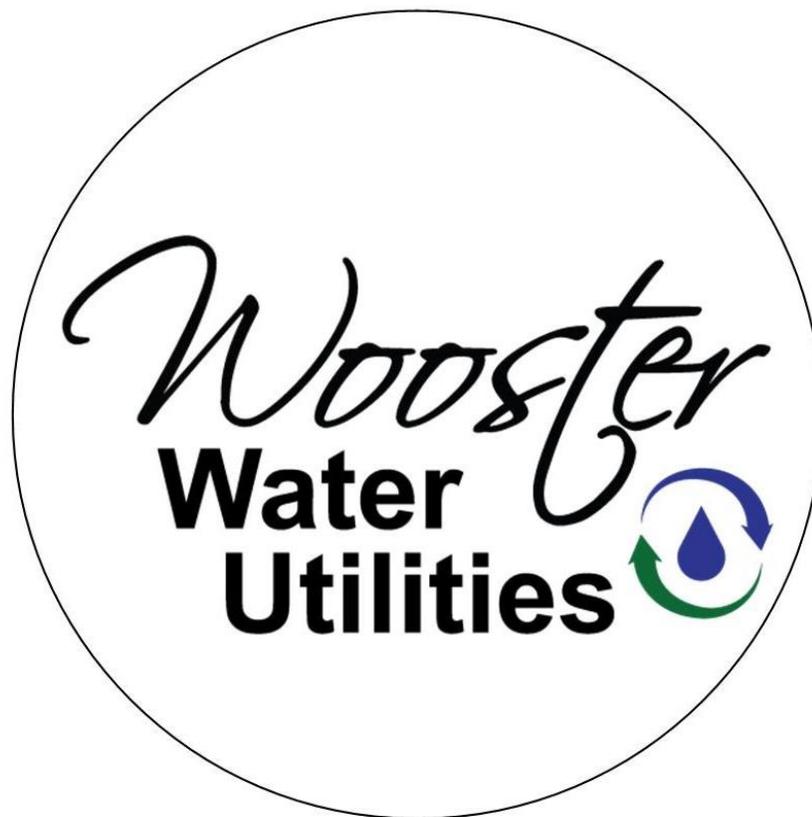


**City of Wooster
Utilities Department
2018 Annual Report**
“Safety, Reliability, and Excellence!”



“We think of our land and water and human resources not as static and sterile possessions but as life-giving assets to be directed by wise provisions for future days.”

Franklin D. Roosevelt

**Nathan W. Coey
Utilities Manager**

Dear Mayor, City Council, Administration and the public we serve,

I am pleased to share with you the 2018 Annual Report for the City of Wooster Utilities Department. The goal of this report is to condense all progress, projects, challenges, and accomplishments during the 2018 calendar year. In review, 2018 was a very successful year in the overall mission in our pursuit of, "*Safety, Reliability, and Excellence!*"

Please know as I write this summary, I embark on my third month of employment with the City of Wooster as your Utilities Manager. My attraction to this community runs deep and I was more than impressed with the facilities and the mission of the city. The City of Wooster embodies a proud tradition with a promising future. I see that in the Utilities Department.

The Water Production Facility is a life sustaining resource for this community with a plentiful supply of water for now and the future. The facility and staff worked to treat and deliver 1.0086 billion gallons of drinking water to our 9,907 customer accounts. Water is a finite resource that is necessary to sustain life as we know it.

The Water Resource Recovery Facility plays a vital role in the local water cycle. The water used by our customers has to be treated prior to its trip back to the nature. The focus of proper water treatment has made illness like typhoid fever and dysentery a matter of the past. The ingenuity of the facility correlates to the spirit of this community to take waste and create power. The facility and staff worked to recover 1.912 billion gallons of water to ensure no impact to the natural water cycle. The facility harvested gas to provide sustainable power to both treatment facilities.

In 2018, City of Wooster Utilities achieved national recognition as a "Facility of the Future" from the Water Environment Federation. The achievement and flag serve as our commitment to excellence.

The Distribution and Collection Division continued the proud tradition of managing the challenges of underground infrastructure. While disruption in service can happen it is often unpredictable. Regardless of time and weather the crew will respond and address repairs in a safe and expedient method. With out a vast network of pipes the treatment facilities can not meet the expectations of our customers. When you take a drink of water or run a load of laundry, please know there is a staff of 32 individuals that work around the clock to make clean water a reality.



Utilities Manager 2019 Goals and Initiatives

- Continue our focus on safety in all aspects.
- Update all Standard Operating Procedures and ensure a strong Emergency Plan.
- Complete a Strategic Plan/Operations Analysis to identify current and future direction.
- Provide training and education opportunities to the staff.
- Continue our focus on water quality and reliability.
- Continue to improve the reduction of non-revenue water sources.
- Work with strategic partners to accomplish the 2019 capital improvement projects.
- Evaluate efficiency of operational activities.
- Improve data tracking for operational activities.
- Facilitate educational opportunities at our state of the art facilities.
- Build on our positive reputation and customer service.

Utilities Department Staff

The daily mission of clean water is accomplished with a great deal of magnificent technology and equipment to ensure every drop meets or exceeds regulatory requirements. The members of the Utilities Department serve to protect infrastructure investments to ensure reliability. As stewards, the employees prove 365 days a year, they are in deed our greatest clean water resource. I would like to introduce you to all employees that contribute daily to the success of the Utilities Department. Our staff is on the environmental front line, to ensure public health, and to protect the most coveted, finite resource, life sustaining WATER.

