



# ANNUAL WASTEWATER REPORT CARD

JANUARY –  
DECEMBER 2022



OWASA is Carrboro-Chapel Hill's not-for-profit public service agency delivering high-quality water, wastewater, and reclaimed water services.

OWASA's wastewater team is responsible for operating the system that treats an average of 7 million gallons of wastewater per day; that's about 3 billion gallons per year! We work 24/7 to collect, treat, and clean the community's wastewater, and recycle (or reclaim) it where we can.

The water that is not recycled is returned to Morgan Creek. The water that we return to Morgan Creek, which eventually flows into Jordan Lake, has gone through a comprehensive treatment process so it is safe for the environment and for communities to access downstream. Stewardship is a core principle in OWASA's daily operations, and that includes being a good steward of the environment through our treatment efforts.



OWASA takes an integrated approach to our management of surface water, drinking water, wastewater, and reclaimed water. It is our responsibility to treat it well for downstream uses, while at the same time respecting its upstream power.

# FOLLOW THE FLOW



You may not think much of it, but you send us wastewater every day. Multiple times per day! Anything that you flush down your toilet or goes down a drain in your home or business flows through your home plumbing and connects with the community sewer system that OWASA operates.



OWASA IS PROUD TO PARTNER WITH CHAPEL HILL AND BRING MORE PUBLIC ART TO OUR INFRASTRUCTURE.

OWASA maintains about 350 miles of underground sewer pipes that carry the community's wastewater to the Mason Farm Wastewater Treatment Plant. To access that sewer system, OWASA has roughly 11,000 manholes across the service area. The sewer system uses gravity wherever possible to move the wastewater through the sewer system, but then we will get to a point where nature may need some help. In these cases, OWASA maintains 21 pump stations that help keep the wastewater flowing to the treatment plant.



Once the wastewater gets to the plant, we begin the process to treat that water to be used again for non-drinking purposes or discharged into Morgan Creek. Wastewater treatment is the biological process of removing pollutants from the water so it can be returned safely to the environment. OWASA's treatment system mimics nature's processes and uses technology to accelerate it.



# YOUR WASTEWATER TEAM

It takes a team to make this process work!

The team at OWASA's Mason Farm Wastewater Treatment Plant is made up of experts in their fields but covers a wide range of backgrounds.

A certified operator is at the Mason Farm Wastewater Treatment Plant at all times. 24 hours a day. Seven days a week. 365 days a year. Operators are critical to ensure that the plant is operating as intended and to troubleshoot any issues that arise. Their knowledge of our treatment plant is key for OWASA to operate as effectively as we can.

Meanwhile, scientists on our laboratory team are constantly sampling different portions of the wastewater treatment process, including the water being discharged into Morgan Creek (we call this water "effluent"). These checks are critical to confirm that our treatment process is working and that we are staying within all regulatory boundaries for nutrients in the wastewater. If there are high amounts of nutrients like phosphorus and nitrogen in the water, it can cause algal blooms that will have a negative impact on water quality for our downstream neighbors.

## SPOTLIGHT: CAREERS IN WASTEWATER TREATMENT

### WASTEWATER TREATMENT PLANT OPERATOR

**Role:** Monitor plant processes and helping the plant to maintain proper process; trouble shooting issues as they arise

**Training:** Four years of high school or equivalency; OWASA pays for the pursuit of necessary certifications (Grade I – Biological Operator Certification)

**Salary Range:** \$47,228 - \$72,731

**Pros of the Trade:** 3 day work-week

### MAINTENANCE MECHANIC

**Role:** Perform preventative and corrective maintenance on equipment at the Wastewater Treatment Plant and pump stations in the collection system, specifically pumps, motors, instrumentation, and other types of mechanical equipment

