) Discuss AMI Policies (other than manual read) CS – General Counsel Review () 8/9/2018	Preliminary 12 Month Financial Report () CIP Semiannual Report () EEO/Affirmative Action Report () CS – General Counsel Review () 8/23/2018	
September 2018	EEO/Affirmative Action Report () Annual Report on Disposal of Surplus Personal Property () CS – ED Review () 9/13/2018	Annual Report and Financial Audit () Approve General Counsel Engagement () CS – ED Review () 9/27/2017	
October 2018	TBD 10/11/2018	Q1 Financial Report () Strategic Trends Report () 10/25/2018	

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.

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 (November 3, 2017)

Abbreviations Used in Draft Schedule:

( )	Recurring agenda item (generally these are "required" items)
AMI	Advanced Metering Infrastructure
CE	Community Engagement
CEP	Community Engagement Plan
CIP	Capital Improvements Program
COLA	Cost of Labor Adjustment
CS	Closed Session of the Board
CY	Calendar Year
ED	Executive Director
FY	Fiscal Year
JLP	Jordan Lake Partnership
LRWSP	Long-Range Water Supply Plan
MST	Mountains-to-Sea Trail
MFMM	Multi-Family Master Meter
NRTS	Natural Resources and Technical Services
Q	Quarter
SOW	Scope of Work
TBD	To Be Determined
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Current and Pending Key Projects and Stages

Project	Strategic Initiative	Project Lead	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	June-18	July-18	Aug-18	Sep-18	Oct-18
AMI	6	Taylor												
Total Compensation Study		Glasgow	*Schedule To Be Determined*											
LRWSP	1	Rouse					Demand & Yield							
Energy Plan	5	Tiger												

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

Pending Key Staff Action Items from Board Meetings

Date	Action Item	Target Board Meeting Date	Person(s) Responsible	Status
10-26-2017	Send Orange County Health Department Director a memo outlining OWASA's expectations for a County-wide process for periodic review of fluoridation. Provide Board an opportunity to comment on the draft memo.	NA	Kerwin	Completed.
10-26-2017	Schedule Board discussion on the risk assessment work for the water and wastewater treatment plants. Add to 12 month schedule.	1-11-2018	Kerwin	Completed.
10-12-2017	Schedule Board discussion of strategic communications action items when the County's After Action Review has been completed and issued.	12-14-2017	Kerwin	Tentatively planned for the 12-14-2017 Work Session
10-12-2017	Schedule future Board discussion about low-flow benchmarks to be used once AMI is implemented.	TBD	Winters Taylor	To be scheduled in summer or fall of 2018.
10-12-2017	Schedule NRTS Committee meeting to discuss drought preparations and response.	NA	Rouse	Completed: NRTS Meeting scheduled for December 5, 2017.
10-12-2017	Implement low-cost skype of Board Work Sessions and make information available for the public. Inform Mr. Braxton Foushee and thank him for his feedback.	11-9-2017	Orbich	Completed: email sent to Mr. Foushee on 10-13-2017.
10-12-2017	Notify stakeholders that the Board will discuss and consider action on AMI policies at the 10-26-2017 Board meeting.	10-26-2017	Orbich Feller	Completed: the 10-12-2017 Board Meeting Summary sent on 10-13-2017 to stakeholders via Constant Contacts (CC). Stakeholders were notified via CC on 10-20-2017 of the 10-26-2017 Board meeting to consider action on AMI policies.
10-12-2017	Estimate the total cost to manually read meters for an AMI opt out option.	10-26-2017	Winters Taylor	Completed.
9-28-2017	Schedule a NRTS Committee meeting to continue discussion on biogas options after staff has collected additional information.	NA	Tiger	Completed: NRTS Meeting scheduled for December 5, 2017.

Pending Key Staff Action Items from Board Meetings

Date	Action Item	Target Board Meeting Date	Person(s) Responsible	Status
9-19-2017	Discuss request from Carrboro Mayor Lavelle regarding affordable housing	TBD	Epting Kerwin Morgan	Robert Epting is working with Town Attorney.
9-14-2017	VISIONS will provide the Board options for Diversity and Inclusion training. The Board will participate in a focus group meeting as part of the climate assessment work.	TBD	Glasgow Full Board	
9-14-2017	Issue request for qualifications in the spring of 2018 for banking services and seek the Board's input on the criteria to be considered in selecting the best-qualified bank.	TBD	Winters	To occur in Spring 2018.
9-14-2017	Schedule Finance Committee meeting this fall to discuss the budget process for next Fiscal Year.	NA	Winters Danner	
9-14-2017	Schedule review of potential audit firms with Ray DuBose, Ruchir Vora and Heather Payne.	NA	Winters	Note: once scheduling has been established, Ruchir Vora and Heather Payne will decide who will participate with Ray DuBose on the audit firm selection committee with staff.
9-14-2017	Based on the Board's discussion on 9-14-2017, email the Board a proposed process for the periodic review of guidance from professional health organizations such as EPA & CDC regarding fluoridation. Staff will consider feedback from individual Board members and prepare a recommendation for the Board's consideration at the 10-26-2017 meeting.	10-26-2017	Kerwin Taylor	Completed: email provided to the Board on October 9th. The Board suggested on October 12th that information about the process used by Durham a couple years ago be included.
9-14-2017	Consider feedback from Board members on KPIs and prepare for continued Board discussion in January 2018.	1-11-2018	Tiger	
5-25-2017	Prepare a plan for solar PV on OWASA land.	June 2018	Tiger	
5-25-2017	Prepare a Community Engagement Plan for Forestry Management.	June 2018	Rouse	