City of Wooster Utilities Department Staff

Water Production

Operators

| | |
|----------------|------------------|
| Amy Sauerbrei | Water Supply |
| Dave Mosher | Water Supply II |
| Derek Sigler | Water Supply I |
| James Goon | Water Supply I |
| Mick Stebleton | Water Supply III |

Water Recovery

Operators

| | |
|----------------|---------------|
| Charles Scott | Wastewater I |
| Dana Bower | |
| Emma Fox | Wastewater I |
| Kevin Cormany | Wastewater I |
| Robert Parsons | Wastewater I |
| Tony Reddix | Wastewater II |

Laboratory Technicians

| | |
|------------------|---------------------------------|
| Donavon Reichert | Wastewater III, Water Supply II |
| Cody Bower | Wastewater II, Water Supply I |

Pretreatment Coordinator

| | |
|--------------|--|
| Adam Wilford | Wastewater III, Water Supply I |
| Lee Troyer | Wastewater III, Water Supply I, Wastewater Lab I |

Plant Mechanics

| | |
|------------|--------------------------------|
| Bob King | Water Supply III, Wastewater I |
| Chad Frank | Wastewater III |
| Rory Reed | Wastewater II |

Utility System Operators

| | |
|-------------|---|
| Ed Flinger | Wastewater Collection II, Water Distribution II |
| John Bender | Wastewater Collection I, Water Distribution II |

Utility System Operator Trainees

| | |
|-----------------|---|
| Barb Hardin | Wastewater Collection I, Water Distribution I |
| Benjamin Martin | Wastewater II, Water Supply I |
| John Rutter | Wastewater Collection I, Water Distribution I |
| Erik Ungerer | Wastewater I, Water Supply II |

Meter Technicians

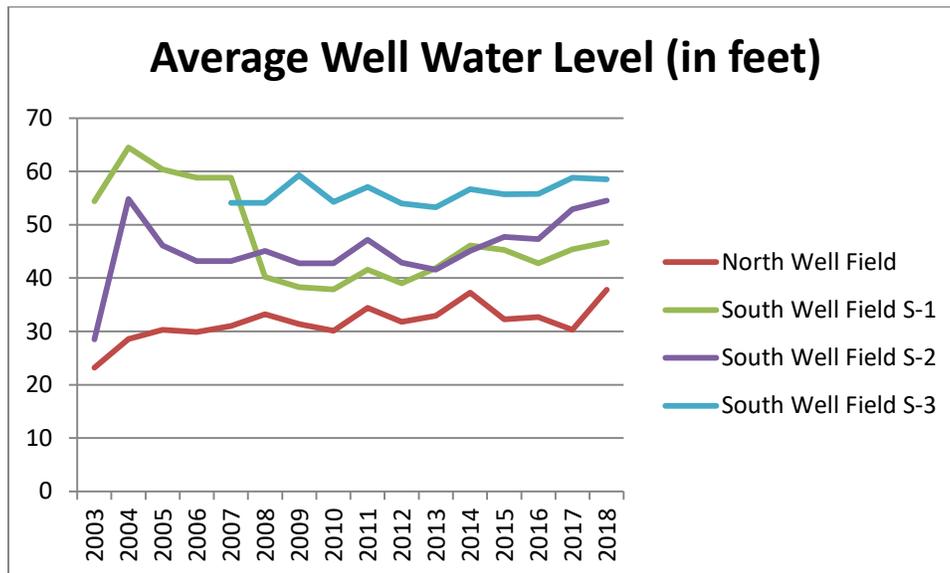
| | |
|--------------------------|-----------------------|
| Tim Moretti | Water Distribution II |
| Jerry Hartzler | Water Distribution I |
| Joseph Geitgey (Laborer) | Water Distribution I |

Management

| | | |
|--------------------|-----------------|---|
| Office Coordinator | Pam Corbett | |
| Systems Supervisor | Milan Steiner | Water Distribution II, Wastewater Collection II |
| Water Recovery | Steve Carathers | Wastewater IV |
| Water Production | Kevin Givins | Wastewater III, Water Supply III |
| Utilities Manager | Nathan W. Coey | Wastewater IV, Water Supply III |