**Training:** Four years of high school or equivalency; OWASA pays for the pursuit of necessary certifications

**Salary Range:** \$42,433 - \$65,346

**Pros of the Trade:** In-depth knowledge of facility and home every night

### BIOSOLIDS RECYCLING TECHNICIAN

**Role:** Beneficially recycle plant by-products by driving tractor trailers and operating heavy equipment

**Training:** Four years of high school or equivalency; Class A CDL with Tanker Endorsement

**Salary Range:** \$40,414 - \$62,238

**Pros of the Trade:** Use that CDL without all the road hours; home every night

### LABORATORY ANALYST

**Role:** Conduct compliance and non-compliance sampling and maintain effective quality control and assurance program

**Training:** Two-year associate degree, diploma, or equivalent; Wastewater Treatment Operator's Grade I certification is desired

**Salary Range:** \$45,412 - \$69,934

**Pros of the Trade:** Use of innovative technology; traditional schedule

Last year, as in previous years, OWASA met or surpassed all federal and state standards for the quality of our treated wastewater.

Wastewater Effluent Quality Annual Data Summary (Permit # NC0025241)			
Water Quality Measure	Regulatory Limit	OWASA Calendar Year Results	Notes
Phosphorus	Maximum of 10,188 lbs for the year	1,972 lbs	Full compliance; 80.6% below the limit
Nitrogen	Maximum of 134,375 lbs for the year	109,226 lbs	Full compliance; 18.7% below the limit

With all of the pipes, pumps, and other equipment that OWASA needs to continue treating the community's wastewater, something is bound to break from time to time. That's when we turn to our expert mechanics who are able to work on a broken piece of equipment to get it back in the game. But they also focus on limiting the chances for anything to go wrong through their preventative maintenance work. This work ahead of a piece of equipment breaking can help identify when a repair needs to be made or when a piece of equipment might need to be replaced.

Overseeing all of this treatment process is a complicated task that falls to Wil Lawson, OWASA's Wastewater Treatment Plant and Biosolids Recycling Manager. Wil has a background in environmental science and has worked in multiple positions at OWASA's Mason Farm Wastewater Treatment Plant. If you have any questions about the wastewater treatment process, please contact Wil at (919) 537-4351.



# RESOURCE RECOVERY PROCESS

## BIOSOLIDS

As part of our treatment process, we separate liquids from solids once the wastewater arrives at the treatment plant. As the liquids go through the treatment steps before being recycled or discharged into Morgan Creek, we also produce solids that have beneficial use in the environment.

The organic material we produce through the treatment process is called biosolids. This material contains nutrients that make it a good product to use as a fertilizer or to improve soil conditions.

We land apply these biosolids to lands that we own or through partnerships with farmers in Orange, Chatham, and Alamance counties, in accordance with state permits and regulations.

Last year, we recycled more than 6.5 million gallons of our biosolids through land application. As reported in the table below, the level of substances in our biosolids met or surpassed all State and Federal regulations. What we don't land apply we compost into a soil additive in partnership with a regional composter.



Biosolids Quality Annual Data Summary (Permit #s WQ0021828/WQ0001169)		
Substance	EPA Limit for Exceptional Quality Biosolids	OWASA Calendar Year Results
Fecal Coliform Bacteria	1,000 cfu	107 (max)
Mercury	17 ppm	0.04 ppm
Cadmium	39 ppm	1.6 ppm
Arsenic	41 ppm	4.68 ppm
Lead	300 ppm	11.52 ppm
Copper	1,500 ppm	227 ppm
Zinc	2,800 ppm	764 ppm
Nickel	420 ppm	12.53 ppm
Molybdenum	n/a	6.54 ppm
Selenium	36 ppm	6.78 ppm

# RESOURCE RECOVERY PROCESS

## RECLAIMED WATER

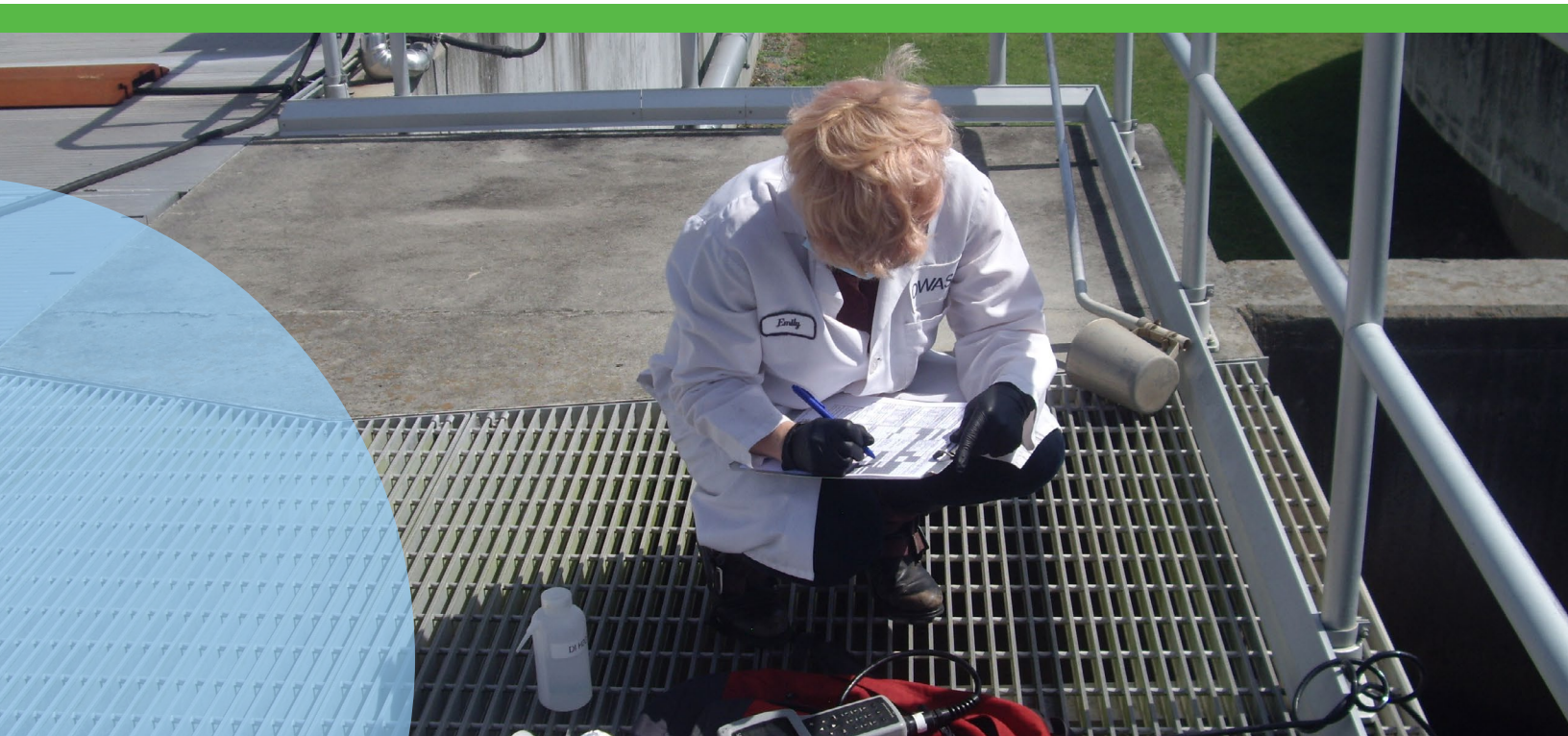
OWASA and the University of North Carolina at Chapel Hill (UNC) partnered to develop the reclaimed water (RCW) system following multiple droughts in the early-2000s. This system provides UNC with a capability to use RCW instead of treated drinking water to meet needs for certain situations. This means that UNC is able to use RCW for irrigation, chilled water, toilet flushing, and other non-drinking needs.