Water Production Facility 2018 Highlights

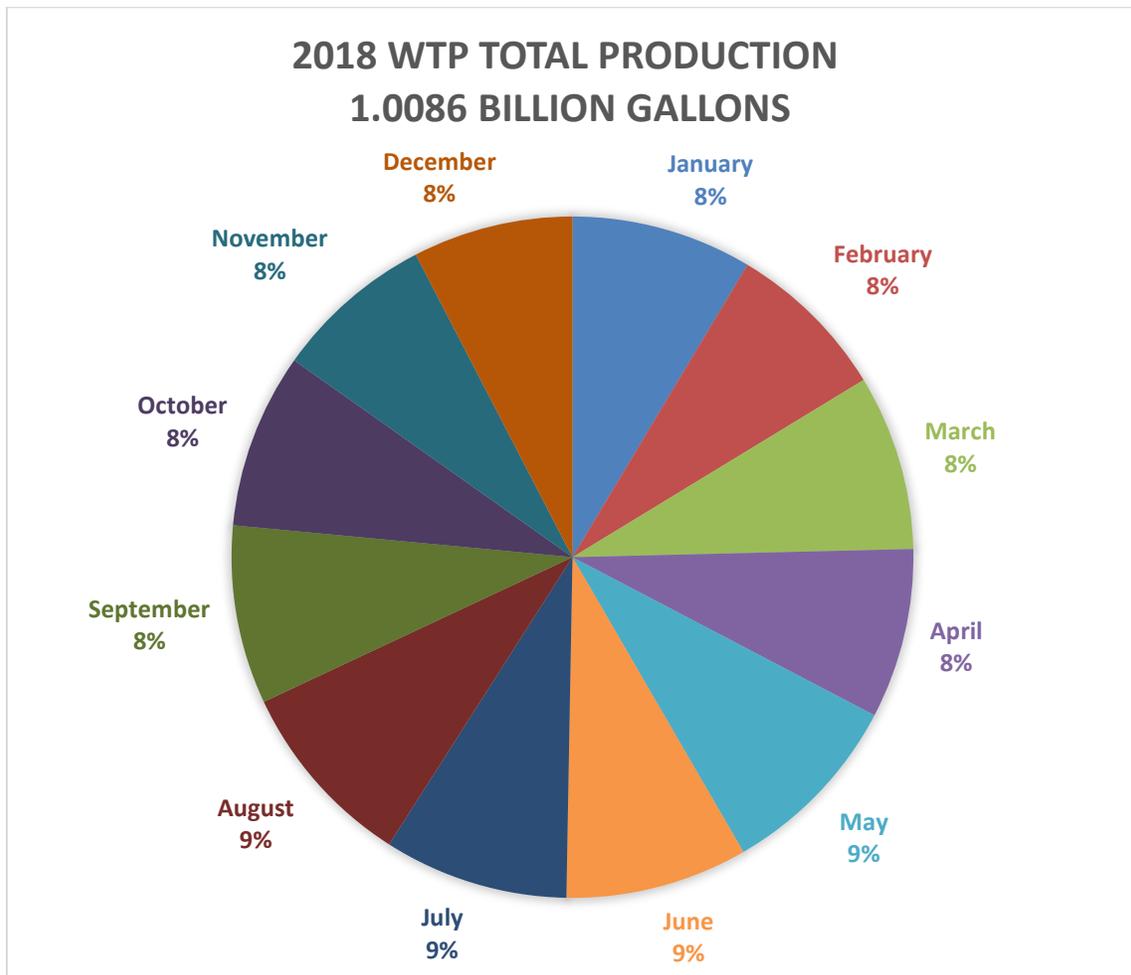
The Wooster Water Treatment Facility, located at 1020 Old Columbus Road, was commissioned for operation in 1999. The facility was designed with a capacity of 6.1 million gallons per day. A plentiful supply of ground water is pumped to the facility from two wellfields by a total of nine wells. In 1983, the Ohio EPA discovered the presence of Volatile Organic Compounds (VOC) from a supply well. After significant monitoring and pollution identification, efforts to protect the source water were implemented. In addition to frequent test monitoring of the source water, a total of five interceptor wells are in constant operation to prevent pollution migration to supply wells. The interceptor wells create a hydraulic barrier between the contaminate plume and end use. In addition, air scour/stripping towers are in place to reduce and remove VOC in the aqueous state to produce safe drinking water for the community. Interceptor pumping for 2018 totaled **214.4** million gallons.



The Class III facility has a current, unconditional license to operate by the Ohio EPA. The facility is operated in a strategic method to ensure reliable service to our customers every minute of every day. Excellent quality drinking water is produced every day of the year utilizing seven professional operators, to provide service to our customers around the clock. In addition to ground water monitoring the facility includes raw water treatment through coagulation, flocculation, iron removal, softening, sedimentation, VOC removal, recarbonation, filtration, disinfection, and solids removal.

Upon complete treatment, the drinking water is delivered to our customers through a vast water main inventory totaling 161 miles. Drinking water is delivered to the distribution grid, to our customers, from pumps at the production facility along with 5 booster stations throughout the system. The consistent water supply and pressure is supported in the intentional placement of 5 elevated tanks, 2 ground tanks, and 2 clearwells.

The Water Production Facility is designed with a maximum flow rate of 6.1 million gallons per day (4,236 gallons per minute) or the population equivalent of 61,000 people. In 2018, the WPF produced a total of **1.0086** billion gallons (1,008,600,000 gallons) with an average daily flow of 2.8 million gallons or 1,945 gallons per minute. Based on the 2018 data, the facility is operating at 46% of design capacity poised for any future growth.

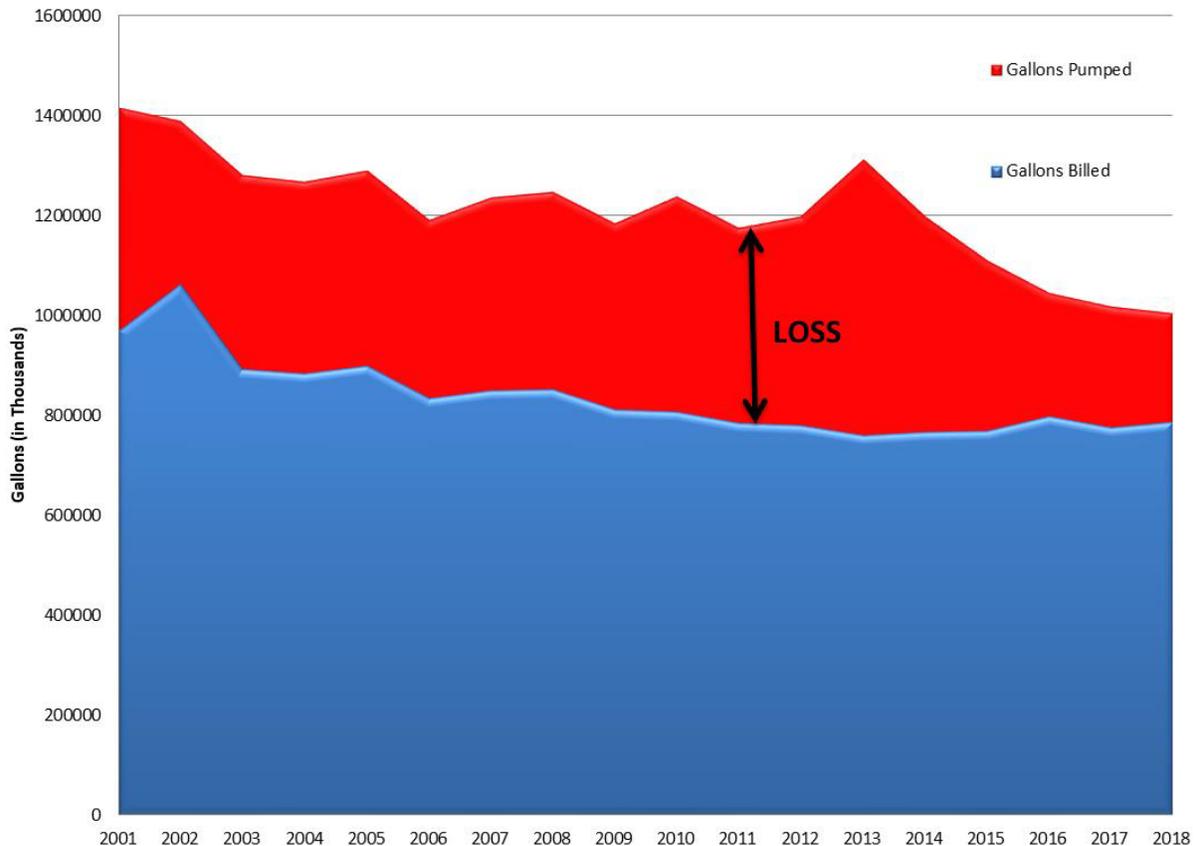


- **Production vs. Water Sales**

Compared to 2017, there was a 2.4% decrease in non-revenue water over the course of 2018. The water loss calculation is a method to determine system efficiency on a supply and demand basis. Non-revenue water simply is a means to track and identify potential leaks and unmetered water. Efforts to locate potential leaks will continue in 2019. Intentional efforts to address non-revenue water have resulted in significant reductions in the past five years.

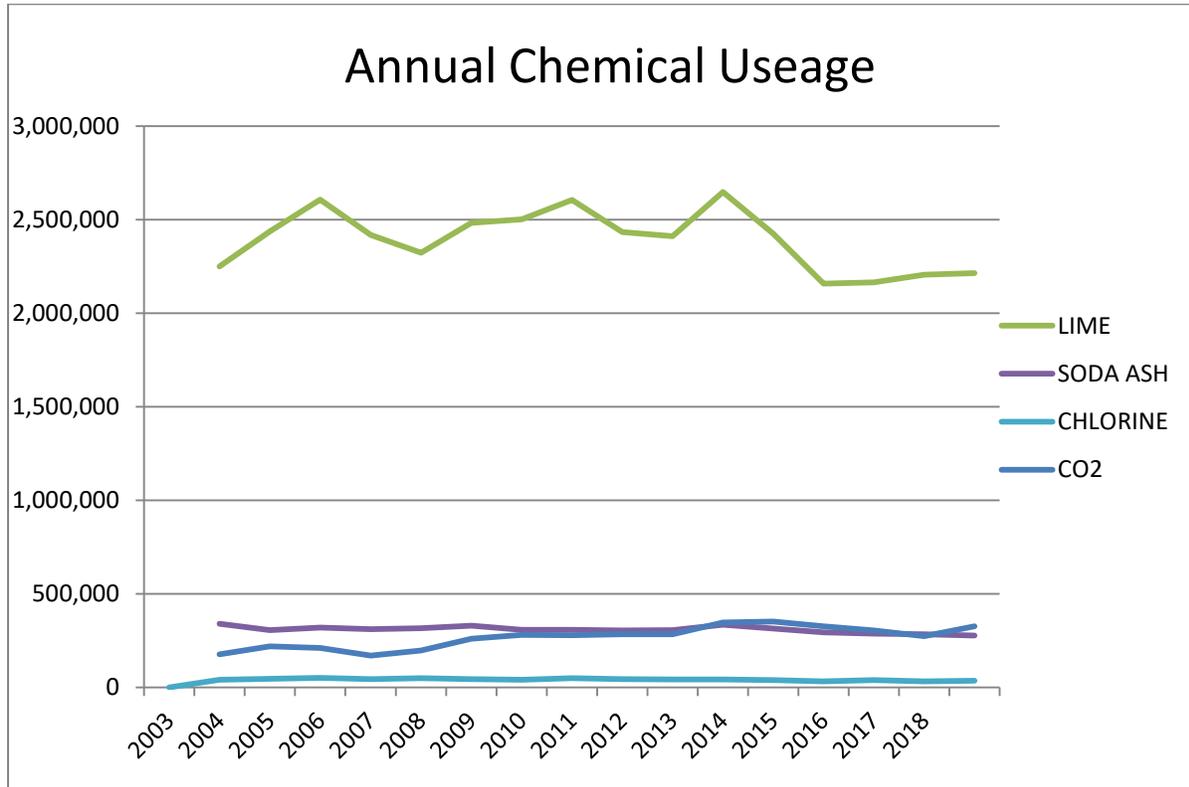
| Year | Gallons Produced | Gallons Billed | NRW% | Accounts |
|--------------|----------------------|----------------------|-------|----------|
| 2013 | 1,312,736,000 | 759,870,000 | 42.12 | 9,812 |
| 2014 | 1,197,307,000 | 766,965,000 | 35.94 | 9,818 |
| 2015 | 1,116,050,000 | 768,536,000 | 31.14 | 9,857 |
| 2016 | 1,044,260,000 | 797,950,000 | 23.59 | 9,869 |
| 2017 | 1,018,920,000 | 777,150,000 | 23.73 | 9,892 |
| 2018 | 1,008,588,000 | 787,834,000 | 21.89 | 9,907 |
| Total | 6,697,861,000 | 4,658,305,000 | | |

Unaccounted Water Loss 2001-2018



- **Chemical Use**

In 2018 a total of 2,213,615 pounds of lime, 278,182 pounds of soda ash, 326,574 pounds of CO₂, and 35,966 gallons of sodium hypochlorite were used in the treatment process.