By UNC using RCW, that leaves more treated drinking water for the community and helps to prolong our drinking water supply in case of extreme drought in the future.

The cost to operate and maintain the RCW system is paid solely by OWASA's RCW customers.

Monitoring Parameter	Monthly Average Limit	Daily Maximum Limit	OWASA Monthly Average	OWASA Max Daily Number
cBOD (mg/L)	10	15	0.02	4.2
Fecal Coliform (cfu/100 mL)	14	25	0.2	7
Ammonia (mg/L)	4	6	0.13	0.64
Total Suspended Solids (mg/L)	5	10	<2.5	<2.5
Turbidity (ntu)	N/A	10	N/A	0.8

*In calendar year 2022, Reclaimed Water usage averaged .75 million gallons per day (MGD) with a peak one-day total of 1.75 MGD.*





## PFAS

A group of compounds of emerging concern are per- and poly-fluoroalkyl substances, collectively known as PFAS.

PFAS are used in a variety of everyday products to increase resistance to water, grease, or stains. PFAS can be found in products including carpet, clothing, fabric for furniture, paper packaging for food, cookware, and other materials. They are also used in industrial processes and in aqueous firefighting foam used at airfields and other high-temperature fires.

OWASA is monitoring PFAS on a variety of levels, including both drinking water and wastewater treatment processes. Wastewater treatment facilities are not contributors to PFAS, but the treatment process does not eliminate PFAS either. As new regulations are announced, OWASA will be making any necessary adjustments to operations at our Mason Farm Wastewater Treatment Plant.

More information on PFAS overall is available on the OWASA website.



## MASTER PLAN

Planning for the future is important for items like PFAS but also for the long-term health of OWASA's operations. That is why we are also working on a Master Plan for the Mason Farm Wastewater Treatment Plant to identify the long-term needs of the facility as our community grows and we work hard every day to continue meeting the community's needs.



# WASTEWATER (SEWER) OVERFLOWS

What flows through a community’s wastewater system is what gets flushed or sent down the drain by residents and visitors. Sometimes, what isn’t supposed to be flushed can create overflows. For example, grease gets sent down sink drains and can build up in the system. Nature can also play a role; for example, when a tree root causes a crack in an underground pipe, or when a flash flood inundates the system with too much water.

OWASA’s Distribution and Collection System Team plays a key role in maintaining our sewer system preventing sewer overflows through their preventative maintenance efforts. Issues like broken sewer caps and cracked sewer laterals can be identified through smoke testing, where non-toxic smoke is pushed through the sewer system. Where these issues exist, smoke can be seen exiting through the cracks. Some of these identified issues are on private property, and that is where YOU can help! Maintaining your private sewer lateral when these issues are identified helps protect your property and the community’s sewer system.

We continuously monitor the community’s wastewater system to mitigate for potential overflows. This is important because untreated wastewater can have a negative impact on the environment so, we work to prevent overflows or address them quickly when they occur. Electronic alarms at pump stations throughout our system notify us of a potential issue, which we investigate quickly to keep the wastewater moving. We count on the community to alert us too. If you see an overflow at a manhole, please stay clear of the area (people and pets) and notify OWASA immediately at 919-968-4421.

Last year, the total volume of recorded overflows in OWASA’s wastewater system was 12,725 gallons. As noted in the table below, overflow events occurred due to grease and roots in the sewer pipe, one pipe failure, and vandalism.