Waste sludge is byproduct of lime and soda ash softening process. In 2018 a total of 16.39 million gallons of sludge was pumped to the storage lagoon at the WRRF. The byproduct is removed for agricultural and industrial purposes.

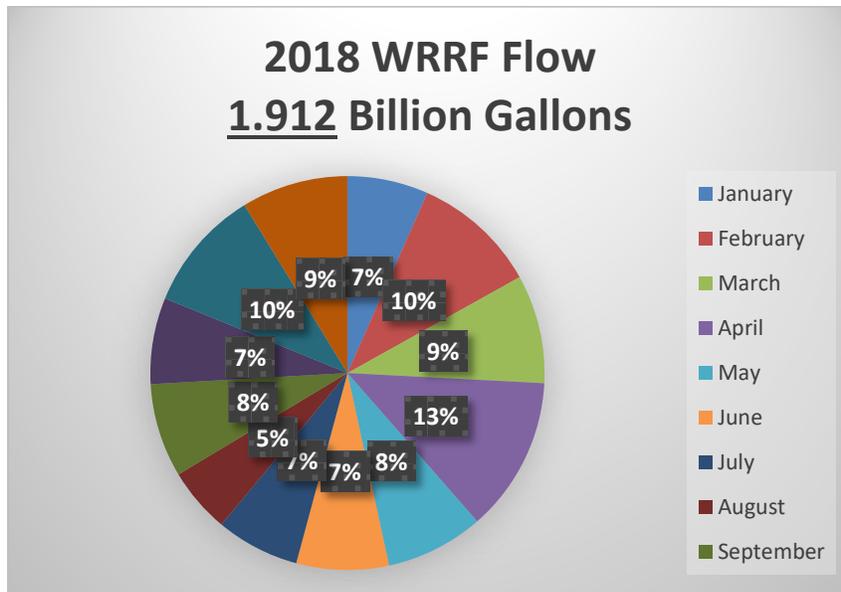
- **Special Projects Completed in 2018**
 - Production Well #8 was overhauled and placed back into service.
 - Both ground level storage tanks (1 million gallons each) in the Low Pressure Zone were washed to preserve the coating integrity.
 - The production wells in the North Well Field were flow tested and the specific capacity was verified to coordinate and plan future maintenance.
 - A Fiber communication network was added to the facility in order to accommodate an upgrade to the facility's PLC control system (to be completed in 1/2019)
 - #2 Wash Recovery Pump was rehabilitated after last rebuild in 2011.
 - The Water Production Facility Operations was reduced to 2 shifts and cameras, monitoring equipment, remote monitoring and alarms were initiated to secure the facility and ensure sufficient water supply in the distribution system.
 - Received Ohio EPA Laboratory and Microbiology Analysis Certification for Derek Sigler and Amy Sauerbrei. Jim Goon earned Ohio EPA Operational Lab Certification in December. These certificates will allow more flexibility to test samples throughout the work week.
 - Developed on-line safety program by utilizing existing resources to promote staff safety awareness and ensure PERRP compliance.
 - Upgraded fire monitoring/alarm system
 - Rebuilt backflow prevention device for bulk water fill station
 - Installed "man down" system to improve staff safety and ensure immediate assistance in the event of an injury/accident to a team member working alone.
 - Realized \$95,700 in revenue for bulk water sales.
 - Rebuilt #3 pump at the Buckeye Booster Station. This station is the "main" pumping facility for the system and conveys water from the Low Pressure Zone into the Intermediate.
- **2019 Goals and Initiatives**
 - Replace sodium hypo storage tanks
 - Work with stakeholders on reducing NRW
 - Work with stakeholders to improve backflow program
 - Increase system turnover and distribution water quality
 - Paint clarifiers
 - Paint clearwell
 - Continue Safety and Operations training to promote professional development and staff retention
 - Add variable speed drive to S-2 Production Well
 - Obtain Water Supply Certification for all Operations Staff
 - Rehabilitate #3 Production Well

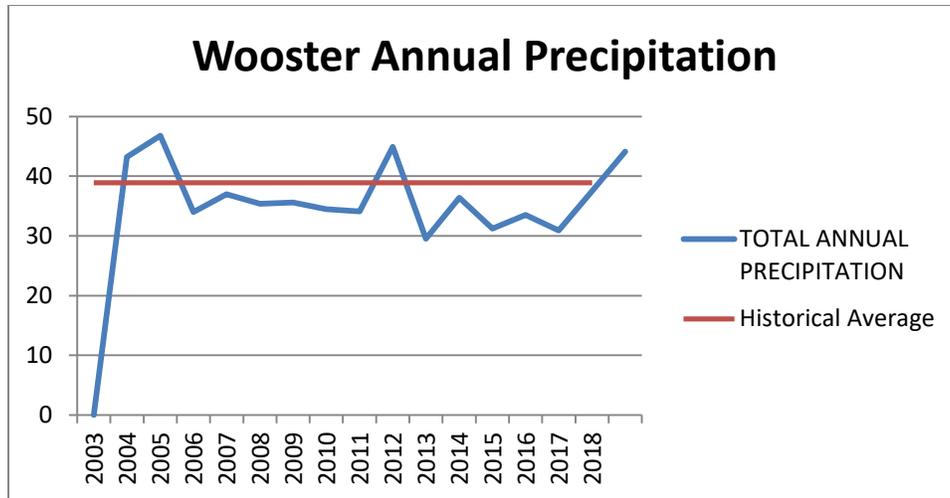
- Complete filtration study and restore filter cells (if necessary)
- Conduct triennial lead and copper survey
- Participate in Federal EPA Unregulated Contaminant Monitoring
- Rebuild #4 High Duty Pump. This pump is original to the facility and has not had a major overhaul since it was put into service in 1998. It is one of four pumps that convey water from the onsite storage tanks into the Low Pressure zone.

Water Resource Recovery Facility 2018 Highlights

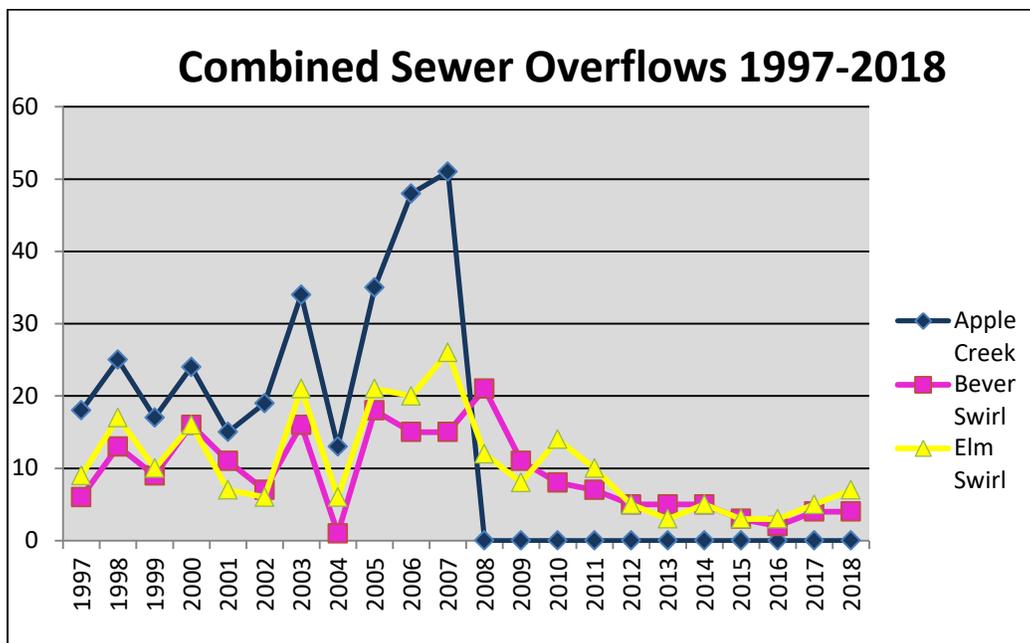
The Wooster Water Resource Recovery Facility is located at 1123 Old Columbus Road. The facility was designed with a capacity of 7.5 million gallons per day and a peak flow of 27 million gallons. A total of 162 miles of varying main line and 7 lift stations are used to direct wastewater to the treatment facility. The Class IV facility has a current, operational permit issued by the Ohio EPA. The facility is operated in a strategic method to ensure reliable service to our customers every minute of every day. The daily mission of clean water is possible every day of the year utilizing thirteen professional operators, to provide service to our customers around the clock. The facility is a conventional activated sludge process including primary treatment, bioreactors, clarification, disinfection, and anaerobic digestion for power generation.

The facility plays a pivotal role in the local water cycle by removing aqueous pollutants prior to discharge to local receiving waters. The facility treated a total of **1.912 billion** gallons of wastewater with an average daily flow of **5.27** million gallons. Compared to 2017 flow totals, 2018 received an additional 193 million gallons and .56 million gallons to the average daily flow. This increase can be partially attributed to growth but primarily due to local precipitation. Based on the OARDC weather station 2018 included a total of 44.1 inches of precipitation, a 6.6 inch increase from the previous year.



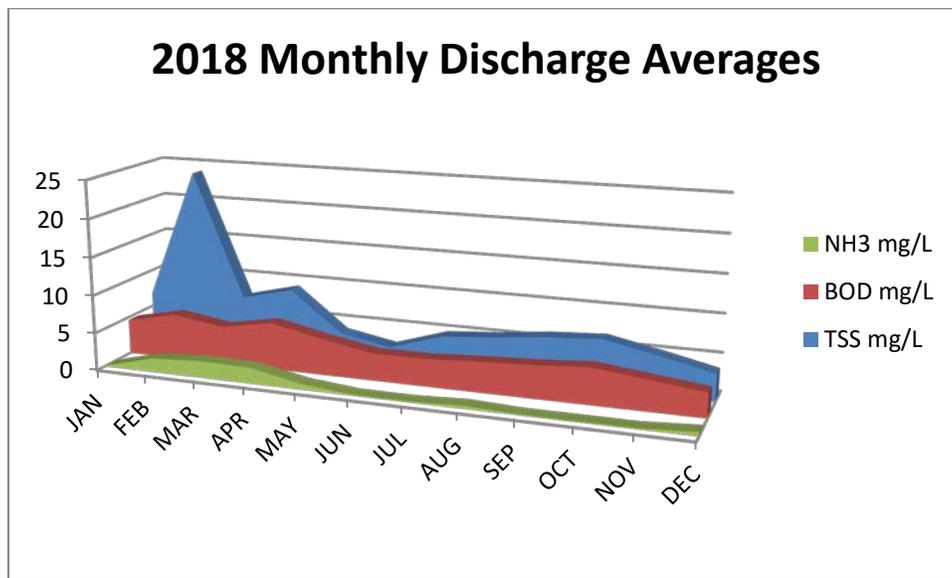


The 2018 the Water Production Facility treated 1.0086 billion gallons compared to the total 1.912 billion gallons received at the Water Recovery Facility. This equates to an additional 903 million gallons of water annually to the WRRF due to inflow and infiltration sources. Based on the data, nearly 47% of annual flow is directly related to the infiltration of ground water and surface water into the sanitary sewer collection system. Improvements to the collection system has reduced the amount of I & I, however additional efforts are required to ensure long term facility capacity. Adversely, efforts to reduce sanitary sewer overflows ensure reduction of diluted wastewater to local streams. The combined sewer overflow structures were activated 11 times during 6 storm events in 2018. This is a slight increase in compared to the 9 CSO activations in 2017.