Sewer Overflows Annual Data (Permit #WQCS00031)			
Date	Location	Gallons	Cause
1/3/2022	102 Old Larkspur Way	3,000	Debris
3/7/2022	229 Huntington Dr	65	Roots
4/13/2022	121 Turvey Ct	2,925	Grease
4/27/2022	180 BPW Club.	865	Grease and Debris
6/20/2022	408 W Rosemary Rd	600	Grease
6/21/2022	102 Creekside Ln	2,520	Vandalism
6/28/2022	E. Franklin St and Fordham Blvd	1,950	Debris
8/19/2022	990 Kings Mill Road	350	Pipe Failure
11/11/2022	105/107 Meadowbrook Drive	450	Grease

# ONLY FLUSH THE THREE PS!

Flushing the wrong stuff can harm the wastewater system by causing costly and messy clogs and even impact water quality in our streams and lakes. This is a friendly reminder that the three Ps are the only things that should be flushed down the toilet: **pee**, **poo**, and **toilet paper**!

## Protect your community's wastewater system

Together, we can protect our community's water system, wastewater system and the environment. Please help keep these items out of our sewers:



### FEMININE PRODUCTS

These products expand and absorb moisture, making it difficult for them to travel through pipes. Nor do they break down into smaller pieces.



### DISPOSABLE DIAPERS

Like feminine products, diapers expand and absorb moisture, and are very bulky. Diapers are just not meant to be flushed!



### DENTAL FLOSS

This stringy substance loves to wrap itself around anything and everything that travels down the same path in the sewers.



### "FLUSHABLE" WIPES

These clog wastewater pipes and get caught in the equipment at the treatment plant. Please dispose of wipes in the trash, even if the package says they're flushable!



### OILS AND GREASE

Inside a sewer or plumbing drain, fat, oil and grease harden into a plaster-like substance that can block flow. Please scrape or wipe fat, oil and grease off pots, pans, plates and bowls before washing them.



### OTHER PRODUCTS

Other products that should not be flushed include sand, hair, kitty litter, condoms and cotton balls.



### PRESCRIPTION MEDICATIONS

Please don't flush prescription medications. Wastewater treatment plants were not designed to remove the chemicals in many pharmaceuticals. If they are flushed and enter the wastewater system, they may enter into a creek, river or lake that acts as a water supply for a community downstream, or harm aquatic life. The Police Departments of Chapel Hill and Carrboro have "no questions asked" drop boxes where you can discard of your leftover medicines.

## SAFE DISPOSAL LOCATIONS

### Chapel Hill Police Headquarters

828 Martin Luther King Jr. Blvd.

919-968-2760

Monday - Friday, 9:00 am – 5:00 pm

### Carrboro Police Department

100 N. Greensboro St.

(Century Center)

919-918-7397

Monday - Friday, 8:30 am – 5:00 pm



# 2022 QUICK FACTS



Our team mowed and cleared 118 miles of easements in the community to help keep tree and shrub roots from growing into the wastewater system.

Last year, OWASA replaced 1,141 feet of sewer line and rehabbed 6,900 feet of sewer line across the community. This work helps keep wastewater flowing to the treatment plant.

OWASA's Team smoke tested 160 miles of sewer lines across the community. Smoke testing helps identify cracks in the sewer system for repair.

OWASA also installed 2,869 feet of new sewer line throughout 2022. Installing new lines are important in OWASA's work to continue serving a growing community.

## FOR MORE INFORMATION ABOUT WASTEWATER AND RECLAIMED WATER

If you have any questions about the wastewater treatment process, please contact our team! Connect with Wil Lawson, OWASA's Wastewater Treatment and Biosolids Recycling Manager, at 919-537-4351.



## CONTACT OWASA ANYTIME

OWASA is Carrboro-Chapel Hill's not-for-profit public service agency delivering high quality water, wastewater, and reclaimed water services. Under the streets, in the field, at the lab and in the office, our diverse team manages the community's wastewater system. Contact us anytime. We welcome your questions and feedback!

### ORANGE WATER AND SEWER AUTHORITY

400 Jones Ferry Road, Carrboro, NC, 27510

919-968-4421

[info@owasa.org](mailto:info@owasa.org)

[owasa.org](http://owasa.org)



@OWASA\_NC



Orange Water and Sewer Authority



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