The WRRF is designed to remove pollutants prior to discharge to the receiving stream. The basic pollutants are frequently tested to ensure facility efficiency and removal goals as required by the Ohio EPA. Treatment level test indicators are the influent and effluent removal rates of Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (TSS), and Nitrogen-Ammonia (NH₃N).

Based on 2018 operating data the facility is operating at 70% of the influent flow design capacity. CBOD design loading average was 83%, TSS design loading average 100%, and NH₃N design loading average was 63%. The 2018 removal average for CBOD was **98.5%**, the TSS removal average was **96.9%**, and NH₃N was **94.6%**.



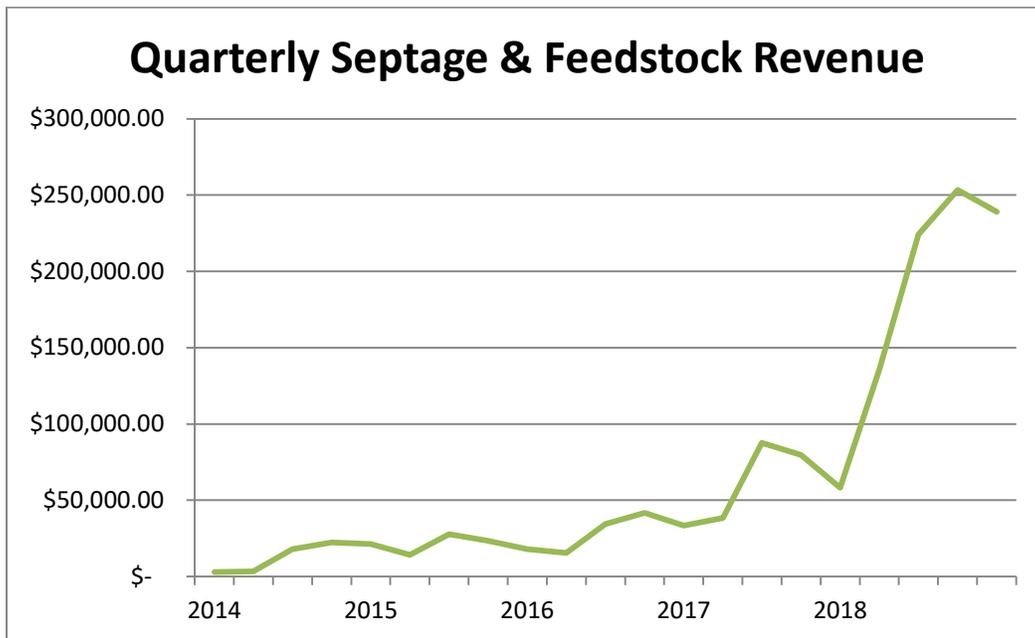
In addition to playing a key role in the water cycle, the WRRF is on the forefront of green renewable energy. The Anaerobic Digester Facility creates natural gas from the digestion process to power the electrical energy needs of the WRRF and the Water Production Facility. Annual cost savings are significant in the reduced reliance of electric from the power company. In order to sustain our energy needs and focus of self-reliant power generation the facility accepts select organic waste. The accepted waste material allows the generation and capture of gas to meet the power needs. This is a great revenue stream for the department.

In 2018 a total of 3,803,804 kilowatt hours were produced utilizing the harvested gas. The revenue from the acceptance of additional waste totaled \$889,500.27.

2018

| | Feed Stock | Income | Feed Stock | Income | Septage | Income |
|----------------|------------|--------------|------------|--------------|-----------|--------------|
| | Gallons | \$ | Dry Tons | \$ | Gallons | \$ |
| January | 344,860 | \$23,840.25 | 406.74 | \$10,168.50 | 383,438 | \$23,006.25 |
| February | 286,750 | \$19,261.00 | 328.88 | \$8,222.00 | 360,225 | \$21,613.50 |
| March | 236,225 | \$17,994.75 | 326.01 | \$8,150.25 | 299,912 | \$17,994.75 |
| April | 409,330 | \$30,813.05 | 419.41 | \$10,485.25 | 589,305 | \$35,358.30 |
| May | 370,875 | \$29,848.75 | 324.49 | \$8,112.25 | 491,300 | \$29,478.00 |
| June | 560,560 | \$43,006.60 | 467.32 | \$11,683.00 | 927,510 | \$55,650.60 |
| July | 373,305 | \$30,571.61 | 350.69 | \$8,767.25 | 479,365 | \$28,761.90 |
| August | 629,762 | \$37,785.72 | 648.46 | \$16,211.50 | 336,150 | \$29,649.00 |
| September | 746,944 | \$44,816.64 | 699.53 | \$17,488.25 | 641,550 | \$38,493.00 |
| October | 422,465 | \$25,347.90 | 460.53 | \$11,513.25 | 816,883 | \$49,013.00 |
| November | 378,580 | \$22,714.80 | 371.60 | \$9,290.00 | 724,900 | \$43,494.00 |
| December | 422,200 | \$25,332.00 | 367.86 | \$9,196.50 | 606,115 | \$36,366.90 |
| Average | 431,821 | \$29,277.76 | 430.96 | \$10,774.00 | 554,721 | \$34,073.27 |
| Total | 5,181,856 | \$351,333.07 | 5,171.52 | \$129,288.00 | 6,656,653 | \$408,879.20 |

| | |
|----------------|--------------|
| Total ADS Flow | |
| Income | \$889,500.27 |



The WRRF, through the anaerobic thermophilic digestion process, produces an OEPA approved Class A (exceptional quality) Biosolids product. The treatment efforts provide a high level of treatment with flexibility on

beneficial reuse. The biosolids provide a renewable nutrient source for local farmers. In 2018 all federal and local EPA reporting requirements for the WRRF Biosolids Program were fulfilled. A total of 2,702 dry tons of biosolids were land applied in 2018. The total dry tons for the year was a 1,658 increase compared to 2017.

The WRRF facilitates an Industrial Pretreatment Program to meet regulatory requirements. In 2018 the WRRF experienced no spills, interferences or toxin discharges directly attributable to industrial dischargers. Annual inspections are conducted on the Significant Industrial User(s) in the collection system. Additional sampling occurs to ensure the dischargers to the public system are in compliance. In the event of non-compliance surcharges are issued when waste concentrations are over the local limits. In 2018, a total of \$423,000 industrial surcharge fees were issued.

In 2018, five industries incurred EPA or local limit violations. The violations were published as a matter of public record, as required by the Ohio EPA. The violations were addressed in a timely manner. Notices were sent to local dentists regarding amalgam separators as required by the EPA. The local list of auto garages and oil/water separators were updated.

- **Special Projects Completed in 2018**
 - Obtained OEPA approval for Class A biosolids.
 - Record year for feedstock and septage fees.
 - Significant updates and repairs to the ADS.
 - Annual facility cleaning and maintenance.
 - Completed the OEPA NPDES permit renewal process.

- **2019 Goals and Initiatives**
 - Continue to improve ADS operation by improving feedstock quality, producing consistent kilowatts, and automation updates to ensure reliability.
 - Installation of a finished biosolids holding tank to reduce production odors.
 - Improve testing and sampling procedures with the addition of a second full time laboratory technician.
 - Improve the septage receiving station with automation to ensure reliability.
 - Continue employee training and education.
 - Update SOP's and Emergency Plans.

Distribution/Collection and Meter Division 2018 Highlights

The Distribution/Collection/Meters (D/C/M) Division is responsible for the daily operation and maintenance of the water and sewer underground infrastructure. The infrastructure system includes a combined total of 322 miles of water and sanitary sewer mains varying in size and age. The system includes over 4,558 water valves, 1,142 fire hydrants, and 3,308 sanitary manholes. The DCM Division serves as the stewards to ensure the integrity and reliability of this vast infrastructure. A staff of 10 professional operators and technicians ensure the customers receive the best service. These individuals serve on the front line of customer service and ensure customer satisfaction. The staff in this department serves as the often unsung heroes of the daily mission of clean water.



2018 Accomplishments

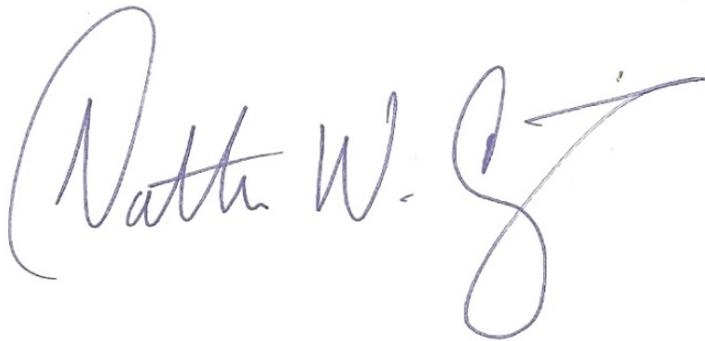
- A new combination sewer cleaning truck was ordered (March 2019 delivery)
- 514 Main line valves exercised
- 35 Water main breaks
- 1,359 Hydrants flushed
- 15 Hydrant related repairs
- 64 Serve related repairs
- 40 Main valve related repairs
- 8.7 Miles of sanitary main line cleaned
- 8.3 Miles of sanitary main line televised
- 23,972 Feet of sanitary main line root cut and treated
- 541 Manholes flushed and treated
- 16 Manhole repairs
- 2 Sanitary main line repairs
- 1,355 Billing work orders completed
- 645 MTU's replaced
- 174 Water meters replaced
- 38 New service installations

2019 Goals and Initiatives

- Efforts to locate and eliminate sanitary inflow and infiltration.
- Exercise 15% of the main line valve inventory.
- Clean and televise 5 miles of sanitary main line.
- Efforts to locate and eliminate water main leaks.
- Flush all fire hydrants in the system.
- Replace 10% of meters 3 inch and larger (150) to reduce the non-revenue water percent.
- Continue staff training and education.

The mission of the Utilities Department includes a healthy dose of challenge. In the pursuit of our mission of clean water, challenges must be converted to solutions and achievements. This report is intended to share some of our critical data points and completion of annual goals. Our success and progress is attributed to the fine people that work together with a common goal, to provide the best water and best service possible to our residents and utility customers. Our goal, and resolve in 2019 is to “Protect and Conserve” our finite resource, water. We will continue to strive for “continual growth and progress” as we seek to do our very best in every task. We will continue to make strides to maintain our water and wastewater infrastructure in a responsible and respectable manner. We appreciate your support as we meet every challenge with a resolve for solution.

Highest Regards,

A handwritten signature in blue ink that reads "Nathan W. Coey". The signature is fluid and cursive, with a large initial 'N' and a long, sweeping tail on the 'y'.

Nathan W. Coey

City of Wooster Utilities Manager

“Without continual growth and progress, such words as improvement, achievement, and success have no meaning.”

Benjamin Franklin